



مبادرات محمد بن راشد آل مكتوم العالمية
Mohammed Bin Rashid
Al Maktoum Global Initiatives



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أمم صاعدة



مؤسسة محمد بن راشد آل مكتوم
MOHAMMED BIN RASHID
AL MAKTUUM FOUNDATION



Under the Patronage and in the Presence of
His Highness Sheikh Mohammed Bin Rashid Al Maktoum
Vice-President and Prime Minister of the UAE
and Ruler of Dubai

The Knowledge Summit 2015

The way to innovation

#knowledgesummit

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2015

The way to innovation



قندیل | Qindeel
للطباعة والنشر والتوزيع
Printing, Publishing, and Distribution

Member of MBRF Holding

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His Highness
Sheikh Mohammed Bin Rashid Al Maktoum
Vice-President and Prime Minister of the UAE and Ruler of Dubai
May Allah preserve him



His Highness

Sheikh Hamdan Bin Mohammed Bin Rashid Al Maktoum

Crown Prince of Dubai and Chairman of Dubai Executive Council



His Highness

Sheikh Ahmed Bin Mohammed Bin Rashid Al Maktoum

Chairman of Mohammed Bin Rashid Al Maktoum Foundation (MBRF)





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- » **A televised speech delivered by Ban Ki-moon, the UN Secretary-General.**
- » **Speech by DR. Sima Bahous, Assistant Administrator and Director of the Regional Bureau for Arab States at the UNDP.**
- » **Ahmad AlShugairi announces the Arab Knowledge Index.**
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H.E. Elias Bou Saab
Minister of Education and Higher Education, Lebanon

H.E. Dr Lahcen Daoudi
Minister of Higher Education, Scientific Research & Management Training, Morocco

Poonam Bhojani
CEO of Innoventures Education

Moderator
Maysa Jalbout,
CEO of Abdulla Al Ghurair Foundation for Education



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Pete Moores,
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at the American University in Cairo,
and the Chairman of specialized
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Professor Najoua Ghriss
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for Education and continuous
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Professor Eric Fouache
Vice Chancellor Paris-Sorbonne
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of the Board of Trustees at Egypt-
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MBRF

DR. Motaz Khorshid
Former Egyptian Minister of Higher
Education and Scientific Research.

DR. Jacques van der Meer
Head of Innovation and
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DR. Mohammed Ismail
Head of the Statistics Department
at the Faculty of Economics and
Political Science, Cairo University,
and Consultant of the Head of Central
Agency for Public Mobilization and
Statistics, Egypt.

DR. Essam Heggy
Egyptian space scientist at N.A.S.A.

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DR. Ali Al Kaabi
Vice Dean of College of Education at
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Nayla AlKhaja
Emirati film director, screenwriter
and producer

Ali Mustafa
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and producer

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TV Presenter

George Kordahi
TV presenter

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News Presenter, Sky News Arabia



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Jason Luis Silva
Media Artist and TV personality,
specialist in brain games



القمة
SUMMIT



قمة المعرفة 2015
The Knowledge Summit 2015





The Knowledge Summit 2015

Day One

Inauguration

to innovation

Session Topics

- » UAE National Anthem.
- » Opening Presenter: George Kordahi
- » Speech by H.E. Jamal Bin Huwareb, Managing Director of the Mohammed Bin Rashid Al Maktoum Foundation.
- » A televised speech delivered by Ban Ki-moon, the UN Secretary-General.
- » Speech by DR. Sima Bahous, Assistant Administrator and Director of the Regional Bureau for Arab States at the UNDP.
- » Ahmad AlShugairi announces the Arab Knowledge Index.
- » Disclosing the winner of Sheikh Mohammed Bin Rashid Al Maktoum Knowledge Award.





UAE National Anthem





The Knowledge Summit 2014

The way to inn



George Kordahi:

For the second year, the people of knowledge gather, responding to an invitation from the Mohammed Bin Rashid Al Maktoum Foundation in Dubai, a wonderful place to hold this knowledge summit. The summit discusses three topics dealing with issues of «education, information technology, innovation, employing innovation in the field of media and media industry». The summit enlarges on the slogan of «the road to innovation» inspired by the saying of His Highness Sheikh Mohammed Bin Rashid Al Maktoum «innovation or extinction».



The Knowledge Summit



Speech by H.E. Jamal Bin Huwaireb
Managing Director of
Mohammed Bin Rashid Al Maktoum Foundation

The way to Your Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai Your Highnesses and Excellencies, the Ministers Ladies and Gentlemen,

At the beginning, please allow me to extend my sincere congratulations and earnest wishes on the occasion of the 44th National Day to His Highness Sheikh Khalifa Bin Zayed Al Nahyan, President of the UAE, and to his brother, His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, and to their brothers, the Members of the Supreme Council and Rulers of the Emirates, the Crown Princes, and to the people of the United Arab Emirates. I pray to God Almighty to preserve the UAE and its wise leadership and to ensure the safety, security and prosperity of this land. I would also like to express our pride and honour for all the members of our armed forces and the national heroes who have made their ultimate sacrifices in the service of the country. We also express our appreciation and gratitude to their families and loved ones.

Brothers and Sisters,

We at Mohammed Bin Rashid Al Maktoum Foundation are pleased and honoured to have you all with us today on the occasion of the Knowledge Summit 2015, which has been organized under the theme, 'The Way to Innovation'. The Knowledge Summit comes this year at a time when the transition to an innovation-driven knowledge economy and society is not an option but a necessity. Today, knowledge and innovative solutions represent the strength and superiority of

countries in the light of the changes and challenges facing the region and the world as a whole. It is difficult to catch up with development and attain a presence on the map of progress and sustainable growth without promoting knowledge and a culture of innovation in all sectors and every area of life. Today we have gathered at the opening of one of the biggest events in the knowledge arena to discuss 'The Way to Innovation' in line with the directives of President His Highness Sheikh Khalifa Bin Zayed Al Nahyan to mark year 2015 as the Year of Innovation. This event also comes as part of a broader framework to adopt a comprehensive approach under the National Innovation Strategy aimed at establishing the culture of creativity and innovation at all levels of the UAE society.

Ladies and Gentlemen,

It is no secret that our region faces several challenges, particularly in the economic area, where there is an urgent need to secure jobs and decent livelihood for millions of young people. The Knowledge Summit comes as a unique opportunity to achieve innovative solutions to overcome these challenges. The Summit offers a global platform that brings together innovators and experts to create visions and ideas, showcasing the best practices to restore the value of knowledge in Arab societies. For thousands of years, our civilisation has led the world in knowledge, progress and development. We have offered avenues for enlightenment and development through science and discoveries and through the Arab free trade and religious tolerance. The initiatives and projects associated with this Summit, such as the Sheikh Mohammed Bin Rashid Al Maktoum Knowledge Award, the Arab Knowledge Index and the Arab Knowledge Portal serve as value added efforts that add momentum to the development of knowledge in the region. They honour global achievers who have enriched the efforts to disseminate and transfer knowledge. They support policy makers and decision makers as well as offer researchers and university students easy access to knowledge.

Ladies and Gentlemen,

Innovation in education, information technology and scientific

research is fundamental to achieving the shift towards knowledge-based economy and building societies based on the values of co-existence and openness to the world. It is the weapon to confront extremism and build knowledge paths towards development and prosperity. Education, information technology and scientific research are therefore key pillars on the agenda of the Knowledge Summit 2015 because of their crucial role in ensuring the sustainable and positive flow of knowledge. Finally, welcome to the United Arab Emirates, a country that has since its inception identified the importance of developing non-traditional solutions as the shortest route to overcome challenges. In recent years, this country has taken proactive steps towards establishing a culture of creativity and innovation in the UAE society, making them the key pillars of the future plans of local governments in each emirate as well as at the federal level to create a knowledge-based society. We hope that the Knowledge Summit, as the key knowledge platform in the region and the world, will help consolidate the concept of knowledge-based innovation as a means to achieve sustainable development and prosperity of the peoples.

Thank you all



The Knowledge Summit

2015

The way



A televised speech delivered by **Ban Ki-moon**, the UN Secretary-General

Your Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, your Excellencies Princes and Ministers, His Excellency Gordon Brown, former Prime Minister of the United Kingdom, Ladies and Gentlemen. Please, accept my best greetings, especially His Highness Sheikh Mohammed Bin Rashid Al Maktoum, whose wise guidance and leadership have the biggest contribution in the achieved progress of UAE in the field of knowledge as well as its contribution in providing human aids all over the world, and encouraging sustainable development.

I have closely witnessed how His Highness' generosity has made a remarkable difference in all these fields. Ladies and Gentlemen, the subsequent reports state that this important area of the world is in a dire need to have more knowledge, women's empowerment and freedom. Moreover, many Arab countries suffer from terrorism, oppression, and violations committed against the rights of humanity. In this regard, to face such issues, these countries should have appropriate opportunities, more democracy and human rights, especially for the youth. We need to give these young people full equality and we need to invest in learning quality, encourage constructive critical thinking and meaningful speech. Over the past centuries, the Arab world has offered many outstanding and great contributions, which have helped in the progress of humanity. Now, this vital and strategic region of the world can contribute again to the renaissance and progress of the world, by embracing the spirit of innovation, and encouraging knowledge and scientific research; cultural and intellectual diversity; and the exchange of expertise and programmes with other countries in the world. The United Nations supports the Arab world in these endeavours and efforts that would help to secure a common future for all of us. Finally, I can only extend my heartfelt thanks to all of you.



مؤسسة محمد بن راشد آل مكتوم MOHAMMED BIN RASHID MAKTOUM FOUNDATION



Through participation with the Mohammed Bin Rashid Al Maktoum Foundation, we hope to contribute to the execution of Sustainable Development Agenda 2030 in the Arab Region in the best manner.



مؤسسة محمد بن راشد آل مكتوم
MOHAMMED BIN RASHID
AL MAKTOUM FOUNDATION



DR. Sima Bahous

Assistant Administrator and Director of the Regional Bureau for Arab States at the UNDP

His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai, your Excellencies, State Officials. I feel very proud and happy to participate in this Knowledge Summit, which promotes knowledge nationally and internationally.

In the United Nations, we are glad to participate in this summit through launching the recent Arab Knowledge Index results in their first phase. This action would have been impossible without the partnership of the Mohammed Bin Rashid Al Maktoum Foundation, especially with the recent crises that our region has faced, because cognitive development is the most important way to prevent extremism.

This conference has obtained a unique place around the world for establishing a considerable basis to achieve welfare and sustainable development in the Arab world. The world leaders have adopted that approach to develop a strong basis until 2030 through the use of knowledge, innovation, the emancipation of millions of people to get rid of poverty, and the enabling of education to achieve a better life.

Knowledge is a cornerstone of the UNDP. We exist in 177 countries and we have a unique and powerful role as a mediator to harness knowledge globally. Since the establishment of the Arab Knowledge Project in 2007, we have devoted our efforts towards increasing knowledge and development through three series of cognitive reports, issued over the years.

The Arab Knowledge Index provides a medium to monitor and evaluate progress towards the establishment of communities and the sustainability of knowledge, and the electronic platform constitutes a wide gate with all concerned researchers, decision-makers,

researchers, civil society, and students.

In the Regional Bureau for Arab States, we affirm our commitment to the UNDP, to continue the cooperation through our partnership with the Mohammed Bin Rashid Al Maktoum Foundation to promote knowledge in the Arab world. Were it not for the organization's efforts, the Arab Knowledge Index would not have come up with such a brilliant image, and the initiatives of His Highness Sheikh Mohammed Bin Rashid Al Maktoum are an inspiration to all of us.

The Knowledge Summit

2015

The way



In his speech, TV Presenter, Ahmad AlShugairi told us that he learned a saying from the management science, that still stuck in his mind, which says, «If you cannot measure something, you cannot manage it». In addition, in the absence of figures and indicators, there are unconscious (fake) supporters, and also there are people frustrating any innovative work; in both cases moderation in viewing is absent.

The figures showed that in 1960 the literacy ratio (the number of people who can read) amounted to 18% of the Arabs, whereas in 2015, the percentage of Arab readers became 82%. The figures show that this ratio is not sufficient to meet the evolution of the world, and even if the Arab world was one state, then our rank would be the 110th in the countries ranking index.

The figures indicate the size of the achievement in the Arab Gulf States, where the percentage of people who read or those who study is 95%. These figures are very strong indicators of the existing achievement, and with the efforts and joined forces of everyone, the literacy ratio could be 100%. In addition, the inauguration of the Arab Knowledge Index has set indicators in all areas of development. Moreover, it will be a quantum leap in the promotion of knowledge in our Arab world.





His Highness Sheikh Mohammed Bin Rashid Al Maktoum inaugurates the Arab Knowledge Index

His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, inaugurated the Arab Knowledge Index, giving the start signal with a tablet. The Index supports countries in their cognitive movement as a key driver for development, as it has 300 indexes, prepared by 140 researchers and experts, and the contribution of 1000 university students. In addition, 27 countries have participated in the preparation process through specialized consultations.



Jerry Neal
Executive Director - National Geographic

The National Geographic received half of the prize; half a million US dollars for its prominent role as one of the most important channels for disseminating knowledge in the world. Since its creation in 1997, it managed to dive with man into the deepest oceans, take him for a ride on the surface of the earth and underground. It took him away to discover planets and galaxies, focusing on the most important events in ancient history with historical characters and great events, in an attempt to monitor all that is new in modern technology or in biology.



Ahmad Alshugairi
TV Presenter

Ahmad Alshugairi received a quarter million US dollars, being one of the most influential and motivating persons for the Arab youth, 12 million following him on Twitter. He won the first place in the awareness programmes category, and was named in the list of the 500 most influential figures in the Arab world, and the owner and presenter of Khawater Programme.



Hiroshi Ishiguro
Director of the Intelligent Robotics Laboratory

Hiroshi Ishiguro received a quarter million US dollars of the value of the knowledge Prize. He is a scientist and a professor in the Department of innovation systems at the Graduate School of Engineering Science at Osaka University. He is also the author of more than 300 scientific research studies in detection systems and devices, and interactive robots. He has developed many of the robots that have been able to reap international awards.

The Knowledge Summit

2017
The way



\$1 million for the Mohammed Bin Rashid Al Maktoum Knowledge Award

His Highness Sheikh Hamdan Bin Mohammed Bin Rashid Al Maktoum and his brother His Highness Sheikh Ahmed Bin Mohammed Bin Rashid Al Maktoum honour the winners of Sheikh Mohammad Bin Rashid Al Maktoum Knowledge Award. The prize has been awarded to the National Geographic, to Yaya Hiroshi robotics, and to Ahmad Alshugairi, the media celebrity.





The Knowledge Summit 2015
The way to innovation
#knowledgesummit



قمة المعرفة 2015
الطريق إلى الابتكار
#قمةالمعرفة



Innovation is not an intellectual luxury, but is the secret behind the renaissance of people and progress of their nations

Mohammed Bin Rashid Al Maktoum



The Knowledge Summit 2015

The way to innovation

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معرفة
2015
على الابتكار

www.knowledgesummit.com

Day One

First Session

<<Innovation in Education..
Future Outlook>>

Session Topics

- » Definition of innovation in education and how to measure it
- » How can we make a system capable of creating innovative generations?
- » The impact of innovation in education on localization and transfer of knowledge based on the experience of the speakers
- » Best practices for innovation-based education systems

The Knowledge Summit

2017

The way to the future

Speakers

H.E. Eng. Hussain Al Hammadi
Minister of Education, UAE

H.E. Elias Bou Saab
Minister of Education and Higher Education, Lebanon

H.E. Dr Lahcen Daoudi
Minister of Higher Education, Scientific Research & Management Training, Morocco

Poonam Bhojani
CEO of Innoventures Education

Moderator

Maysa Jalbout,
CEO of Abdulla Al Ghurair Foundation for Education



Maysa Jalbout is a recognized leader in the field of education and development. She was recently appointed as the CEO of the Abdulla Al Ghurair Foundation for Education, a new landmark philanthropic initiative.

Maysa has over 20 years' experience in building highly effective organizations, initiatives and partnerships targeting young people throughout Canada, the Middle East and in developing nations. She was the founding CEO of the Queen Rania Foundation.

Maysa is also a trusted advisor to global figures. She has produced highly visible research and strategies in several fields of education and development including refugee education and Arab youth learning.



H.E. Eng. Hussain Al Hammadi

H.E. Eng. Hussain Al Hammadi has been the UAE Minister of Education since 2014. His appointment came at an important time for the vision and work of the Ministry, which focused on preparing students in the general education system for a productive life in an ever-changing world.

Al Hammadi held a number of positions in the field of education including the Chairman of the Board of Trustees of the Institute of Applied Technology, Chairman of the Board of Trustees of Hamdan Bin Rashid Al Maktoum Award for Distinguished Academic Performance, and Chairman of the Higher Committee of Mohammed Bin Rashid Smart Learning Program.

Throughout his career, H.E. Al-Hammadi has gained specialized experience that has enabled him to manage his various responsibilities with noteworthy efficiency. His initiatives have had a major effect in enhancing the status of education in the UAE.



DR. Lahcen Daoudi

DR. Lahcen Daoudi has many publications and wide socio-economic research, and he holds a PhD in economics, a third Diploma from the University of Lyon in France, and a postgraduate diploma in economics. DR. Lahcen Daoudi held the position of Head of Department of Economics, Faculty of Law in Fes, then became head of the Department of Economics, in the Faculty of Law Sala Al Jadida. He has also been an important advisor to the Islamic Development Bank in Jeddah, to assess the work of research and publishing, and had a tenure as Deputy Director in charge of social work in national collaboration.



H.E. Elias Bou Saab

H.E. Elias Bou Saab was named Minister of Education and Higher Education in Lebanon 2014. H.E. Co-founded the American University in Dubai, and is the Executive Vice President of the AUD, the first US accredited university in the Gulf and has overseen its development into one of the premier institutions of higher education in the region. In an effort to bridge the gap between the East and the West, H.E. created a scholarship program in President Clinton's name to provide U.S. students the opportunity to study in the Middle East. These programs received great support from H.H. Sheikh Mohammed Bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE, Ruler of Dubai.



Poonam Bhojani

Founding CEO of Innoventures Education, a leading international private education company based in Dubai, UAE, that aims at providing world class education to over 7700 children from over 120 countries. Poonam has also been involved in the inception and the continued leadership of some of Dubai's leading schools and nurseries. Poonam has had the honor of being recognized as 'Education CEO of the Year' as well as 'Indian Female Entrepreneur of the Year' by ITP.

The Knowledge Summit

2011

The way to innovation



Maysa Jalbout

Maysa Jalbout, moderator of the session, initiated the discussion by quoting his Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai: «Maintaining the lead and sustaining growth and prosperity require a transition to the era of knowledge-based economy era as soon as possible» This requires that we know the meaning of innovation in education, and its role in the formation of innovative generations.





H.E. Eng. Hussain Al Hammadi



Education in UAE complies with international standards. However, we allocate huge investments to further develop it.



Plans to foresee the future of education in UAE

H.E. Hussain Al Hammadi, Minister of Education in UAE, commenced his speech saying that innovation in education is to develop new solutions and search for them to solve existing problems, or to detect the presence of new educational needs to fit the needs of the labour market. UAE is blessed by the presence of leaders with sharp insight where they put a clear vision up to the year 2021, centred on the advancement of education and its outputs. The year 2015 has been dedicated to innovation in education. These plans would develop and draw a bright future for UAE by entirely improving the educational process and the system.

UAE had a gap between the output of public education and the higher education, in terms of the inadequacy of the results with UAE labour market requirements, through the accumulation of certain specialties, and a lack in other specialties, underpinning the creation of the future and the evolution of Nations.



Brainstorming sessions produced good solutions

UAE Ministry of Education has held a lot of brainstorming sessions, attended by leading officials from Higher Education, public and industrial sectors, to search for solutions and ideas to overcome existing problems. These sessions have produced several innovative solutions, in particular observing that the State is currently shifting from an oil economy to a knowledge-based economy.

Permanent surveys for the labour market

The topics that we have discussed focused on how to develop general education curricula, with an important role played by the National Qualifications Authority, which conducts permanent surveys regarding the UAE labour market of the UAE. Then, the Authority's comments are sent to the persons in charge of public, higher, and government education, to take into account and find out the most appropriate solutions to address the problems observed.



Innovation in education is to develop new solutions to existing problems.

UAE leadership has an insight of the future until 2021





UAE is a pioneer in launching many initiatives that target Arab young people, such as 'the Arab Reading Challenge' initiative, which aims at promoting culture in young generations. In addition, the initiative of the 'Mohammed Bin Rashid Smart Learning Programme', which has recently been expanded in many countries. UAE is a pioneer worldwide through its Charity initiatives. Thus, UAE was the largest benefactor country in the world in 2013.

The great objective is to communicate with the Arab countries in order to benefit the new generation and qualify it to face the challenges of the future.

New system for high school students

The most important observations that we have reached, was the inadequacy of the high school division into two sections: scientific and literary, since such division does not fit the government's move to promote the knowledge economy and to strengthen it. Hence, we have begun to introduce some scientific and mathematics curricula before this stage, so that students can be reintegrated and become well-equipped for the undergraduate stage. In my view, you cannot wait 12 years for the graduation of these groups of students; therefore, the alternative solution has been the most appropriate one. Furthermore, we have introduced changes to the curricula in stages every 4 years, with the first group expected to graduate in the three years to come. For this purpose, we have set up teams to prepare curricula, evaluate standards, and qualify teachers.



Brainstorming sessions among UAE officials have produced innovative solutions

We study global education standards to choose what fits education custom needs in UAE

Adoption of implementation phases for new practices

New learning experiences should not be directly generalised to a single stage, but gradual phases should be adopted in the implementation of those plans and objectives, to ensure that progress is successfully achieved. Then, those plans and objectives will be gradually expanded to ensure that compressive application is good and useful for all educational elements. So, the Emirati Ministry of Education started an application called the «advanced sciences» programme at the secondary level through a number of schools in the State, which will be extended in the future.

Developing future jobs that fulfil labour market needs

The challenge facing the makers of educational policy is that students are learning now, but jobs which should be created in the future cannot be yet known. Consequently, the real challenge is how to develop their potential according to labour market needs, especially given that the time of a stable job that lasts for years has gone, and that now many people change jobs at a rate of more than 4 times throughout their lives. The responsibility falls on the shoulders of educators to think of new educational methods suitable for the next twenty years.

UAE leaders are aware of global changes

UAE has been characterised by the presence of leaders who understand the importance of making a change in a positive and fast way, that should be appropriate for global variables. This helps the State gradually move to a post-oil era, through the provision of a huge investment in education and industry. In the meantime, UAE pays much attention to the quality of education given to its citizens and residents. For this reason, the State has cared about the working conditions of teachers, and has restored the profession properly, since they are the basis of the educational process, which ensures the achievement of a future leap for the State.

Constant Support to our brothers in the Arab region

Arab brothers are welcome to benefit from the UAE experience in the field of education, and make use of its positive results, especially as it is important to have a unified approach in the Arab world, to benefit from our combined results. This will serve as a platform for communication among the Arab countries, in the best interest of everyone.





H.E. Elias Bou Saab



UAE sets an example to the Arab countries, thanks to its ongoing innovative initiatives

Bureaucratic governmental difficulties

In his comments, H.E. Elias Bou Saab said that the Lebanese experience regarding the promotion of innovation has faced some difficulties, arising from the bureaucratic obstacles imposed by governments. He pointed out that development programmes being applied are met with corresponding sterile laws which delay their implementation, hinder and delay the desired results, and that the current curricula are late by at least 15 years.

An Interactive approach is important for students and teachers

Since I undertook the responsibility of the ministry, I have begun to implement some new programmes, such as «interactive approach» which is adopted in breaking down the barriers between students and teachers, by strengthening the interaction among them, away from the methods of correction and rectification currently used. Such methods take a lot of time, and do not give the desired results.

Developing of students' skills and their creativity

This new approach puts students in direct contact with the information provided to them during educational sessions and lectures. In this way, teachers become aware of the levels of their students directly, and can guide them and work to solve their problems accordingly, as well as promote their good qualities. In addition, this approach reduces learning by heart, and directs students towards creativity, innovation, and discovery.



Moral commitment toward Syrian students

As for schools run by Lebanon's government, there are nearly 250,000 students, and they received about 450,000 displaced refugees from Syria. This imposes moral obligations in terms of providing classrooms and seats for them, which creates a burden on the Lebanese government, trying to overcome it by creating two shifts, morning and evening, for study.

Exploiting the capabilities of distinctive schools

Creativity is the basis for the development of any educational process; therefore, students should be taught and urged to show and exploit their abilities. However, this will not be achieved without strengthening the interactive programme in education. We are also working on a plan by exploiting the capabilities and potential of distinguished schools, which possess many. This plan will help other schools that do not have such elements in their advancement and transformation for the better, particularly with regard to the possibilities of modern technology.

Dubai focuses its efforts on development on a daily basis

I am particularly proud of my professional experience when I was working in Dubai, where I witnessed the development and progress sought every day by the UAE. I learned from H.H. Sheikh Mohammed Bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai, that there is nothing called "impossible". Therefore, the prosperity and progress in



Through its strategic plans, UAE has become a leading model for many Arab countries, which seek to achieve similar success in the field of innovation and the development of the educational system. UAE Leadership is always in keen lookout to plan for the future of the country, apart from what is going on in many other Arab countries.

UAE is not strange. Besides, Lebanon has been influenced by this initiative and has begun to implement the «Arab Reading Challenge» initiative to benefit and improve the capabilities of the new generation culturally.

The development of Lebanese educational institutions

In conclusion, I can say that we face many challenges ahead, and even though the work is underway to overcome such challenges, to move towards the development of educational institutions in Lebanon. In this respect, I must emphasise the important role of teachers in terms of developing students' capabilities, in addition to the role of the family who count on them. I also call for an Arab joint effort through an integrated system of cooperation, in order to develop education to ensure a strong presence in the future.





H.E. DR. Lahcen Daoudi



Knowledge Summit is a perfect environment for viewing experiments and facing the future.



Educating young people to innovate

Asked about the importance of the 'Knowledge Summit, the Way to Innovation', Lahcen Daoudi said that the summit represents an ideal environment to move toward a knowledge-based society, especially as the future does not admit anything but knowledge." I assert that innovation is a culture in itself, and young people should be brought up promoting knowledge within their characters. My participation in this summit is a great honour to me since it carries plans, ideas, and experiences that will be well-prepared for the Arab future.»

Urging communities to innovate

"When we want to discover the ways of the Almighty the Creator in universe, we should ask ourselves first: "Do we have the ability to absorb this knowledge; I therefore permanently



encourage the pursuit of enhancing knowledge in the Arab world. I also encourage educating young people on exerting efforts and contribution, therefore, it is necessary that the culture of communities turn to science and later to innovation,"

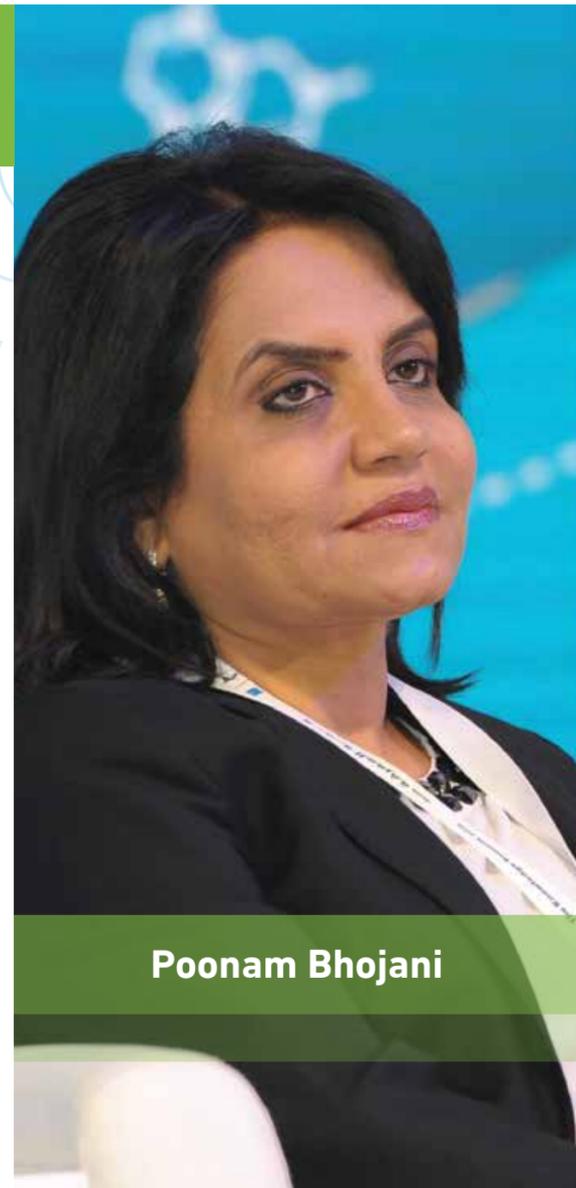
Imitating the West is not required

Lahcen Daoudi also said that the Arabs should not imitate the West randomly, but they should follow the West in a true and meaningful way, to capitalise on the progress they have achieved in all aspects of sciences. He warned at the same time against the unjustified consumption of modern technological means that take us away bit by bit from receiving science properly. "Having the Arab youth imitate the West may be an obstacle to accommodate new sciences and innovation, and I can give evidence for this by quoting the proverb «I want but I cannot». He concluded.



Sciences are rapidly changing, therefore we should keep up with that, and use time in a better way. Scientists spend their time, day and night, inside their labs, to make unprecedented discoveries. Our Arab world has got many universities, but it should make room for innovations and discoveries, and enhance that in students' personalities.





Poonam Bhojani



A big role for technological development to ensure innovation and benefiting therefrom.



Multiple concepts to be recognized

Poonam Bhojan commenced her speech by congratulating the Mohammed Bin Rashid Al Maktoum Foundation for the successful organization of the summit, asserting that her presence in this event was a great honour for her. Then, replying to a question posed by the session moderator about the best factors and practices in the field of education innovation, Bhojani said, "in terms of innovation, we should fundamentally consider the way we talk about innovation. There is the concept of difference and contrast, there is also the concept of improvement and development, where we create difference to improve the things we do."

Technology is a means but not an end

"As stated by the Minister of Education of Morocco, the technology is a key factor in ensuring that innovation works in the way we want. I would also like to emphasise that technology is just a means and not an end in itself, and I would like you to share my research results, conducted in our institution, which has partly adopted technology while other parts of the research have not depended on it."



Positive models for innovation

Let me first talk about innovation based on technology, and I can give an example about introducing robots to perform various tasks in many sectors, like «Legos»; these robots do what children do manually. Let us imitate their innovations. That is talking with respect about technology and its role in the innovation process.

Social media are essential

The proliferation of social media has helped students and young children to promote innovation, and this has proven successful through the results of Innovation Week in the UAE, where children presented successful experiences of their innovations. Moreover, the use of Facebook and Twitter helped schools, students, and their parents to create good communication amongst them, and this is a kind of innovation, which shows that young children have a quick ability to learn and innovate.



The community of knowledge and innovation in Dubai has made essential changes in schools, by the virtue of using Tablets and TVs which help students for innovation. Laboratory experiments in school labs can be conducted through tablets.

I am happy to conclude my speech by expressing my happiness in participating in this prestigious summit in a country teeming with more than 200 nationalities, cooperating in human relations for cultural understanding. State schools provide an opportunity to communicate well, accept different opinions, and promote understanding, and this is briefly another way towards innovation in the field of education.



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The Knowledge
Summit
Day One
2015
to innovation

Day One

Second Session

Panel discussion with Gordon Brown
Former Prime Minister of the United Kingdom.

Moderator

Nart Buran

General Manager of Sky News Arabia

Nart is the general manager of Sky News Arabia, and responsible for safeguarding the Sky News standard of impartial and independent world-class news, reporting and achieving the company's business objectives. Sky News Arabia, which launched in May 2012, has become one of the leading news and information platforms in the Arab World with its television, online and social media offering. Based in Abu Dhabi, Nart has been CEO and Director of News since the launch in 2012, and continues in the same position leading the growth strategy of Sky News Arabia.

In 2012, Nart was included in the "Arabian Business -Most Influential Arabs."



The Knowledge Summit

2011

The way to innovation



Nart Buran

I welcome you again, Mr. Brown. Gordon Brown served as Prime Minister of the United Kingdom, as he was the leader of the British Labour Party in the period between 2007 and 2010. Before assuming the leadership of the British government, Brown served as Minister of Finance in the period between 1997 and 2007. In July 2012, he was appointed as special envoy by the United Nations for education in the world, besides his work in fighting against poverty. He is known for his passion and extreme love for education, and that led him to launch his initiative entitled: "Global action to ensure education for all." He is married to Mrs. Sarah Brown, known for her sponsorship to charitable activities, and he has two children. Brown established a foundation under the name of Sarah Gordon Brown which funds all charitable activities performed by himself and his wife. It is also the institution, which is concerned with the encouragement of young entrepreneurs, improvement of health care, advancement of civil society, promotion of education, and fighting against poverty in the world in order to ensure a better future for every child. Ladies and gentlemen, please welcome Mr. Brown, and now I leave you with him.





Gordon Brown

The world is witnessing a consumer revolution in which Asia, Africa, and the Middle East seize the bigger share against the USA and Europe.



His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Ladies and Gentlemen, distinguished Guests, I am honoured to be here in Dubai, and in UAE in general. It is also a pleasure to be with you here because of this impressive success achieved by Dubai in particular, and UAE in general.

I would like at this point to express my deep appreciation and respect for His Highness Sheikh Mohammed Bin Rashid Al Maktoum, for his wise leadership to the Emirate of Dubai, and the massive success that has been achieved at his hands, which we have all witnessed through the statistical tables that have been presented to us a few moments ago.

There is no doubt that the elimination of illiteracy in such a short period, and achieving an education rate of 82% is a remarkable achievement for this country. Placing UAE on top of education tables is the best proof on this achievement.

UAE has an insightful vision for education

Indeed, the existence of an insightful, future vision for this country, which has become a centre of learning and the capital of innovation in the whole world, is strong evidence to the truthfulness of these achievements. This vision aims to make UAE among the best countries in the world by the golden jubilee of the Union. By the year 2021, with the celebration of the golden jubilee of UAE and the passage of 50 years since its founding, this memory will coincide with the anniversary of UAE to host the events of Expo 2020 Fair, which will be attended by representatives from all over the world. However, given that UAE has a future vision for education and innovation, this reflects on the success of the wise guidance and leadership of the country. The only thing I can do is to express my appreciation and admit the dazzling success of UAE in all fields against that which I have seen through my travels around the world. This is also confirmed with the achievements, which I have seen here; it is a truly distinguished and unique success.

Human resources are more important than oil

Once you said that oil and gas are necessary and important at the present time for this country, but the real wealth of this country lies in the capabilities of individuals as human resources serve the development process. This is what you are trying to do by taking advantage of these human resources and employing them to the fullest, and investing in the creative and energetic talents and abilities of young people, especially in the field of education. However, I would like to underline that you should not only go in the correct direction, but you can also benefit from the experiments of other countries around the world in the field of education and in the reform of the education sector, in addition to stimulating the spirit of creativity and innovation among the young generation. This would reinforce the prestige of the United Arab Emirates, enhance its success, and consolidate its leadership as a centre for innovation and a global capital of knowledge that occupies the forefront of the world.

Missed-education reflects missed-hopes

I want to say something else as an introduction to my comments; what I would like to say is that education is connected with the available opportunities as well as economic efficiency and effectiveness, and that in stimulating the sense of innovation to support economy, education is also closely linked to hope. An educated person who has received a sufficient share of education has the ability to plan for the future. Hence, in the absence of education, there will be no hope at all for those young people, or perhaps only little hope is left for them. Given that food, water, and shelter are the basic needs of survival, which is very important and cannot be ignored, they are of the utmost importance to the flowing numbers of refugees fleeing from wars and conflicts that erupted in this region of the world. This humanitarian problem is one of the largest regional challenges today, although food and shelter are indispensable for individuals, as I pointed out. Education and obtaining school qualifications and get a proper job are the things which give them hope, and help them plan for the future. When I had the honour of heading the Group of Twenty as Prime Minister of the British Government, a group concerned with

addressing the problem of recession in the global economy in 2009, we conducted a comprehensive survey about prevailing trends of the global economy, and what we should do for the future.

Shifts in the global economy

We did something similar to what the leaders of UAE have done regarding planning for the future. We found that since 1980, the world had witnessed the so-called Industrial Revolution, where the productive force in the West turned eastward to Asian countries. Then, for nearly two hundred years, the USA and Europe seized 50% of the total manufacturing, trade, investment activities, production, and service sectors in the world. At the present time, China, Asian countries, and some Middle Eastern and Latin American countries are increasingly in control of a large share of products in these economic sectors.

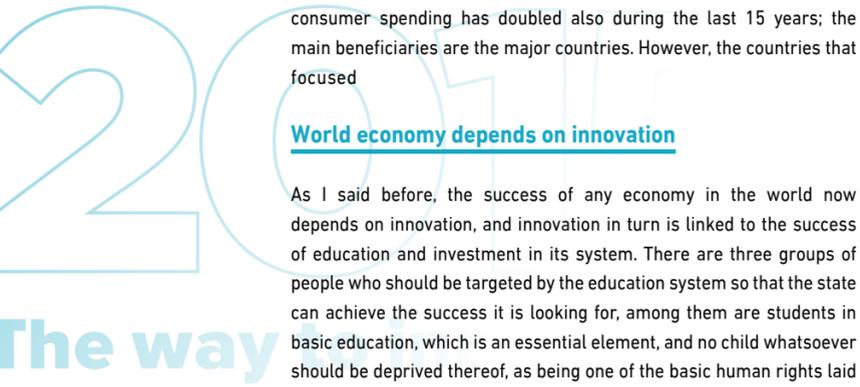
The Consumer Revolution will come in 20 years

The second conclusion we reached in this study is that there is a consumer revolution which has already begun, and instead of American and European dominance of the huge consumer market, the rest of the world, within the next twenty years, is expected to become even more important for consumer spending, even more so than America and Europe, which have dominated the consumer market in the world for a hundred and fifty years. After that, in the context of this study, we have seen a third trend represented in the change of wealth as a result of the oil boom and changes in commodities in general, and this is an indication that the West will lose its status within the thirty or the next forty years. The study has also shown to us that the biggest trend was reflected in the emergence of a larger middle class in the world, where there was half a billion people in the world representing this class in 1980. Then that number rose to one billion people in 1990, and to two billion people in 2010, and that number jumped to four billion as we had expected before.

Consumer spending has doubled in 15 years

As you know, the most important thing that has happened in the last few years is that the number of middle-class people doubled, and





consumer spending has doubled also during the last 15 years; the main beneficiaries are the major countries. However, the countries that focused

World economy depends on innovation

As I said before, the success of any economy in the world now depends on innovation, and innovation in turn is linked to the success of education and investment in its system. There are three groups of people who should be targeted by the education system so that the state can achieve the success it is looking for, among them are students in basic education, which is an essential element, and no child whatsoever should be deprived thereof, as being one of the basic human rights laid down and guaranteed by the constitutions of the world.

To promote scientific research for development

Without education, communities will not be able to explore capabilities, energies, and the talent of these children, and employing them properly in the future. There is also secondary education, as we all know, then Higher Education, which promote the skills and abilities of students in the field of research and scientific experiments, which also explains why we need professionals and business leaders who are awaited by the labour market. However, in parallel with this we must pay more attention to development, encourage the development of scientific research, and support experienced people in this field, because that would create a generation of innovators, creators, and researchers whom are most needed by any country to develop their economy in the future.

Four factors to ensure the success of education

If you have these three groups or categories of persons in these levels of education, it will undoubtedly ensure the success of the economy and development in general. However, you will also need four things, which are very crucial to ensure the success and effectiveness of the education system, which is indispensable for any country because it also guarantees its success in other domains. These characteristics or factors are combined and work together: The first is that a teacher at school should be at the highest level of quality in the teaching profession. We must not forget that school itself is an integrated society,

and the success of this small community depends on the quality and efficiency of teachers who teach children. Also, we must not forget that unless teachers get their proper status, they won't respond and their output in the educational process as a whole will be affected.

The second element is the existence of leadership through the school principal (a good headmaster). You will not have a successful school without a good and efficient headmaster, who manages school efficiently and effectively, and has the ability to motivate, inspire, and keep up with new changes and developments, especially in the field of education.

As His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai is truly pioneering innovation and education in UAE today, we also need the same model and the same role in every school. We are in dire need of innovative and creative people who love knowledge, and are willing to spend time and effort to encourage others and inspire students in schools.

However, we also need the third element, namely appropriate school curricula that match the needs, talents, and abilities of students. Here, I would like to say that what is happening in the education sector in this country is astonishing and impressive.

Curricula and courses taught here in schools are characterized by motivating students and developing their abilities in imagination, creativity, and innovation, that develop their mental abilities, and which we must do in all countries in the world. It is sufficient to say that this inspiration, which students extract from their schools or study, for example, a spacecraft or a space program, will certainly help stimulate their imagination, promote their thinking, and encourage innovation. It is something that will work in the end to cause essential and fundamental change in future life for the coming generations to satisfy their needs and aspirations in this country, especially when they see their dreams and aspirations of travelling into space has already been reflected in the curricula and the courses they study in classrooms.

Innovation in Education is the key to success

From what has been said above, we conclude that innovation in the field of education will be the key to success in the future, because innovation is the key to education, education is the key to the future; they both go hand in hand.

Back to the problem of refugees in the region, I am happy that some

China has depended for its economic success on scientific research, developing technological methods, and violating the intellectual property rights of countries.



people are doing a great job in this regard so as to contribute to the alleviation of the tragedy of these refugees. We are honoured today to welcome H.R.H. Princess Ghida Talal, President of the board of trustees of the King Hussein Cancer Foundation, who is exerting huge efforts to raise funds and donations to support the treatment of cancer in this region, and I praise her great work.

We also have the Minister of Education of Lebanon, Elias Bou Saab, who managed, thanks to his individual efforts, to bring about 200 thousand Syrian refugee children to receive their education in Lebanese schools. Despite the difficult conditions faced by his country, he devoted his efforts towards this humanitarian and noble mission and made it his main concern.

Six million Syrian refugees in Lebanon

As you know, we can do more in this regard; there are about two million Syrian refugee children in the region due to the war in Syria, as well as more and more of these refugee children due to conflicts that have broken out in recent years in Libya and Iraq. Of course, we cannot forget Palestinian children, who deserve support and assistance because of what is happening to them. There are about six million of displaced Syrian children living inside Syrian territories or the surrounding areas on the borders, who have been forced to flee and leave their homes to remote areas in order to escape the ravages and the horrors of war and battles in their country. Therefore, our objective is the same as that of the Secretary-General of the United Nations Ban Ki-moon. Our target in the next few months is to make sure that two million children of Syrian refugee children will join different school levels during the next academic year, which means: we should increase the number of refugee children in Lebanon from 200 thousand to one million, as I said.

Our goal is to ensure that every one of these refugee children has got



a right to education in order to ensure a secure future and a better life for them. It is possible here to use innovations, modern technology, and educational courses via the Internet to help achieve this goal.

We also want to train teachers who can contribute to this effort, for there are large numbers of them out of work. So, we want to make this goal an international effort, and the entire international community should help in achieving this goal. We would like to demonstrate that hope overcomes the feeling of despair and hopelessness in the people, and we have to give them hope in planning for a promising future.

Join forces to help the refugees and educate them

We must all contribute to this effort in helping these refugee children and giving them this basic right to education, and to harness the power of all modern technology and innovations to serve this purpose. This is what His Highness Sheikh Mohammed Bin Rashid Al Maktoum did through his ambitious vision for education and investment, in the same perfect and wonderful manner that we are witnessing now in UAE. However, let us also demonstrate to the world that it is possible, even in the harshest and most difficult conditions, to give a chance and hope for those children who have been dominated by despair and frustration. Let us make sure and prove to the world that by the end of this decade each child in this world, regardless his location and the harsh conditions he has experienced, shall have the right to receive education. In conclusion, I thank you all.



The Knowledge Summit

An interview conducted by journalist Nart Bouran, Director General of «Sky News Arabia» with Gordon Brown, the former British Prime Minister, just after delivering his speech during the summit:



Mr. Brown, who determines the quality of the curricula taught to these refugee children in Syria across this vast border areas? What are the best ways to manage this whole process?



There are two different ways, but both are difficult to deal with; the first lies in the language, because the Arabic language as we know is the most widely used in education for refugee children, although English and French are also used in teaching children in Lebanon, for instance.

The second is the quality of the curricula, where we can see little progress in this regard has been achieved. I have met one of the persons in charge of education in Lebanon, who told me that for nine-year-old children, there are no curricula focusing on the importance of cultural and religious diversity, as well as the importance of contrast and difference in opinions among the various cultures, with the need to respect the value of the difference of opinion.

Extreme views do not help coexistence

As shown to us, extreme opinions and messages do not allow the possibility of coexistence between cultures. Hence, if you have educational methodologies and curricula explain and clarify this religious and cultural diversity and intellectual contrast in the region, it will make a fundamental difference that may help achieve rapprochement between these cultures.

Curricula are necessary to educate young people

I would like to emphasize that it is very important for children

and young people in schools not to be influenced by the views of some teachers who have extreme thinking or try to communicate and disseminate extreme ideas and messages. It could be argued that the issue of the curricula is of great importance, and has already been discussed in Lebanon and Iraq, where it could be possible to make significant progress in this regard, which has been achieved also here in UAE.



We find that even in some Western countries, including the United Kingdom, there are many pictures and cartoons that have been circulated through the media and social networking sites, which show the elements of the so-called Islamic State «Daesh» in Syria, for example, including many young people and children who were recruited to fight in its ranks. Is there something you want to say regarding curricula and its involvement with these young people and children who joined Daesh to fight, especially that some of them come from European countries as well?



This is a very important and sensitive point, as it occupies the minds of the public, especially it has a connection with social media which has played an important role in this regard; as the media in the West in general has a great deal of freedom.

This is also a very important and sensitive issue in terms of dealing with and talking about it, particularly as it preoccupies the public now and is closely related to social media that have played a major role in this regard. There is no doubt that the main media have had a prominent role in the transfer of militant messages and ideas among the members of 'Daesh' group, which permits the transfer of these destructive thoughts and ideas to the simple and ordinary people. It also works, through propaganda-oriented methods, to instil such ideas and disseminate destructive concepts among young people.





Electronic games feed intolerance

Electronic games nourish the spirit of intolerance by displaying violent games on different sites such as Twitter, and other games that are sometimes described as harmless. We also find that the advocates of militancy and extremism who promote those ideas on social media offer young people to choose between, for example, supporting 'Daesh' or facing it. If you choose to face it, it means you have become hostile to religion. In addition, with many things like that, these sites broadcast, in particular websites belonging to this extremist organization.

Social media have negative and positive effects

Therefore, I agree with you that the subjects of the school curricula are very important in schools, and the question of social media and their negative and serious effects on young people and children is more significant. This is a very serious issue because it touches the intellectual aspect of young people. You can close one or more of these sites, but you would find safer and more positive alternatives to raise awareness among young people.



In your opinion, what is the climate or atmosphere through which 'Daesh' can recruit these young people and children of school age in order to join its ranks?



I have read several studies published on this subject, which deal with the reason behind the recruitment of these young people and children, whether they are British, French, Belgian or coming from other European countries.

'Daesh' introduces itself as a faith group

This organization shows a stereotyped image through the social media as a community of believers who do not advocate violence or choose its course for their members, but apply the provisions of Sharia and the teachings of religion. So, the issue, as they promote, is not related to pursuing violence, but to the spreading of religious ideas and beliefs and the application of Sharia.

'Daesh' practices bloody and criminal acts

However, all studies have shown that the experiences of this group prove that they are doing what is just the opposite on the ground, as its members use violent slogans and behave in a bloody and criminal way that constitutes a violation of the most basic human rights. This seems clear from the videos they broadcast on the Internet every now and then, to intimidate and terrorize the people.

Existence of curricula will enhance religious and cultural diversity in the region, and will fundamentally make an essential difference that may help in achieving convergence between different cultures.



Going back to talking about your role as a special envoy for education to the United Nations, especially when it comes to sending certain messages relating to education and conflict zones in this region.



particularly with the development and the size of the problems we have in mind. However, look at what is happening in this region, for example, you see that more than 200 million young people under the age of twenty need to be given proper education.

International organizations fail to address unemployment and education problems

In some states, you'll find that the unemployment rate among these young people is up to about 50% sometimes; Therefore, international organizations such as UNICEF, UNESCO or UNDP do not have sufficient resources to cope with these problems and solve the unemployment or education issues in these countries and others. Meanwhile, those organizations deal with the social, health, and psychological problems caused by the deteriorating situation; therefore, it is certain that these organizations are not making enough efforts in these areas.

Education does not receive enough attention and support

Nonetheless, the most important thing for me is that all UN international bodies should continue to provide support in the field of aid and humanitarian relief work, and to highlight the role of the countries that contribute to this aid, whether it is Britain, America, or other countries. This would alter the stereotypical image taken about such countries, and it is

necessary to allocate more financial support to provide shelter, food and education for young people and children in all regions of the world. This makes me reiterate that the education sector does not receive enough attention and support, required in this part of the world.



Nart Bouran: What is the appropriate age, from your point of view, for the child to go to school?



I think that the age of four is appropriate to go to school, and suitable for his ability of understanding, comprehension, and academic achievement. However, a refugee child from among the large number of Syrian refugees in neighbouring countries needs at least ten years to receive the necessary education. In this case, he may end the stages of basic education probably at the age of fifteen or sixteen, but the most important thing is to find the facilities and educational institutions sufficient to accommodate the Syrian refugee children. Again, I refer to the possibility of applying the system of study in two shifts at schools, as is the case in Lebanon and Jordan schools, where the morning shift is allocated for Lebanese children, while the evening shift is assigned for Syrian children. Therefore, I believe that this is an effective system and can address the problem relating to the education of those children.

No problem exists in the educational establishments of the refugee areas, but the financial support is required.

The interesting thing with regard to the provision of assistance to refugees in this region is that there is no shortage of buildings or their designated camps, including educational facilities. In addition, there is no shortage of teachers, especially since there are, as I mentioned before, many jobless teachers, and among the Syrian refugees themselves, there are some of unemployed teachers who could be hired to teach these children. Still, the real problem is the lack of financial resources that constitute the biggest challenge for us.



The Knowledge Summit

\$250 million not sufficient to address the issue of education

To overcome this shortfall in funds required for education, we need to raise additional funds up to \$ 250 million a year, which is not a huge amount by global standards. European countries, the USA, and countries in the region itself should contribute to that amount. I think that if it is possible to collect this money, they can assist in providing the necessary resources for the education of Syrian refugee children in the region.

The way in



But within ten years, as you have already mentioned, there will be about two million refugee children who need education, which is a staggering figure indeed!



Yes, it is already so. However, those children must get education somewhere, and if they return to their countries of origin, the cost of education will be exceeded, which inevitably will happen someday. Besides, we should not forget that there are six million evacuated children who have been displaced from their homes within Syria itself.

Modern technology can be used in the education of Syrian children

More importantly, we should reach an agreement with the fighting parties there to ensure the safety of educational buildings and schools, as is the case for places of worship and hospitals. In addition, educational buildings need to be protected and not used for military purposes or targeted by bombardments, to allow them to continue their role and function in the educational framework. In this case, we will secure providing education for millions of children displaced within Syrian regions and cities. Here, you can use modern technology in the education of these children and the transfer of the curricula to them through devices such as iPhones, iPads, and tablets, etc., all of which are solutions to be explored now.



Let me recall the subject of "innovation in education", which you are personally interested in and your often talk about. In your point of view, what are the key drivers for innovation in education?



I remember I have recently read in a recent study on classrooms, that there is an urgent need to change them in terms of form and matter in the future, in line with recent innovative thinking.

A Teacher is an innovative person, not a lecturer

In addition, one of the things that I talked about is the role of the teacher at school, and as I said, we do not have to look at him as a lecturer, but rather as an innovative person who is able to use modern technologies and employ them well to serve the educational process.

This topic is very important and must be given priority and we need to focus on it. There are educational courses at the best universities in the world, such as Harvard, Princeton and Stanford, which can be applied here in the UAE universities if they decide to apply new technology in education.

The coming years will witness tremendous progress in education and means of communication

There are many aspects of progress in the education sector around the world, and it is important to take advantage of them and within the ten or fifteen years to come, we will not only witness tremendous progress in education, but also in all forms of communication used in the transfer of information.

Furthermore, within the next ten years, we will see astonishing progress in the so-called communication technology through brain waves, where these waves turn, without the need to speak, into ideas that can be seen. This in turn opens tremendous prospects for the educational process itself.

Social media play a serious role in recruiting youth to Daesh ranks through the dissemination of extreme thoughts.



Are you optimistic about the future of education in this region of the world, and what next?



most remote places in the world, I constantly meet young people who have a lot of aspirations, high hopes and strong enthusiasm to achieve something different and distinct in their lives.

Prominent examples in conflict areas confirm that there is a great hope for the future

As a clear evidence of what I am saying, I experienced it myself during my visit to South Sudan a few months ago. In spite of the civil war there, I saw how young people whom I met have a strong desire for more learning and rebuilding the educational system there. I have visited one of the schools in a village in the capital, Juba, and I saw that only 30 children are educated in such a small school, which has one semester, but they are full of hope and ambition to achieve something in the future.

Neither can I forget the mother who told me that she has two children, but she makes their education a priority throughout her life, not food and drink, because education is an important thing in life now.



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Day One

Third Session

<<Innovation and information technology>>

Session Topics

- » Innovation in television media industry.
- » Where has this development arrived so far?
- » What is happening now in this vital industry on a global scale?
- » Education, innovation and their effect on the graduation of creative generations.

The Knowledge Summit

2014

The way to success

Speakers

H.E. Eng. Hussain Nasser Lootah

Director General of Dubai Municipality

Stephen Wozniak

Co-founder of Apple Inc.

Patrick Baudry

Retired Lieutenant Colonel of the French Air Force and a former CNES astronaut

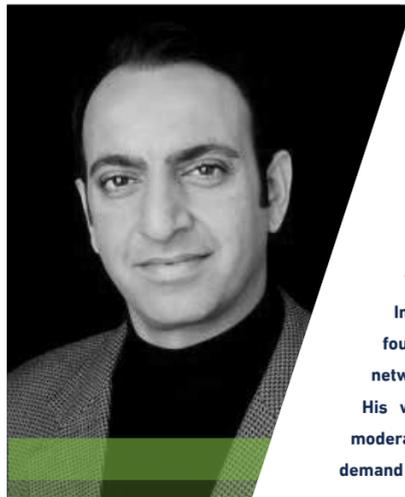
Anousheh Ansari

Co-founder and chairwoman of Prodea Systems

Moderator

Riz Khan.

TV Presenter



Khan has conducted a variety of high-profile interviews with a diverse range of issues. Co-anchoring the very first show on "BBC World Service TV News" in November 1991 gave Khan an acclaimed public visibility that grew even more when "CNN International" hired him in 1993 as its leading news figure.

In 2005, he moved to "Al Jazeera" becoming a founding director of the now globally acclaimed network Al Jazeera English.

His work as an accomplished speaker and moderator over the years has him in high demand at leading global events.



H.E. Eng. Hussain Nasser Lootah

H.E. Engineer Hussain Nasser Lootah was appointed as Director General of Dubai Municipality in 2009. H.E. Lootah began his career as an engineer with the Federal Ministry of Electricity and Water. He was also instrumental in winning some 30 local, regional and international awards for Dubai Municipality.

Steve Wozniak has helped shape the computing industry with his design of Apple's first line of products the Apple I and II, and influenced the popular Macintosh.

In 1976, Wozniak and Steve Jobs founded Apple Computer Inc. with Wozniak's Apple I personal computer. The following year, he introduced his Apple II personal computer. The Apple II was integral in launching the personal computer industry. For his achievements at Apple, the President of the USA awarded Wozniak the National Medal of Technology in 1985, the highest honour bestowed on America's leading innovators. In 2000, he was inducted into the Inventors Hall of Fame, and was awarded the prestigious Heinz Award for Technology, the Economy and Employment for single-handedly designing the first personal computer.



Steve Wozniak



Patrick Baudry

Patrick Baudry is the most renowned French astronaut, and a retired Lieutenant Colonel of the French Air Force. Baudry became a CNES astronaut in 1980.

In 1985 he became the second French citizen in space, after Jean-Loup Chretien, when he flew aboard NASA's Space Shuttle mission STS-51-G Discovery. From 1993 to 2003, Baudry was advisor for manned space flights at EADS, and senior test pilot for Airbus. He founded the first European Space Training Centre in Cannes for preparation for life in space.

Anousheh Ansari brings more than two decades of experience as a successful serial entrepreneur for "Prodea Systems", where she serves as Chairman. Ansari captured headlines around the world as the first female private space explorer. In addition, she earned a place in history as the fourth private explorer to visit space, and the first astronaut of Iranian descent.

She has received multiple honours, including the Working Woman's National Entrepreneurial Excellence Award, and the George Mason University's Entrepreneurial Excellence Award.

In addition to her business achievements, Anousheh Ansari actively pursues ways to enable social entrepreneurs to bring about radical change globally.



Anousheh Ansari



Riz Khan

Ladies and gentlemen, thank you very much, I am pleased to be with you here to run this session entitled «innovation and information technology». In fact, the title of this session includes various topics, but we will try to focus on some interesting fields in particular. We have here in this session a group of elite experts in these fields, but as you know, I asked myself before the beginning of this session: How would that affect the television media industry in which I work? What is happening now in this vital industry on the global scale? Several years ago, I began my career as a broadcaster in the BBC, and then I moved to CNN.



Then I moved to Al Jazeera International, where I work now as a broadcaster and programmes presenter. When I worked at the BBC, we had already begun to abandon the use of cameras run on films. At a later stage, we abandoned the use of this type of cameras and writing devices, which were the size of a coffee table. Now, we are using highly sophisticated devices, which can be moved or carried from one place to another easily; they are very small, so we can handle them manually. Now, we are able to write and send stories, topics, or articles via mobile phones equipped with cameras and video imaging feature to newspapers and news agencies for them to publish or broadcast them on the spot. We are pleased to have with us in this session, Engineer Hussain Bin Nasser Lootah, Director General of Dubai Municipality, who was credited to win more than thirty international awards, and who served in many important positions. He is also a member of the Executive Council of the Government of Dubai; allow me to welcome him. Let me also welcome Steve Wozniak, co-founder of Apple Inc. in 1976 with Steve Jobs, and the inventor of Apple 2 computer, who has three famous designs in this field, as well as being awarded several international awards. Furthermore, I would like to welcome Patrick Baudry, a retired Lieutenant Colonel in the

French Air Force and former astronaut, who is a Goodwill Ambassador of the United Nations, and the second French astronaut to join the space shuttle Discovery journey of NASA. He has conducted many scientific experiments during his journey to space as well. I am pleased to welcome Anousheh Ansari, an American of Iranian origin, a co-founder and chairwoman of Prodea Systems Inc. She is also the first Muslim woman in space. She has a proven record of accomplishment and successes over more than two decades in business, particularly digital technology. She has been awarded several international awards from international bodies and organizations. She is also actively involved in encouraging young entrepreneurs to set up small and medium-sized projects. Allow me to ask my first question to H.E. Eng. Hussain Bin Nasser Lootah, Director General of Dubai Municipality, "Dubai is now considered a miracle in technology, with regards to various development in different fields of innovation, and same to the whole UAE country, which is now considered as one of the most prominent and pioneering in innovation and technology. Where we see everyday big moves towards in these areas, how do envision such kind of merge between technology and innovation in Dubai and generally in UAE?"



H.E. Eng. Hussain Bin Nasser Lootah

Dubai is the most sophisticated city in the world

Eng. Hussain Bin Nasser Lootah, Director General of Dubai Municipality, began his talk by explaining that Dubai is now considered as one of the most sophisticated and advanced city in the world in the field of modern technology and innovation, a reality which all of us can see. Within the past fifteen years, UAE has seen a huge leap in the developmental transition to the future, which has been planned in Dubai in particular and in UAE in general, not only depending on technology alone, but also depending on competition.

Bi Challenges and Future Plans for UAE

His Highness Sheikh Mohammed Bin Rashid Al Maktoum stressed that the country should continue to walk through the outlined path in line with the future 2030 vision, whose features HH outlined and depicted its lines in order to put UAE on top worldwide. This is a great challenge for us, and I mean the challenge for all companies, ministries, and departments all over the State as well, whether in the public or private sectors. It is a real and major challenge, which makes all these sectors make their best efforts.

Great cooperation between state institutions

In this sense, and in this spirit and enthusiasm, we have sought to work to achieve this goal through hard work and cooperation among all local institutions and bodies operating in the country. Therefore, if we could classify this, we would find that there are a number of precisely defined goals, the forefront of which is to turn Dubai into a smart city that is experiencing a sustainable development.



All state institutions laid down the required plans for implementation and reaching the required level. His Highness Sheikh Mohammed Bin Rashid Al Maktoum also said: This race will achieve the desired goals, as it is an open endless race, and everyone should exert all efforts to give their best. Based on this guidance, we firmly believe that we should continue to move forward in the right direction toward a better future for Dubai.





Steve Wozniak

Innovation in technology will witness what is so-called «Aware Computer», which does not exist yet.



Humour and innovation are two sides of the same coin

In his answer to the moderator regarding how to deploy and apply technology and innovation among young people from schools to university students, and what positive steps should be taken in this regard and what should we do, Steve Wozniak said that from his perspective, the banter or sense of humour and innovation are two sides of the same coin; almost identical and share many common features. If you want to be creative and innovative while you are designing a product, a computer program, or a new application, you should be open to several directions and different paths previously taken by people to eventually achieve the goal that you and the people want to designing the new product.

Current inventions are a reflection of science fiction movies

Very often, stories full of humour are narrated leading the thoughts and minds of people who listen to you into one direction, such as telling imaginary stories, which are related to what is so-called science fiction in the minds of some people. We find, and watch this science fiction a lot in science fiction films that deal with topics such as space and space wars, to the extent they say that many of today's technological inventions are the same as those used in science fiction films, which we watch in cinemas and on TV, and which teach us how to innovate.

Discover the innovative character between 18 to 23 years old

In fact, this teaches us a significant lesson; how we innovate things such as space crafts we see in these films. The people who have the desire to innovate something in their lives are definitely better than those who only speak. It is also important to ask yourself: am



When I was in college, I found that I liked computers so much and became very fond of them. I have discovered these devices even before they were brought to schools, and I discovered the best things in my entire life while I was out of school and university, not during my studies. I loved these devices considerably, and I used to dedicate more time to them than to studying school or University books and curricula.

I an innovator? Am I a creative person in my work and my life in general? Should I explore new ideas and learn new useful things? Let us say that your character becomes stable and largely shaped in the ages between 18 and 23 years old, for instance.

Exploration starts with childhood

The innovator is the one who always thinks and has a continuous inclination to think that he is able to do things better than they seemed before. Those people live in a continuous state of creativity, and this is what develops their mental skills and abilities. In basic education stages in schools, we find that a child is born with the instinct for innovation. He has a strong desire at such young age to explore the world and learn all about the environment in which he lives, and has the desire to learn everything and how it works in the surrounding world. Curiosity is an instinct that is born with us since the early days of our lives.

Parents always tell their children: you have to do this and do not do this, you have to behave that way. When you go to school and curiosity pushes you to open a drawer to know what is there, for instance, they tell you: it is not allowable to do so, and not everyone is able to do that inside classrooms.

Often you are described as being so smart when you get high marks at school and we often equate academic intelligence with the ability to innovate. In our study of the science curriculum, for example, we learn a lot of things about this world in the past and in the future.

Loving things is a motive for innovation

If you like something in your first years of your life, perhaps chemistry, science or math, and perhaps occupations or professions like carpentry, for example, you must continue in this direction and proceed forward as much as you can because you will inevitably make success in the field you like.





Patrick Baudry

I have made my life dream come true by going to space, and I am still dreaming of going to Mars.



Riz Khan asks Patrick Baudry a question: in your opinion, what is the difference between curiosity and intelligence? He answers: It is an honour and a great pleasure to be here today at this gathering, and to have such a chance to talk about education, the future of education, and innovation in education, and to talk about anything related to this topic.



Ability to imagine and curiosity characterize human beings

I see that humanity on earth has a special feature, which does not exist in other creatures. This feature is not smartness, as smartness is also found in animals, as you all know, but this feature is our curiosity, our ability of imaginary thinking, our sense of humour, and laughter.

Since a young age, I had dreamt of flying, and now I design planes

The only dream I had when I was young was flying someday, which came true as I joined the French Air Force, and I became an air fighter driving all types of jet fighters. After I had graduated and promoted in my work from a probationary pilot until I became a professional pilot, I eventually reached an advanced stage in my work, thanks to the development of my ability of innovation and imagination, so I can now make new planes and innovate new ways of flying.



The main thing that can be achieved through working with others within the same team is learning new things and the transfer of expertise to children to learn these new experiences and expertise, which help them a lot to think about and improve their mental abilities, and in turn help them acquire the ability to imagine and innovate to reach the best ways to overcome most of the problems that they face already. They are also able to overcome problems that can be encountered in the future, and work to find practical solutions to them, and that is the most significant thing in the educational process, which can be achieved, which is the same goal sought by everyone I have struggled all my life long to encourage children to learn and give them the chance to learn.

Space gives room to imagination and the ability to practice scientific innovation

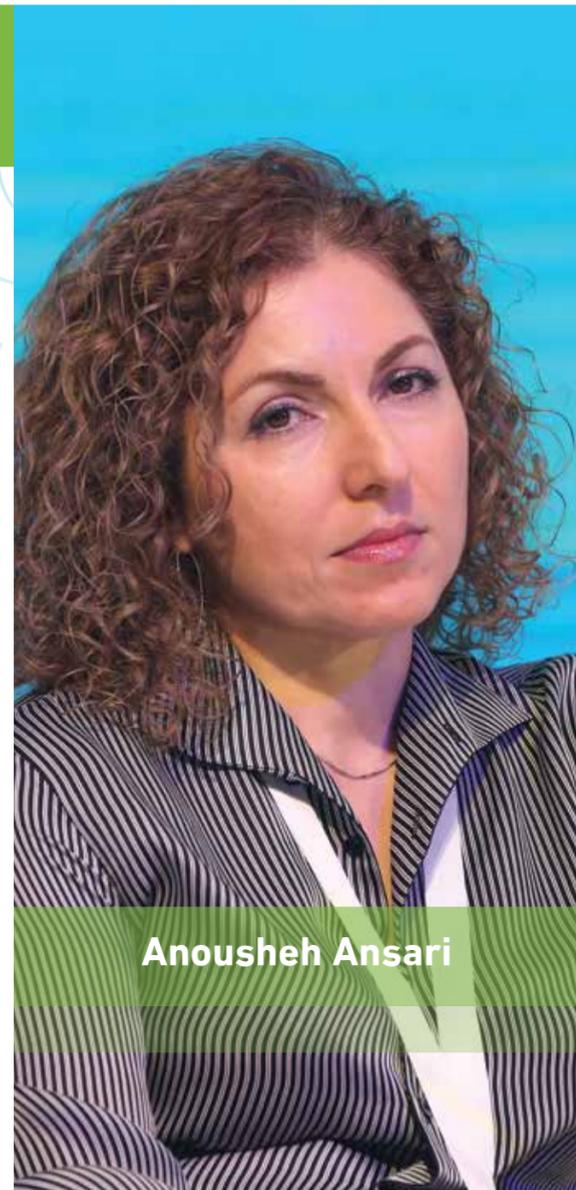
In space, I have not actually conducted practical experiments, but travelled on a journey into space, as my dream of flying is to go beyond that, and to go beyond the limits set by myself. Today, my dream is to go on a space journey to Mars. Today, we are already working permanently on the surface of the Moon. In addition, we go around Zeus planet as the first astronaut, Gagarin, did sixty years ago. To me, this is something interesting and amazing. Space travel is also a place that embodies ambitions and dreams, as it also represents imagination and the ability to practice scientific innovation; all are qualities evolving best these days.



I had the honour to accompany the first Arab Muslim astronaut, Prince Sultan Bin Salman, and I am very proud of that.

It is always important to innovate new tools and methods for a better life, and to live better together on this planet.





Anousheh Ansari



Session moderator, Riz Khan, asks Anousheh Ansari a question: What fields do you expect to be the most exciting and interesting in the world of innovation, which can affect our lives in the future?



Technology is rapidly evolving

Anousheh explains that we live in a time in which technology is developing at a very fast pace, therefore we see things change in a short period of time, and that many different means and methods of technology have left an impact on different aspects of our lives these days. Hence, one of the directions we see in our present time is the growth of technological tools, which offer new things every day. What I mean is that we started with personal computers, then the matter evolved until we got small handheld devices like Tablets and iPads, and soon we will have more sophisticated devices. All these things allow us to interact with the surrounding environment in which we live, and represent a significant addition to technology and innovation in this field.

Technology helps a lot people with special needs

These devices also allow us to learn a lot about ourselves and about our environment, and soon, as I mentioned before, we will witness more development and spread, which will increase their values, viability, and sustainability. There are a lot of these technological means that can be used in good and useful fields for human beings, in particular people with special needs, where they can benefit in the best manner in fulfilling their needs and activities instead of the functions and limbs they lost, and trying to restore them.

An amazing future for 3D Printing

We have to be very careful when dealing with these tools and using them in our lives, because technology is a tool itself, and



the way they are used determines whether they are useful or harmful; then we will know whether it can ensure a better future for us or not. In addition, it is one of the areas I am interested in a lot, for I have great interest in the so-called 3D printing. If you print 3D toys or little things, they will affect many other interesting fields including, for example, manufacturing, aircrafts, printing, engines, food industries and even clothing and leather products such as bags. 3D Printing allows us to change many things in our lives and not to move the many things we need. The other interesting trend, which I have seen, is about how to correlate and combine different science domains to operate in harmony with one another to create new things for us. One of the things, which I have seen today through discussions and participations, is information technology. In my view, in the future this technology will not be a separate area, but will become part of every branch of science we see in our lives, such as the humanities and arts; where now we see many technological methods used in drawing and paintings, which means the integration of technology with arts.

Information technology will open new horizons for students

In the light of all these, I see that technology areas, particularly information technology, will open up new horizons and new

I believe that space science and industry will witness rapid growth in the coming period to become an essential part in our future. Now we see complete satellite stations, which are created in space, and other aspects of development in these fields. We see also that researches conducted in space science achieve very important results, and have become effective on various aspects of our daily lives.



fields for students in education field at schools, which can be applied in their studies. In addition, it will create different new fields of study for university students, which I feel when I speak to students in different universities, where they show strong enthusiasm for learning these technologies, which have a great effect on their study and life. Moreover, they want to learn it fast, like Nano technology or biotechnology, besides other fields. Let us always remember that the best things, which you can do successfully, are those which come from inside your mind and from your imagination away from books and school curricula. However, the most important point is to trust yourself and your smartness. You should sit and set your perceptions, ideas, and steps for what you want. You have to write the book instead of reading therefrom.





Audience Questions

A question from someone in the audience: Now, our innovative ideas have been based on traditional and stereotyped ways of thinking, therefore, I think we need to go back to school again in order to develop and refine the traditional ways of thinking so as to be more innovative. What do you think about this?



Wozniak: As I have already mentioned in my word a while ago, school will not be the only way of learning and acquiring skills and the ability to innovate. However, the outside world away from the school environment and university is the one that will make us learn all these things, and which can teach us the ability to innovate and think creatively.

It is necessary to continue research and exploration, and keep focusing on all that is new which we may encounter. Personally, I have suffered in my childhood and sometimes in adulthood from such a traditional way of thinking. So, I was embarrassed and afraid of talking to people who differ from me in their pattern of thinking, especially as I have my own future way of thinking, but in the meantime, this issue taught me how to trust my internal abilities of communicating with others and interacting with them. At a young age, I have just started to design computers even before many students use them in schools, as they were not known nor widespread as is the case now. I admit that I had faced many difficulties in the beginning concerning the collection of parts, their numbers, the desire to reduce them, and the time, which I can take to finish that.

All things I have not learnt from school or even the university, I have learnt outside school, I have made all the important things

outside school and university. What I want to say is that all these skills and abilities in the field of innovation are completely different from what we have learnt throughout our theoretical study, however this study has given us some essential basics to continue to search and discover in our practical life.



Riz Khan: I am here addressing engineer Lootah, you have said in your word something very interesting, which is that His Highness Sheikh Mohammed Bin Rashid Al Maktoum, once said that there is no finish line in our efforts to achieve our ambitions, or rather there is no end for our ambitions. Here, I would wonder, when it comes to the topic of innovation, how to apply such slogan in the field of innovation? In other words, people realize that there are specific targets, but at the same time, there are endless ambitions, how does this happen?



Lootah: Well, as you know, all the major cities now have departments or ministries concerned and competent to provide services to citizens. Hence, these cities have the momentum, which makes them continue their developmental march. The most important factor is time because everyone is keen on the calculation of time and is in a race against time. Everyone is well aware of this because time passes quickly and there is no room here for waiting.

This is why our efforts have focused on: How to make innovation helpful in this aspect. How can it facilitate the performance of missions and tasks more quickly than before?

This is the basic concept for the innovation system and mechanism by which we operate. In Dubai Municipality, for example, we have recently implemented a project called «10 D», which is a program visited every day by nearly 500 to 600 advisors and experts in various fields and sectors such as construction, contracting, and others.

In the present time, we have carried out almost 80% of this program because we have used the latest tools and audio-video



tapes through which we can load the data we want. Then we communicate with advisors, each in his field of specialty, which helps find solutions for potential problems, by communicating with them via monitors with no need to leave the offices or move to the project work sites, nor use their cars to move and search for parking and so on.

We also entrust computers to verify and assure the performance and implementation of business as required, where we only approve or disapprove them, this is the next step we are working on now.

I think that within the next few years, this ambitious project will be completed, which we hope that modern technology will help us to develop industries such as space by using satellite or technology and the recent methods to speed up the transfer of information. We live in a time in which everything is accomplished every day by using technology and electronic devices. However, the question arises here is: What will be left for the people to do? That is the problem. I think that people will travel into space to escape and search for something else to do.

Question: I am a young inventor and I am willing to introduce my latest inventions outside this room. I would like to ask Mr. Steve Wozniak: I am the founder of a company engaged in the field of technology, specifically, we are specialized in publishing and books, and we are trying to develop innovative ways to help people in the provision of a better way to read. My question is: Can we apply the same method used in applications stores abroad to encourage people to read, since we are trying to simulate the same idea, but for bookstores and libraries?



Wozniak: I do admire people like you whom I have seen throughout my journey around the world, people who have the same way of thinking who desire to use these ideas in the service of others and their community in development and evolution through means of modern technology. Here, I would like to emphasize something important which is: You are able to create and find something and you continue work to achieve that, and the method you use to accomplish it and make it acceptable to the people at the end, which is also important. The most intelligent people who have the ability to innovate I met throughout my life are fond of reading. They read many books in various fields, in particular during their young age because reading will help them a lot in the process of thinking and innovation.



Riz Khan: How do you think Mr. Patrick that inspiration can lead to innovation and encourage people to think about creating new things, such as space, and how does space help in innovation?



Patrick: Very often, people think of new ways of doing things, and they are doing that driven by the spirit of innovation and new ideas. In fact, this was clear from the words of Steve and Anousheh, as we think a lot and work a lot on the development of things and innovation in technology. We still lack thinking about a method that helps us read, and the most important in such case is the time to do so. It is likely that the day will come when someone in this room will find a way to solve different problems we are facing in the field of technology, and work on bringing us together for a better future, for us and for all humanity. Space is one of the fields that help a lot in this field, therefore we did it in our journey into space.



The Knowledge Summit 2015

Day One

to innovation

Fourth Session

«Scientific research, innovation, and development»

Session Topics

- » **Innovation in TV media making.**
- » **Where has this development gone so far?**
- » **What is happening in this vital industry at the global level?**
- » **Education and innovation, and how that affects bringing up creative generations.**



The Knowledge Summit

2014

The way to the future

Speakers

H.R.H. Princess Ghida Talal,

Chairperson, Board of Trustees, King Hussein Cancer Foundation (KHCF).

Hugh Herr,

An engineer, biophysicist, Director of the Biomechanics Research Group at the MIT Media Lab, USA.

Pete Moores,

A management consultant at Isis Innovation Group at the University of Oxford.

Robin Hanson,

Associate Professor of Economics at George Mason University.

Moderator

Valentina Qussisiya,

CEO of Abdul Hameed Shoman Foundation.



Valentina Qussisiya, CEO of Abdul Hameed Shoman Foundation (AHSF), an active member of the National Centre for Human Rights board of trustees and a member of Al-Balqa' Applied University Board of trustees.

As the CEO of AHSF, Valentina is leading the Foundation's efforts to invest in cultural and social innovation to positively impact the communities through its three pillars; thought leadership, arts and literature, and employment and innovation.

Before joining AHSF, Valentina held the position of Director General of the Jordan River Foundation where she played a key role in initiating and supporting youth empowerment, entrepreneurship, and child safety programs.



H.R.H. Princess Ghida Talal

After graduating at Georgetown University's School of Foreign Service, HRH Princess Ghida Talal pursued a career in journalism. In 1991, she married H.R.H. Prince Talal Bin Muhammad of Jordan, and the late King Hussein asked her to establish the International Press Office of the Royal Hashemite Court and to become his Press Secretary. In October 2001, H.M. King Abdullah II appointed her as Chairperson of the King Hussein Cancer Foundation and Centre. As the wife of a cancer survivor, Princess Ghida has devoted herself to the fight against cancer, and H.R.H. is a tireless fundraiser and advocate for the Centre.

Hugh Herr is an American rock climber, engineer, and biophysicist who heads the Biomechanics research group at the MIT Media Lab. He is creating bionic limbs that mimic the function of natural limbs. In 2011, TIME magazine coined Herr the "Leader of the Bionic Age" because of his revolutionary work in the emerging field of biomechanics – a technology that marries human physiology with electromechanics. A double amputee himself, he is responsible for breakthrough advances in bionic limbs that provide greater mobility and new hope to those with physical disabilities. In 2007, Herr was presented with the 13th annual Heinz Award for Technology, the Economy and Employment.



Hugh Herr



Pete Moores

Pete Moores is Managing Consultant at Isis Innovation, University of Oxford. Pete has 15 years of experience of working within the 'Triple Helix' of industry innovation, academic output and government funding. Pete has experience in working across multiple industry sectors including the environment, automotive, aerospace and food processing, identifying and integrating new technology to improve productivity, efficiency, profitability and competitive advantage. Prior to joining Isis Enterprise, Pete worked for the National Physical Laboratory (NPL) to grow their Training and Knowledge Networks businesses.

Professor Robin Hanson is associate Professor of Economics at George Mason University and research associate at the Future of Humanity Institute at Oxford University. He holds a doctorate in Social Science from the California Institute of Technology, a master's degrees in Physics and Philosophy from the University of Chicago, and has nine years' experience as a research programmer, at Lockheed and NASA. Professor Hanson has diverse research interests, but has pioneered prediction markets, as he was the first to write in detail about creating and subsidizing markets to gain better estimates on a wide variety of important topics.



Prof. Robin Hanson



Valentina Qussisiya

Today's session is very interesting, as it will discuss the subject of «scientific research, innovation, and development», which is the main title of this session. As we know, scientific research is an important matter for the development of knowledge and information. In addition, it is the key driver which paves the way to ensure maintaining better health and longer life. Moreover, scientific research leads to a knowledge-based economy; according to an old saying, scientific research is the lifeblood of the knowledge economy.

Scientific research promotes innovations in technology, and to ensure sustainable development, it is important to pay attention to technology, scientific research, and innovation. Nevertheless, unfortunately until now we find that the world where we live, is divided into North and South with regard to research and innovation. While we find that the North experiences further development in the field of scientific research and innovation, the Middle East is still behind in this field so far. The number of researches conducted and published in this region is still low, compared to those conducted and published in the West, and expansion in this area is negligible. Not to mention that the role which the private sector plays to support and fund scientific research barely exists, and the quality of research in the field of modern technology that is rapidly evolving is considered modest, rather than technology and knowledge transfer, which now represents a major weakness that adversely affects us.

It is essential that we move, face, and defeat these challenges. I have the honour of being the president of the first established institution in the region, which is concerned with the support of scientific research. The institution has been awarded the first Arab award in scientific research, a prize that motivated us and gave us considerable impetus to explore the potentials, capabilities, and works of Arab researchers, and distribute all these potentials all over the Arab world. Some Gulf Arab states have made great strides in the field of scientific research and allocated a lot of money from their budgets to support and strengthen this vital aspect. Some have made great progress in the integration of scientific research and innovation within their educational systems, their agendas and own programs on local development. This aims at making their economies less dependent on raw materials such as oil, and work on the diversification of these economies through the transition to innovation, scientific research, and work on the transition to a knowledge-based economy.

H.R.H. Princess Ghida announced a few days ago the launch of a fund with the amount of AED 2 billion, dedicated to support innovators and help them in turning their ideas into real projects for innovation and inventions. Moreover, this fund plays a vital role in the framework of the economic development process in the United Arab Emirates. I am honoured to manage this important session, in which an elite group of experts and innovators participate, who will provide us with valuable and useful information on this subject.



Ghida Talal: Please, allow me to introduce the keynote speakers, and start with H.R.H. Princess Ghida Talal, Chairperson, Board of Trustees, King Hussein Cancer Foundation (K.H.C.F.), who has graduated from Georgetown University in the US, at the Faculty of Foreign Affairs. Her Highness has also worked in the field of journalism. In 1991, she married H.H., Prince Talal Bin Mohammed of the Kingdom of Jordan. In October 2001, H.M. King Abdullah II, King of the Hashemite Kingdom of Jordan, appointed H.R.H. Princess Ghida as a wife to one of the survivors of cancer, Princess Ghida devoted all her time and effort to combat this dreaded disease, and since then she has been working tirelessly in fundraising and calling for fighting cancer.



Hugh Herr: The second speaker of today's session is Hugh Herr, an engineer, a biophysicist, Director of the Biomechanics Research Group at the MIT Media Lab, USA. He has succeeded in inventing new organic lenses which mimic the natural lenses in humans. In 2011, Science, the famous American magazine, chose him as a pioneer in biology in recognition of his achievements in the field of biological revolution, and particularly for his efforts in the appearance and emergence of the field of biomechanics technology, which merges human physiology with electrical mechanics. He is also responsible for the development of many innovations and devices used by people with special needs, to help them move better. In 2007, Herr has been awarded a global annual award in the field of technology, economy, and employment.

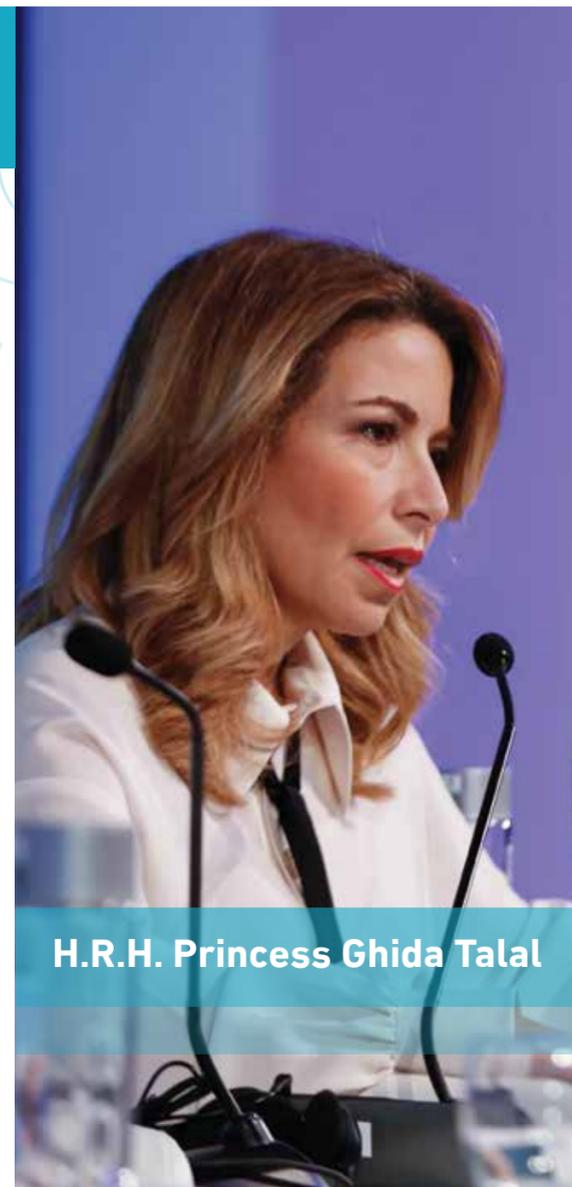


Pete Moores: The third speaker is Pete Moores, a management consultant at Isis Innovation Group at the University of Oxford. He has 15 years of experience in dealing with artificial innovation, academic production and government funding, an area in which he has been awarded many international awards. Pete also has got extensive experience in working with the industrial sector and its various branches, including the field of environment, automotive, aerospace, and food industry, which has been acquired using new technologies to enhance productivity, increase profitability and raise the level of efficiency and competitive advantages.



Robin Hanson: The fourth and the last speaker is Robin Hanson, Associate Professor of economics at George Mason University, who is also a senior researcher in the field of humanities, who holds a PhD from California Institute of Technology, and a Masters in physics and philosophy from Chicago University, US. He has nine years of experience in the field of research programmes at Lockheed Company and NASA space agency. Professor Hanson has great experience in a variety of other topics as well.





We should establish an Arab cooperative group that is concerned with conducting cancer research.



After this introduction, let me direct my speech once again to H.R.H. Princess Ghida: as President of the Board of Trustees of the King Hussein Cancer Foundation, the K.H.C.F. has become one of the most important and generous cancer treatment centres in the Arab region. Otherwise, it is not the most important and famous at all in this region. This is what makes us proud; would your Highness please give us more information about the K.H.C.F., and why does your Highness think that scientific research is considered now an important factor for the discovery of innovative ways to treat cancer?



Thank you very much, Valentina, for this generous word for introducing the esteemed members of the committee and myself as well. I am not sure whether I deserve such an introduction, especially with the presence of such a distinguished elite of globally well-known experts and scientists. However, I have a story I would like to tell, so please let me take you a little bit into the past, specifically in the winter of 1992. At that time, I was in New York City, where the weather was very cold, and I was a bride who had just married. While I was sitting on the seat at the hall of the Memorial Cancer Centre, because my husband, whom I had married six months before, was suffering from cancer, and he had just finished a chemotherapy session. I felt deep sorrow at that time because there was an opportunity for my husband to live, especially as we had him treated in the most important and famous cancer treatment centre in the



K.H.C.F. has published so far more than 290 papers and publications. Many papers have been published in renowned worldwide medical periodicals and magazines, such as the «Journal of Clinical Oncology».

world. Moreover, my husband and I had the opportunity to obtain the best treatment and research in that centre.

I pledged to fight Cancer and help people suffering from cancer in Arab Countries

Since then I made a commitment that as soon as I return to my country, Jordan, I would dedicate all my efforts and time to help in the treatment of cancer patients. I would start the establishment of the latest centre for the treatment of cancer and cancer patients, not only Jordanians, but also patients from all over the Arab world. As you all know, cancer knows no barriers or borders; it invades every home and every family. Here, in this regard, I would like to ask all attendees in this room who have suffered from cancer, directly or indirectly, to

kindly stand to mourn the victims of this dreaded disease. A few years later, H.M. King Abdullah II honoured me by appointing me Head of the «The hope for cancer» centre, a centre that cares for the treatment of cancer patients. There were only two doctors at the time of the foundation. The centre has been small but over time, the centre has become the Centre. Subsequently, the centre has turned to King Hussein Cancer Foundation, the most important and famous centre for cancer treatment in the whole region.

King Hussein fought cancer and broke the restrictions and prohibitions

The first thing I did when I assumed its presidency was changing the name of the centre, in recognition and honour of H.M. the late King Hussein, who died suffering from this disease after fighting with all his courage. Moreover, King Hussein has done much more; he managed to smash all prohibitions and restrictions with respect to cancer in Jordan. He talked a lot about the pain resulting from this disease, publicly, in front of everyone and on international TV screens. Moreover, he removed his hat, the cover of his head to show to every cancer patient that it is not shameful or disgraceful to suffer from cancer. After that, things went so well and quickly when I decided to put the word cancer on our organization sign in order to tell people you must defeat the enemy that disturbs your life. I had to go to the United States immediately to interview the pioneer experts and scientists in the field of fighting cancer, to provide the



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necessary support to us. I met the Chairman and officials of the National Cancer Centre, who expressed a strong desire to support us. In addition, they sent officials to help in the establishment of the K.H.C.F.

220 Employees treat 30 thousand cases in the Foundation

14 years have elapsed, and we had only two doctors, today we have more than 220 employees in the Foundation, who are well-trained at the highest global standards, who treat nearly 30 thousand cases of cancer. Patients come from several countries across the Arab world, including Syria, Palestine, Yemen, Iraq, and other countries where health and treatment care systems have deteriorated.

This matter relates to what you should do and what your priorities are. The most important issue we have is to provide the best treatment and medical care for patients, and it is the most available secure treatments; because other treatments are just secondary factors; because what is the benefit or feasibility of providing half treatment to cancer patients, this does not achieve any result to cancer patients. Consequently, because of those ongoing efforts, we have been awarded the appreciation and certificates from many agencies, bodies, and international organizations working in the field of fighting cancer. Subsequently, we became the first institution in this area in the developing world, and we have the sixth place in the world. We have succeeded in entering into partnership with other foundations and centres around the world, including a famous centre in Texas, in the United States. At this stage only, we felt that it is time to turn our attention to research in the field of cancer, meaning cancer research.

The Hussein Foundation published 290 scientific papers on cancer

Regarding research, the K.H.C.F has published so far more than 290 papers and publications. Many papers have been published in renowned worldwide medical periodicals and magazines, such as the «Journal of Clinical Oncology». Moreover, we have entered into partnership to conduct research with a number of international centres, including cooperation with the MG Anderson Foundation, which included research on breast cancer, like the one famous actress Angelina Jolie suffered from recently.

Thus, the K.H.C.F. has entered the field of conducting cancer research, which is a step forward for us, especially as we are now living in an era of cancer research worldwide. We have realized that we must take this step and conduct our own research for several reasons; the most important one is that the risk factors are different, and responses to certain treatments are different. Because of this experience, the K.H.C.F. has managed to develop many advanced types of chemical research and chemotherapy on a particular segment of patients who suffer from various types of cancer.

We have recognised that due to all these facts and considerations, we had to begin to conduct our research, even if we have the advantage of accessing a lot of the research carried out in the West; we are still different, and our patients are different, too.

I hope to establish a fund for the treatment of cancer patients

I wish to send a professional message : first, there is a necessity to establish an Arab cooperative group concerned with conducting cancer research, and the second thing is setting up a fund for the treatment of cancer patients. I say that and talk about this issue because we have four important centres in the Arab world for cancer treatment: the King Hussein Cancer Foundation in Jordan, «Tawam», the Centre for the treatment of cancer patients in UAE, King Faisal Hospital in Saudi Arabia, and finally the «AUBMT» Centre in Lebanon. Not every one of these can conduct cancer research on their own for the following reasons. The most important reason is the high cost that cannot be borne by one foundation alone, or even a single state. The second reason is that the expertise available in each of these four foundations is not significant to some extent, and finally the number of patients who need real effective medical treatments also need a large number of qualified and specialized doctors in this field, who are not available in a single state.

The greatest wish of mine is to become able to start from today to set the first step, or the basis for the establishment of an Arab research group for cancer, and create a fund for this purpose. I hope that my wish could come true next year, and with the inauguration of the coming Knowledge Summit in Dubai, we can formally inaugurate such an Arab research group.

My husband's Cancer is a motive to dedicate my effort and time to fight this disease.





Hugh Herr



Hugh Herr is an American rock climber, engineer, and biophysicist who heads the Biomechatronics research group at the MIT Media Lab. He creates bionic limbs that mimic the function of natural limbs. In 2011, TIME magazine coined Herr the “Leader of the Bionic Age” because of his revolutionary work in the emerging field of biomechatronics – a technology that combines human physiology with electromechanics. A double amputee himself, he is responsible for breakthrough advances in bionic limbs that provide greater mobility and new hope to those with physical disabilities. In 2007, Herr was presented with the 13th annual Heinz Award for Technology, the Economy and Employment.



First, I would like to extend my sincere thanks to all those present in the hall, and I have great pleasure to be here today. First, I want to give an idea of my work, and the motives that urge me to do research and innovation. In addition, in my capacity as an engineer, a biophysicist, and the director of the Biomechatronic research group in MIT Media Lab, my primary interest is focused on the new generation of bio-electronic limbs and robotic artificial limbs whose design is inspired by nature, which shows brilliant technique in a conversation combines deep technical and personal side.

My doctor told me it is hard to go back to my normal life again

We can see now the slides on the screen in front of us. In this picture, that is me, shortly after the amputation of both legs after my exposure to a painful accident in 1982, when mountain climbing. Several days after this incident, I woke up to find my body and myself in this condition. I asked myself, what is next? I asked the doctor who made the amputation surgery for my legs: what can I do to live a normal life and go back to my work? However, he replied without hesitation, it would be difficult, almost impossible, but I said to myself that the doctor was wrong, and that I did not agree with that.



We want to take a step forward and we hope to narrow the gap between human and automatic dynamic limbs. We are currently conducting experiments through which we can cultivate inherent nerves that pass through channels in the form of small corridors. On the other side of the canal, the nerve connects with cells, the skin, and muscle cells.

The accident made me invent Prosthetic limbs

Immediately I began to search for an innovation or invention that could compensate for the limbs I had lost in this terrible accident. I have already tried many attempts in this direction by looking deep into nature through the perspective of science; designers extract principles, processes, and materials that constitute the fundamental basis of design methodology. We move from the artificial limbs that resemble biological materials to computational systems comparable to the neural processes. Nature keeps pace with the design and the design keeps pace with the nature of the genes, regenerative medicine, and synthetic biology. Designers develop new unforeseen technologies, or expected from nature. Bionics engineering examines the interaction between biology and design.

Many experiments confirm the success of electronic-flesh integration

Today, I'll narrate humane stories about an electronic merger, how the electrodynamics are connected to the body and planted therein, which is a beginning to shrink the gap between ability and disability, between man's limited capacity and the potential ability of man; bionics identified my physical ability. In 1982, my legs were amputated due to tissue damage from the frost, which I had been through during the mountain climbing accident. I did not look at my body as broken, I have learned that man can never be broken, but the technology is broken, technology is inadequate. This idea

is simple but powerful, it was a call to urge technology to fight my disability and the disability of others. I have managed to develop high-tech limbs that allowed me to return to the vertical world of climbing rocks and snow. I have quickly realized that the artificial part in my body is flexible and able to take any shape or function like a white sheet through which frames can be made to extend beyond the biological capacities. I have made my length adjustable; I can be short as much as five feet or taller, as much as I want.

Thanks to technological innovations I have returned to my favourite sport

When I feel sorry for myself or less confident, I increase my height, but when I am confident and content, I shorten my height just a little bit to give competitors a chance. The slender and cuneiform feet allow me to climb steep rocky cracks, which is almost impenetrable to the human foot. The barbed feet allow me to climb vertical ice walls without any muscle strain. Through technological innovations, I went back to my sport stronger and better. Technology has removed my disability and gave me a new climbing prowess as a young man. I would imagine a future world in which technology is very sophisticated, so the world gets rid of the disability, a world in which nerve transplant allows the visually impaired to see again, a world in which the crippled can walk with external body structures. Unfortunately, due to the lack of technology, disability spreads in the world.

The mission of the MIT centre is the establishment of technological capabilities in the regenerative repair of humans

We have established a centre for maximum dynamic electronics in the MIT Media Lab; its mission is to develop basic science and technological capabilities that will allow biomechatronic to make regenerative reform of humans on a large scale for cerebral and physical disability. Today I will tell you how my legs operate and how they work as an example of what we are doing in this centre. Bioelectronics require unique interfaces engineering, a mechanical interface, and how my limbs are tied with my biological body, a dynamic interface, and how to move them as they are alive, an electronic interface, and how it communicates with my nervous system.





My electronic limbs are connected with my biological body

Imagine a future in which clothes could be solid and soft, where and when you need it, to support an ideal flexibility without causing discomfort at all. My electronic limbs are connected with my biological body through industrial skins with variations in hardness that reflect the biomechanics of my underlying tissues. To achieve this reversal, in the beginning we have developed mathematical models for my biological limbs. For this purpose, we used imaging tools such as X magnetic resonance imaging to see inside my body to know its engineering and the locations of various tissues.

We integrate sensors and smart materials in the synthetic leather. We have discovered that ideally when the body is solid the synthetic leather must be soft artificial skin, and when the body is soft, the synthetic leather must be solid, this reversal will take place across all tissues in compliance with this context.

We produced electronic limbs, the most comfortable limbs I have ever worn. Clearly, in the future, our clothes, shoes, bracelets and artificial limbs are no longer designed and manufactured using artisans' strategies, but by computer data. In the future, our shoes will not cause ulcers again; we can also incorporate sensors and smart materials in synthetic leather.

Materials developed by SRI International change hardness under electrical effect

Stanford International Research Institute in California has developed these materials so that under electrical effect they change hardness even under zero voltage. The materials are incompatible, they are flexible like paper, and when the button is pressed the voltage is applied, and they become stiff like wood.

We have integrated these substances in synthetic leather, which connects the artificial limb with the biological body when you walk. Here there is

I did not consider my body as broken, and I inferred that man cannot be broken.



no voltage enabled, interactive, soft, and compatible, when the button is pressed the voltage is applied, then it is hardened, and provide me with a tremendous ability to manoeuvre in the electronic limbs. We also build exoskeletons; this exoskeleton becomes tough and soft only in the right parts of the operating cycle in order to protect the biological joints from collisions and laceration. In the future, we all will wear exoskeletons in normal activities such as running.

We build so-called body limbs (BIOMs)

At MIT Media Lab, we study how humans naturally walk and run. What do muscles do and how does the spinal cord control them? This basic science supports the construction process; where we build electronic ankles, knees, and hips, we also build limbs for the whole body, and the limbs that I am wearing are called «BIOMs». It has been installed for approximately 1,000 patients, 400 of which for US wounded soldiers. How does it work? The heel touches the ground responding to the computer control. The system controls toughness to relieve bumping the limb into the ground, and in the middle of the process, the limb pumps high power and torque to lift the person to the status of the step as the working way of hind leg muscles, and moving the organ forward is very important for patients on the ground.

We aspire to narrow the gap between human and automatic dynamic limbs

We want to take a step forward and we hope to narrow the gap between human and automatic dynamic limbs. We are currently conducting experiments through which we can cultivate inherent nerves that pass through channels in the form of small corridors. On the other side of the canal, the nerve connects with cells, the skin, and muscle cells, through these channels we can sense the



motion that the person wants to carry out, which is sent to the automatic limb wireless; and then sensors on the automatic limb can be converted to stimuli in adjacent sensitive channels.

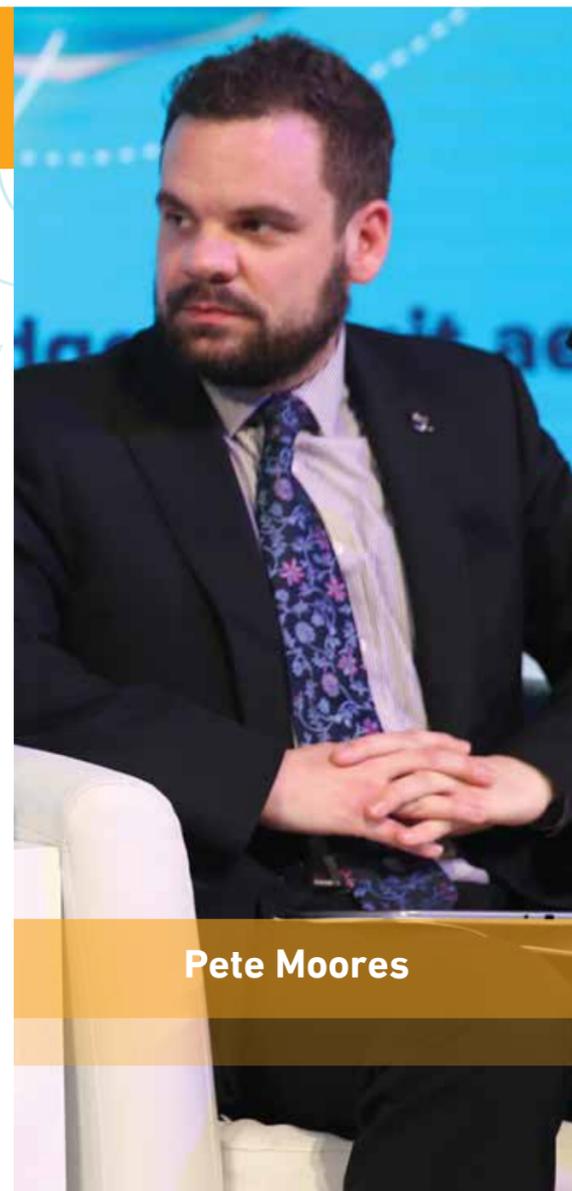
Artificial limbs will have the same biological capabilities as flesh and bones

When the desired project is completed and provided to the service of man, people like me will not only enjoy artificial limbs, which are moving like flesh and bones, but they will feel as if they were their own flesh and bones.

The basic physical functions shall be within the human rights; everyone has the right to live a life free of disability. If he chooses so, he shall have the right to live a life free from depression, the right to see someone who loves without feeling any difference, the right to walk or dance despite paralysis of the limb or its entire loss. As one community, we can maintain these rights if we accept the premise stating that not all human beings are handicapped, and man cannot be broken, but the environment and technology that we made are sterile and incapable.

We, humans, should not accept things that put restrictions on us, and we can overcome the disabilities through technological innovation and moving forward steadily through engineered biological limbs during this century; we will establish a technological base that will, in turn, increase the awareness and experience of human beings to eliminate disability.





Pete Moores

Pete Moores, a managing consultant at Isis Innovation Group at the University of Oxford. Pete, you have been working for the so-called «Triple Helix», would you please give us an idea about it and how we can provide a motivating and encouraging environment for innovation in the field of scientific research?

Speech by Pete Moores

Hello every one, I would like to thank you all for inviting me here and talk to you, I am also pleased to be one of these wonderful speakers. Let me begin by talking a little bit about Triple Helix. I work for a part or a branch of Oxford University, which is the oldest university that speaks English in Britain and the whole world. Many senior politicians have learnt and graduated over hundreds of years, including 26 prime ministers and 51 recipients of global Nobel prizes in various scientific disciplines.

Bright minds produce good academic research

This old university represents the first element in the context of the «Triple Helix» concept, by which we mean excellence or academic excellence; the bright minds produce mainly good academic research, and this is a simple and a very clear concept. However, the search itself is not enough, although it involves great value; as it should be the actual value realized from the application in the field of economy. The research shall have clear effects and beneficial consequences on economy and all members of the society. With the existence of good research, the desire comes to work with different institutions in the economy sector.

Government funding helps to conduct scientific research

Academic excellence, government funding shall then exist, and finally the application of this science on the ground in the field of industries that provide new applications and uses for science. Moreover, the presence of researchers, academics, and experts that provide new ideas and innovative inventions and expertise, as well as government funding, make it possible to conduct scientific research.

The biggest part of these researches depend on government funding for scientific and research institutions and centres. Therefore, the bright minds offer sophisticated research that contribute with a positive effect to people's lives and meet their



requirements. It is also necessary to emphasize the importance of government funding and optimum utilisation of resources in order to support research and the development process.

32% of research funding in the UK comes from the government budget

It shall be noted that 32% of research funding in the UK comes from the government budget, and this is considered an essential issue in the knowledge-based strategic planning process. Returning to the issue of the Triple Helix at Oxford University, we have tried to create an appropriate environment for this new branch of science and academic research in the service of economic development through the support of industrial research sectors and to encourage academic scholars. In 1987, an independent company for the transfer of industrial technology has been established. The objective was the practical application of scientific research results, and establishing the principle of participation and cooperation around the world. Now, more than a hundred people are working for the company.



There are enormous capabilities and energies in UAE in terms of application of scientific research and technology in order to stimulate innovation and work, to create more engagement and cooperation among different sectors on the subject of innovation and knowledge.

The company has entered several partnerships with many other industrial entities around the world, so it made up to 2500 patents with many inventors in the world, and up to 1450 licenses to obtain technology annually through cooperation with about 500 consultants and experts in this field every year.

Many systems and applications serve the development in the economic sector

Over the past eleven years, with the increasing innovation level in the world, we have been able to develop many systems and applications that serve the development in the economic sector and the development of the so-called environmental economics. Moreover, we have established an independent division in our company for projects and companies. We heavily focus on the development of innovations for financial and economic community, and get to know and identify gaps and weaknesses in these sectors, in order to find solutions in the framework of the development of environmental macroeconomic systems and focus on scientific research to achieve real results on the ground.

UAE have enormous capacities and capabilities for scientific research

I feel that there are enormous capabilities and energies in UAE in terms of application of scientific research and technology in order to stimulate innovation and work to create more engagement and cooperation among different sectors in innovation and knowledge. In addition, there are more people working in this region; they see this issue and realise it well.





Prof. Robin Hanson



Social science provides a comprehensive vision of the surrounding world. Moreover, it enables us to invent things in a way that reflects social consistency and harmony with the surroundings or the environment in which we live.

Robin Hanson, the fourth speaker, who holds a PhD in philosophy, is Professor of economics at George Mason University, research associate at the Future of Humanity Institute of Oxford University. Hanson holds a Masters in physics and philosophy from Chicago University, USA. He has nine years of experience as a research programmer at Lockheed Company and NASA Space Agency. Professor Hanson has diversified research concerns; he has excelled in markets induction. He has been the first to write detailed studies on establishing and supporting markets to obtain better assessments regarding important and diversified issues.



Valentina Qussisiya: I would like to ask you, now there is uncertainty or ambiguity in the terms or concepts of innovations and inventions; could you explain to us the difference between them?



Robin: A long time ago, I started studying physics; later, I spent nine years working in computer research. From this point of view, I remember that the professionals and technicians tend to study social science. At this stage, I started becoming a scientist in the field of social science, a science that provides in fact a comprehensive vision about the surrounding world. Moreover, it enables us to invent things in a way that reflects social consistency and harmony with the surroundings or the environment in which we live, and provides us with knowledge about the



Some institutions underestimate scientific and research efforts, where other institutions are competing in support of scientists with a package of encouraging incentives to support them to continue research and development. Therefore, it is important for institutions and research bodies to play their roles in enabling researchers to turn their innovative ideas into achievements that serve humanity.

innovation process itself.

Most inventions are not necessarily innovations

However, I would like to mention some interesting things, which is a surprise about some inventions. First, it should be noted that most inventions are not necessarily innovations, because there are some differences that should be taken into account when comparing inventions and innovations. You should also consider some key points related to the role of academic studies and scientific research, especially with the increasing global focus in recent years on the concept of innovation and creativity, and the growing need to determine future requirements, and the gaps in the development process.

Invention itself represents a small part of the innovation process, which is also the easy part of this process, as most inventions and innovations are not based, in many cases, on precise scientific research or on

scientific grounds, but on repeated practice.

Invention is the process of generating good ideas

We can say that invention is the process of generating good ideas, while innovation is the process of turning these ideas into a new product, process or service. Invention works on artistic influences in generating the new idea, meanwhile innovation achieves economic impacts in a more important conversion process in transferring the idea to the new product. Innovations do not need to be natural innovations since most innovations do not necessarily contain value because they may involve a negative impact on individuals and society as a whole. In addition, most innovations are very small in size and influence. The scientific and academic community is not designed for innovations only, not even the aim of progress and development of scientific research, but it is designed in order to perform the tasks well.



Valentina: Now my question is to Hugh Herr: you have spoken before in your word about the concept of innovation, so how do you define innovation? Here I go back to my previous question, what are the key elements that should be available to innovators or an innovative society?



Innovation is a difficult process to find a new idea that others do not have.

Hugh Herr: Throughout my career, it became clear to me that innovation is a difficult process when you have many ideas, but the concept of innovation means that you have a new idea that others do not have, and you provide it to the world, this is simply the process of innovation. I believe that 1% of the US inventions and patents, in fact, describe technologies that are being used by members of the community, therefore, innovation may start with a small, simple idea recorded on a paper. It is just an idea but worth the search, study, implementation and transition to the implementation phase in order to become useful and available to the community and any sectors thereof.

An absolute necessity to emphasise the entrepreneurial spirit and search desire

I have frequently been asked in many conferences and events about specifications or elements that may be available in the innovator or innovative community. It is necessary to emphasize the entrepreneurial spirit and the desire to research. Moreover, Silicon Valleys are important in an area with the research and scientific capabilities and capacities represented in experts and researchers who work there.

The heel in my artificial leg required many laboratory experiments and researches

Another condition or item is available, which is diversity among



Some existing differences should be considered when comparing the inventions, innovations, and some topics concerning the role of academic studies and scientific research.

different human races, which stimulates innovation that has been achieved throughout ages. There is a third element concentrating on the necessity of continuing the experiment and research leading to the desired result. As an example, the manufacture of the heel in my artificial leg has required many laboratory experiments and researches to be in its final form as you see now. The creation process of this heel was time-consuming and its installation required a lot of mechanical engineering research, and many operations. This also applies, for example, to the chips in this part, and so on for other parts. This process required many designs to develop, as I mentioned before, and perform art works based on accurate data and statistics that are very significant. In order to build an innovative society, first we shall train

promising young people for the methods of creative and innovative thinking, so that you have among these young people, the elite of mechanical engineers, and a group of talented designers and a third group of biologists, and so on.

Innovators have a passion for their work

Before I conclude, I have a simple comment, which is that there are innovators who have been trained at the highest levels. Those people have a huge passion for their work, and they do what they do because they love to explore new things, and they do not like to carry out experiments or things that may involve failure. I have experienced this thing myself through one of the experts who have worked in my team to create artificial limbs and parts of my legs, so it came out that they conducted many experiments on one component or part repeatedly in order to reach the ideal required element.

This is the correct thinking mentality that talented people should adopt; people like them do not want to fail in their work. Perhaps the true example of what I say is the great inventor Thomas Edison, one of the best inventors in human history. He was careful to conduct many experiments before inventing anything in order to ensure success of the invention. This is one of the great qualities of those inventors. Consequently, he managed to invent the light bulb, as we all know. In addition, he invented many other devices that have had a significant effect on humanity until today.



Valentina: I would like to ask H.R.H. Princess Ghida: why does our Arab region suffer from such brain drain, and this problem does not exist in Jordan only, but in many other Arab countries; how can we work on restoring our history, which was full of science and scientists, and getting back those who have emigrated to Western countries?

Inappropriate environment produces the problem of brain drain

Princess Ghida: Well, in this regard, I can confine my speech to

our region. I think the main reason behind the problem of brain drain is the non-availability of an appropriate environment, a sound academic environment where those talented people can work. I have stated in my talk the experience of the King Hussein Cancer Foundation, which started working years ago depending on only two doctors, until this number increased to 222 doctors now. Most doctors have been trained in the United States, also mostly Arab Americans who have jobs in America, but they left all these advantages and preferred to return to Jordan to work for the Hussein Foundation, although they understand very well that we live in a troubled and unstable Arab world.

Arab scientists have a sense of patriotism and gratitude for their communities

These talented people left America and returned with their families to their country because they love their country. As I said, they need an appropriate scientific environment to perform their work, and they need to have favourable conditions for the deployment of their researches. Therefore, if you could provide and find all these proper conditions, perhaps you can get the emigrated minds back to the region. In addition, we shall not forget that Arabs always have that patriotic sense of gratitude to the community, and the desire to serve people, which in my opinion is a great bonus.

An appropriate scientific atmosphere for scholars and researchers should be in place

Sometimes, it seems very difficult to convince immigrant Arab scientists, researchers, and doctors in the West, who live in a stable environment with their families, to return to their home countries though they get there many privileges in work and living, and they get considerable salaries. Therefore, to convince them to return appears to be a difficult task to accomplish, and even if we succeed in this, it is essential to compensate them financially and provide them with a favourable professional and living atmosphere. To sum it up, although it is difficult to address the problem of the brain drain to the West, we should provide an appropriate scientific atmosphere for scholars and researchers here.



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Pete Moores: I believe that the Princess is right regarding the need for providing a sound scientific environment for scientists and researchers. I would like here to underline something important, which is that we have a misconception, which says that universities are the only place in which innovations occur. You should

look at the way in which universities were established and the way they are working, which is limited only to education as its main function, then scientific research comes in the second place.

Many necessary requirements for an appropriate scientific environment Partnerships and cooperation agreements with other scientific and academic authorities and institutions rank in a lower category in terms of importance. When we talk about the necessity of creating an appropriate environment for scientists and researchers, we will right away realise that this is the fundamental reason for immigration abroad, and to other places such as Silicon Valleys, and universities like Oxford or Cambridge University. These places provide them with the appropriate academic environment, and they find the necessary elements for the innovation and scientific research system.

There are also a favourable cultural climate and incentives, rewards, and even compensations in the event of facing unexpected risks at work, rather than work and cooperation opportunities with industrial companies, and access to financial resources. In addition, there is an opportunity in the Silicon Valleys to take advantage of the great expertise of scientists and researchers who work there; all these have potentials that exceed those of some universities. Briefly, this is one of the most important requirements necessary for appropriate scientific environment, necessary funding, and a good place leading to motivate the process of innovation and encourage scientists to do so.

When it comes to innovation, we find that the majority of people talk about innovation as a great achievement. However, they are not familiar with all the efforts exerted to achieve it. Without mentioning the promotion and publicity of innovation, as well as the circumstances surrounding



the innovation process and other factors in the context of work and research environment, or restrictions that may face innovators through institutions and agencies that fund innovation research.

Some institutions underestimate scientific and research effort

On the one hand, some institutions underestimate the scientific and research efforts of scientists and researchers. On the other hand, some other bodies and institutions provide them with all means of innovation, and financial incentives that encourage them to continue research in that field. Therefore, it is important to find research bodies and institutions that reward people for their achievements, which set no limits or punish them; because that would hinder innovation.



Valentina: However, Hugh Herr, is it possible for anyone else to get bionic legs like those two? In addition, how can we make inventions or innovations available and acceptable for everyone?



Hugh Herr: Only rich developed countries can afford to buy such advanced technology using bio-artificial limbs or related

medical devices. Moreover, the person can innovate in order to solve this problem.

«Fab Lab» material has complex and highly sophisticated specifications

There are people involved in this field who are currently thinking to promote and distribute it at a global level. Among them is DR. Adam, a specialist in the creation and installation of the so-called «Fab Lab», which is manufactured around the world. This material has complex and highly sophisticated specifications; it is a key ingredient in the manufacture of organic limbs of this kind. We can also use the Fab Lab material in the construction of cardboard, devices, machines in general, and those used in agriculture. This would enable local communities to develop a technology that reflects its actual culture. This will also enable those communities to manufacture those things on a local scale, and this will enable reduction of the cost of manufacturing to a considerable degree. The device that I use in my legs is worth tens of thousands of dollars, however if you managed to manufacture the core components locally with the existence and availability of these components, the cost would actually be less.



Robin Hanson: There is a famous and popular saying, which states that it is possible to make useful things for people in affordable and simple ways. This does not necessarily mean a change of concepts and ideas concerning innovations and inventions. Many innovations revolve around this concept, and many of them are intended for the use of the largest number of people, and make them available to them at a lower cost, and achieve public interest.

Innovation is a relative issue

In the United States, for example, we find that mortality rates are almost the same in large and small hospitals because of the mistakes that sometimes occur in surgeries, even though the cost of treatment is higher in large hospitals as it has the best potential.

Here the matter may look like a relative issue, and we can say the same thing for the funding of the innovation process, so, what is the solution? Perhaps the solution lies in new ways to perform surgeries; however, it is not a guaranteed solution. This also applies to innovations in general; innovations aim at transforming new ideas into new products and tools for public use.



Valentina: Before we receive the audience questions, I would like to ask Pete Moores: If we had adequate funding, do you think that the Arab region would be able to move forward in the way of innovation, research, and development?



Pete Moores: This is an extremely important point. In fact, private funding is one of the key problems in the development process. This problem has perfectly been characterised in a Kevin Costner movie, in which all his dream was to build a stadium that benefits young people in the exercise of their favourite baseball, but he encountered many obstacles to achieve his dream. This can be the nature of innovation in the world. If you set up the foundation or scientific basis, scientists and researchers will come to you from everywhere. For that purpose, you need all the necessary entities and facilities. Funding is a key element that connects other elements together, and brings people concerned together. Therefore, we can say that the good technology basis, innovation, and technology transfer, etc. are necessary requirements.

Business and marketing attitude into technology

There is a need for people who have strong motivation and desire to innovate and they are trained at the highest levels to do so. In addition, they can in return get rewards in recognition of their efforts; and that is everything we need. In addition, of course we need to apply other possibilities of business and marketing attitudes on technology, and funds for the construction of related scientific facilities, equipment, and capabilities.





Audience Questions

The way What are the rules and regulations of any company, which can lead to discouragement and lack of desire for innovation?



Hugh Herr: I am the director of the research group of biomechatronics in MIT Company in the laboratories of Massachusetts Institute of Technology, and there is a strict policy in this company, which stipulates that every engineer or a physicist like me should invent or innovate something within a specific timeframe, otherwise, he may be subject to termination. However, the business atmosphere in the company encourages for innovation and inventing new things; so, I would say that there are expectations and hopes within each company that staff achieve specific objectives for them at certain intervals. However, I would also like to note that even the person who funds laboratories in our company cannot dictate researchers or scientists what to do, or set the issue that they have to deal with, meaning, do and do not, or that the solution must be so. Funds come to laboratories in which we operate without any rules or terms of what we should do or what the important thing we should work on. Therefore, in the company's laboratories, a portion or part of these funds is allocated for every researcher to use in his innovations and researches, and in order to continue his experiments to explore the things that he loves and that he thinks are important from his point of view and not from the standpoint of the financier. This is an issue, which may include

an element of risk, but it is precisely organised. Systems and laws or regulations have never controlled our work within the company. In fact, this allowed company laboratories to innovate, invent, and make new things without any obstacles, and this is what makes our labs operate successfully, and this is an example on the subject of funding that we are talking about.



Robin Hanson: I would like here to point out that the rules that impede the process of the invention or innovation are one of the major obstacles that should be overcome. Therefore, financiers shall not interfere in the work of inventors or innovators, or impose certain conditions on them in the performance of their work. This policy shall be a general policy that is applied in all scientific and research companies and institutions related to the topic of innovation. Sometimes we find that a lot of care and attention is focused on the famous financiers associated with the subject rather than the inventors and innovators themselves as being the ones who have produced these innovations at the end.



Princess Ghida: What I would like to add about this issue is that the comparison made here looks unfair. We cannot compare the Arab world to the West, in form and content, when discussing the subject of restrictions and obstacles that hinder the process of innovation, or essentially related to the subject of scientific research. We sometimes do not conduct such researches in the correct academic manner. We should start from the basics, and pay more attention to scientific research and research publishing and funding. Moreover, we should begin to establish partnerships to collaborate with major institutions abroad. This may take ten years, for example, to achieve this objective, but it is ok. The United States and Britain needed hundreds of years to reach what we have achieved in the field of innovation, invention and progress in scientific research. As I mentioned in my talk

before, there is an urgent need to establish an Arab union concerned with scientific research. It is important that we start and take the first step in this direction. Again, it is difficult to compare us to the West because our Arab nations are simply different from the people of the West.



Pete Moores: There is no specific model for a particular economic figure to be able to develop its capabilities in the field of scientific research, or develop its abilities and potential on the system of environmental economics because there are many different ways for that. There are several ways to achieve that purpose, the most important of them is to rely on the points of strength you have, and cooperate with the West to develop and improve your abilities in scientific research, as well as access global capital markets.





Day Two

Press Conference: Announcement of the Results of the Arab Knowledge Index

Press Conference Agenda

- » Speech by H.E Jamal Bin Huwaireb, Managing Director of Mohammed Bin Rashid Al Maktoum Foundation.
- » Speech by DR. Sima Bahous, Assistant Administrator and Director of the Regional Bureau for Arab States at the UNDP.



Arab Knowledge Index is a roadmap for the Arab world.

- In his speech, H.E. Jamal Bin Huwaireb has indicated that since the establishment of Mohammed Bin Rashid Al Maktoum Foundation, it has been always focusing on monitoring the knowledge flow in the Arab states. On the basis of the efforts exerted, and monitoring the processes of research, survey, study, analysis, and questionnaire done to recognize the strength and weakness points and specify the challenges, the Foundation has launched the Arab Knowledge Index, in cooperation with the UNDP, during the first round of the Knowledge Summit last year. Today, we will review the results of the diligent efforts continued throughout an entire year, through

methodological research and a series of workshops conducted in a number of the Arab states and other foreign states such as the United Kingdom of Saudi Arabia, Morocco, the United States of America, Britain, and France.

Elite of experts set the mechanism for taking the characteristics of the states into account

Elite of the most prominent experts in the Arab world have effectively participated in preparing this valuable cognitive product to ensure that the Index proceeds in accordance with a well-planned mechanism. The key points of the Index have six standards that specify the degree of knowledge in every state. Sectors of knowledge included pre-university, university, and vocational education, and research, development, innovation, information technology, and economics. Before announcing the Index results, two important issues should be highlighted. First, the Index takes into consideration the national, historical, and cultural characteristics of every Arab state. The Index is flexible and can be easily applied in any state having developmental elements. Second, this cognitive product does not classify nor award ranks. It is rather a scientific tool for recognizing the degree of knowledge in our Arab world and developing a roadmap for setting the strategies of economic and social welfare in the Arab world. The Index provides scientific data derived from a methodological research mechanism and scientific methodology that will create a competitive environment that drive the governments and competent authorities to set more programs of spreading knowledge to accomplish the switch from knowledge-consumptive communities to productive communities that produce and export knowledge.



Mohammed Bin Rashid Al Maktoum Foundation works through an integrated system to have a real image on the knowledge reality in the Arab world. Were it not for knowledge, we would not have explored and produced oil. Therefore, we consider that knowledge-based oil will be done through this Index, which will help rulers in developing their development plans successfully according to right information, and vision.



Arab Knowledge Index 2015

An index that observes the knowledge reality in the Arab world on yearly basis, taking into account the special status of the Arab region. the Index has some sub-indexes in economic, social, and cognitive areas that show progress, to create knowledge-based economic communities and systems.

These indexes take into account the following factors:

- » Number of colleges, universities and centres of scientific research and its efficiency.
- » Governmental budgets allocated for the development of scientific research.
- » Number of annually registered patents.
- » the advancement of the communication infrastructure as a tool to disseminate knowledge
- » Number of yearly published books and translations.
- » Efforts exerted in developing the content in the mother tongue.

Moreover, the Index is a practical tool to provide knowledge in the Arab world, and produce actual and precise information to the decision-makers, experts, and researchers in the Arab communities.

Key pillars of the research, development and innovation index



Research & Development



Organisational, Social & Political Environment



Innovation

Key pillars that comprise Arab Knowledge Index

Arab Knowledge Index

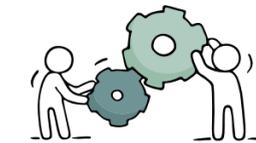
Research, development & innovation



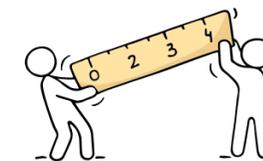
Economy



Technical Education and Vocational Training



Pre-university Education



Higher Education



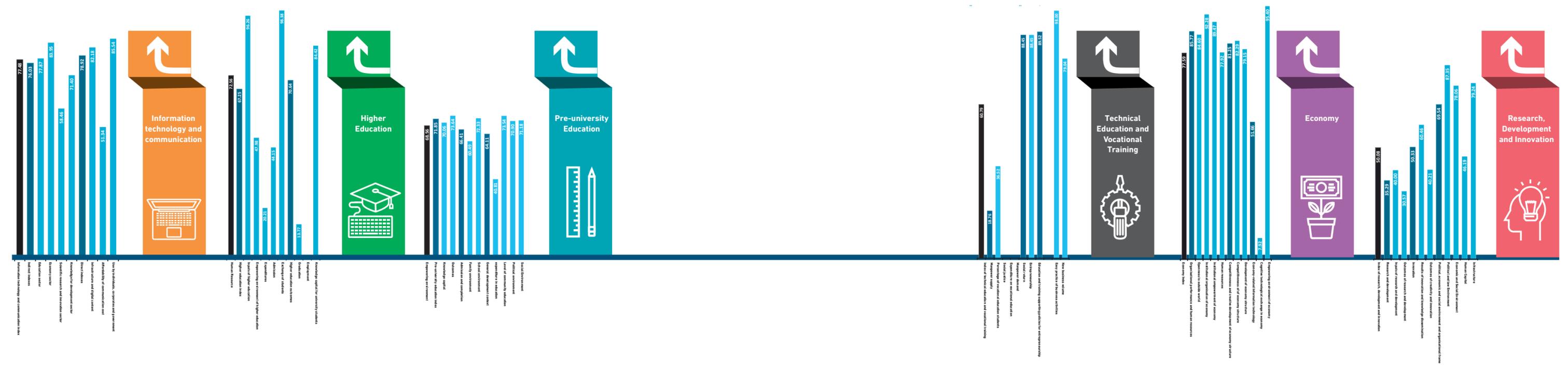
Information Technology and Communications



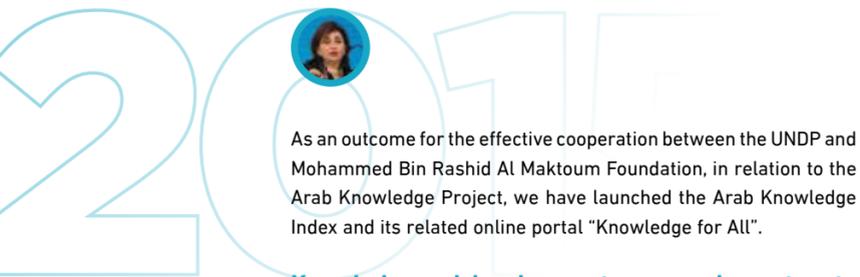


Knowledge Index.. Renaissance Creator

The Index launched by the Knowledge Summit of 2015 has based on 6 elements that imitate in its subject the cognitive reality of the Arab countries. In addition, at the same time it keeps pace with the global changes. These elements are the technical education, vocational training, economy, research and development, higher education and the pre-university education, information technology and communications. The report of Index outcomes targeted 22 countries, describing the recent status of every country in its march toward the knowledge community and economy. The outcomes of the Index, talks and discussions affirmed that the Index is the creator of renaissance, which the community seeks UAE has achieved excellence in the Arab and Gulf scales regarding the courses of cognitive progress, and obtained high rates in the cognitive status as per the Index outcomes. The Index recorded the State's success in achieving 68.56% of the pre-university education index, 60.79% of the technical education and vocational training index, 72.56% of the higher education index, 77.48% of the information technology and communication index, 77.59 of the economy index and 50.076 of the research, development and innovation index.



The Knowledge Summit



As an outcome for the effective cooperation between the UNDP and Mohammed Bin Rashid Al Maktoum Foundation, in relation to the Arab Knowledge Project, we have launched the Arab Knowledge Index and its related online portal "Knowledge for All".

Knowledge and development are complementary to the progress of nations

The Index and its online portal come as a natural result of the Arab Knowledge Project focus on building the necessary relationship between knowledge and development, since its establishment in 2007. This is clearly conveyed in the three parts of the Arab Knowledge Series, issued accordingly to focus on knowledge, youth, and qualitative education in the Arab region.

Mohammed Bin Rashid Al Maktoum Foundation symbolizes leadership in the Arab world and internationally.

Ladies and Gentlemen, I would like to greet Mohammed Bin Rashid Al Maktoum Foundation on the magnificent success witnessed in the Knowledge Summit. Although the Foundation has not been long established, it has become a milestone in the march of development and knowledge in the whole world. This enhances the foundation pioneering position in the field of culture in the Arab world and internationally. The index is considered a cognitive tool for evaluating progress in the field of knowledge and economy in order to achieve a sustainable human development in the Arab region.

«Knowledge for All» is an online portal for attracting researchers and academicians

"Knowledge for All" is an online portal designed for building the broadest communication with all the concerned researchers, academicians, decision makers, policy planners, civil society, and



We hope to participate in the best implementation of 2030 Sustainable Development Agenda in the Arab region, through the partnership with Mohammed Bin Rashid Al Maktoum Foundation. We are looking forward to continuing the pioneering partnership to enrich the cognitive and cultural base and promote the horizons of the sustainable human knowledge.

students. Thanks to the fruitful cooperation with the Foundation, and the genius leadership of His Highness Sheikh Mohammed Bin Rashid Al Maktoum, the vice president, prime minister of the United Arab Emirates, and Ruler of Dubai; the Arab knowledge Index has been able to become a new qualitative add. This accomplishment comes, particularly, at the time in which the Arab region witnesses the severest and most drastic crises, resulting from the lack of qualitative education and knowledge. Therefore, fighting poverty and unemployment remains the main key for the sustainable development at all the social, environmental, and cultural levels.

The United Nations Development Program (UNDP) implements the 2030 sustainable development agenda

The Regional Bureau of the UNDP is looking forward to continuing the pioneering partnership to enrich the cognitive and cultural base and promote the horizons of the sustainable human knowledge. We have already started to implement the 2030 Sustainable Development Agenda, which we hope to be perfectly implemented in the Arab region through such partnership.

I would like to thank His Highness Sheikh Mohammed Bin Rashid Al Maktoum for his great efforts to support development and knowledge in the Arab region and the rest of the world, and I would like to pay tribute to his continuing initiatives that always inspire us all.

MOHAMMED BIN RASHID AL MAKTOUM FOUNDATION





Audience Questions

Q. Will the knowledge online portal enable the talented and authors to publish their creative materials?

A. H.E. Jamal Bin Huwaireb has clarified that anyone has a creative contribution in his/her field could publish whatsoever they want on the Knowledge web portal, after being reviewed by specialized committees. The committee will read the content and check whether its standards are precisely applied or not and whether it does effectively contribute to the development of knowledge.

While Sima Bahous has confirmed that, this is a real opportunity for all cultured people in all different fields to show their cognitive productivity and establish a cognitive base for all. She has also referred that the content is constantly updated on the knowledge portal.

The big challenge we face is data collection. We should have a special reference in our Arab region to be able to set a well-established knowledge base.

Q. What about the states, which witness instability and security challenges?

A. Bahous replies that the Knowledge Index is equipped with a mechanism for continuous and permanent update. As for the information derived from the states that witness some crises and security unrest, the country status shall be taken into consideration through our offices that take over the process of data collection therefrom. Therefore, information are collected

in accordance with the real status of such states, and they are almost collected daily and permanently to be able to evaluate the challenges. These states are the major focus of the international institutions, which collect the developmental indexes to support these institutions in the human fields and reform thereof.

Q. Is the index limited to the Arab States?

A. H.E. Jamal Bin Huwaireb replies that by the beginning of the coming year, the knowledge index shall be available for the Islamic states especially that the Knowledge Index can identify the strength and weakness points of the concerned countries. We aim to encourage the states to take the steps toward knowledge and innovation.

Q. Do the governments get information of the results related to the knowledge indexes in their countries?

A. Bahous replies that we actually contact governments, officials, and concerned and social organizations, in addition to the universities and other sectors of knowledge in the society to inform them of the results of their countries to set their plans and take the necessary actions. Therefore, all these bodies are considered an integral part of the index development.

Q. What are the impacts of initiatives on the destiny of the Arab knowledge, for example, the Year of Reading?

A. Jamal Bin Huwaireb states that declaring a "Year of Reading" is one of the positive initiatives that would effectively contribute to the Knowledge Index in United Arab Emirates. In addition, the knowledge is encouraged by the initiatives of His Highness Sheikh Khalifa Bin Zayed Al Nahyan and His Highness Sheikh Mohammed Bin Rashid Al Maktoum. Within the coming years, the indexes and results are going to rise more through the events of reading and innovation. Moreover, achieving good results needs time, so I hope all the Arab states follow suit the UAE in laying the foundation of knowledge within their developmental plans.





The Knowledge Summit

Day Two

2015

The way to innovation

The Knowledge Summit 2015

The way to innovation

#knowledge summit

2015 قمة
المعرفة

First Session

<<Arab Knowledge Index: Methodology and Components>>

Session Topics

- » Introducing the Arab Knowledge Index.
- » Why the Arab Knowledge Index?
- » The role of global indicators to monitor the reality of knowledge in the Arab world.
- » Methodology and components of the Arab Knowledge Index.
- » The future steps of the Index.

The Knowledge Summit

2014

The way to

Speakers

H.E Jamal Bin Huwaireb

Managing Director of Mohammed Bin Rashid Al Maktoum Foundation.

Professor Tarek Shawki

Chairman of specialized councils for the Egyptian presidency, Dean of the Faculty of Science and Engineering at the American University in Cairo, and the Chairman of specialized council for education and scientific research.

Professor Najoua Ghriss

professor at the Higher Institute for Education and continuous formation in Tunisia.

Professor Eric Fouache

Vice Chancellor Paris-Sorbonne University Abu Dhabi.

Moderator

DR. Magued Osman

CEO and Managing Director of the Egyptian Centre for Public Opinion Research (Baseera)



DR. Magued Osman is the head of the Egyptian Center for Public Opinion Research "Baseera". He is also the Professor of Statistics at the Faculty of Economics and Political Science at Cairo University.

DR. Magued Osman served as the Minister of Communications and Information Technology in the period from February to July 2011, he also took over the presidency of the Information and Decision Support center for the Ministers Council in the period from January 2005 to January 2011.

DR. Eric Fouache, Vice Chancellor Paris-Sorbonne University Abu Dhabi.

Recently, he is the Deputy of The International Geographical Union and he is also an important member in the French University Institute

Professor Fouache has developed many researches in geographic issues in the area of Mediterranean Sea, the Black Sea, Near East, Middle East and Central Asia.

Professor Eric has published two books, and has been awarded many awards. In 2000 and 2007 he has been awarded an award for his books from «French Geographical Society» in Paris.



DR. Eric Fouache



DR. Najoua Ghriss

DR. Najoua Ghriss, professor at the Higher Institute for Education and continuous formation in Tunisia, education expert in Arab Knowledge Index, and former Head of Education Science Department at the Higher Institute for Education and continuous formation.

Professor Najwa, Researcher collaborating with the National Centre for Renewal pedagogical and educational research in Tunisia. She is a member in research laboratory of «education, learning and psychology» at the Higher Institute for Education and continuous configuration, and a member of the Association of «the development of school-based education.»

Moreover, she participated in several regional and global forums that has interest in educational issues, as well as many contributions with regional and international organisations including the Arab knowledge Index of the UNDP and Mohammed Bin Rashid Al Maktoum Foundation

DR. Tarek Galal Shawki, Chairman of specialized councils for the Egyptian presidency, the Chairman of specialized council for education and scientific research, and Dean of the Faculty of Science and Engineering at the American University in Cairo since 2012.

DR. Tarek was the Director of the UNESCO Regional Bureau for Science in Arab States from 2008 to 2012.

DR. Tarek has been awarded The Presidential Awards for Excellence in research in 1989. He has implemented many projects throughout the world in application areas of communication and information technology in education, science and culture.



DR. Tarek Shawki



H.E Jamal Bin Huwaireb

H.E Jamal Bin Huwaireb serves as Cultural Advisor to the Government of Dubai. Since May 2013, he has also been serving as Managing Director of Mohammed Bin Rashid Al Maktoum Foundation, as per the directive of His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai

In addition, H.E is a UAE national historian and a pioneering man of letters, is acclaimed for chronicling the cultural and creative movement in the Emirate of Dubai as well as other Emirates and the wider GCC region.

The Knowledge Summit

2016

The way to innovation



DR. Magued Othman

Knowledge Summit is an achievement supported by leaders who adore excellence

DR. Magued Othman affirmed that the issues shown through the Knowledge Summit is an unrivalled achievement. The Summit worthy to be called a «summit in knowledge», because of its remarkable content and worthy expertise and ideas. In addition, the presence of wise leadership and political will emphasise the importance of collective work and insightful vision toward the future. Moreover, it constitutes a driving force to fly in the wider horizons of progress and development.

The sessions has shown a deep importance to transfer ideas into opportunities aiming at serving humanity, through utilizing distinctive innovative positive ideas and exchange them into a useable reality.

Moreover, the session emphasised the importance of giving sufficient space for sponsorship and innovation for the development objective.

The sessions has stated the importance of reading and awareness to promote knowledge, and that the call led by UAE, to announce 2016 a year of reading, is considered one of the achievements, which emphasise the leadership attitude toward establishment of science and knowledge values to have a bright future. The concept of measurement has a considerable importance in promoting and developing knowledge. It has a guide compass for all development projects in any Arab country, especially, that using this concept in the Arab Knowledge Index, and reflects the current reality of our world. There should be a clear image of the most important challenges to overcome it.

Converting the knowledgeable reality from consumptive into innovative

The emergence of Arab Knowledge Index is an Arab reference par excellence that can transfer our knowledge consumptive reality into an innovative one. Thus, thanks should be given to Mohammed Bin Rashid Al Maktoum Foundation for its great work, which will convert our Arab world and states into new development areas that care for humans and make them the key factor of its plans, to overcome future challenges we face.





H.E. Jamal Bin Huwaireb

Since 2007, when His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice President, Prime Minister of the UAE, and Ruler of Dubai incorporated the Foundation, Mohammed Bin Rashid Al Maktoum Foundation has worked to promote knowledge in the Arab world and support the development process. In fact, the Arab Knowledge Index is developing a roadmap for sustainable knowledge in our Arab world.

The Arab Knowledge Index has faced and overcome challenges

The partnership with the United Nations Development Program (UNDP) has developed three cognitive reports. The last report is considered one of the most important that help researchers and rulers of our Arab states, rather than educated people, stakeholders, specialists and students, to utilize its information and comparisons, and help them to establish a right cognitive basis for our current problems.

The partnership with the United Nations Development Program (UNDP) has developed three cognitive reports. The last report is considered one of the most important that help researchers and rulers of our Arab states, rather than educated people, stakeholders, specialists and students, to utilize its information and comparisons, and help them to establish a right cognitive basis for our current problems.

We have made the first report last year, while we decided with the UNDP to issue «the Arab Knowledge Index». We faced some challenges and difficulties, especially in terms of time and the need of the Index to many years for launching. Yet, with hard work and will originated from our wise leaders who adore success, excellence, and change difficulties to a driving force that enables us to launch it actually. I consider this Index a dream of mine that became true as we depend on all indexes that come from outside our Arab world, which in many times, we do not know its directives and information sources and whether they are right or wrong.

We care about searching and nationalization of knowledge

Mohammed Bin Rashid Al Maktoum Foundation cares about searching for, nationalizing and transferring of knowledge to the Arab world. In particular, we need a benchmark and an index to analyse the existing reality without exaggeration to have a real image that shows the reality we live, what we need in our future development plans and enable us to



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plant knowledge today to harvest achievements in the future. Were it not for knowledge, we would not have explored and produced oil. Therefore, we consider that knowledge-based oil will be done through this Index, which will help rulers in developing their development plans successfully according to right information, vision, and real understanding of their recent actual cognitive situation.

We have adopted the best international standards

We have adopted the best international standards in this field to issue the Arab Knowledge Index, so that we can reach a real and honest index, especially as cognitive reports will be able to fill large information gaps that we have. The outside specialists need this information to understand our Arab reality transparently, as they do not know a lot about us.

The Arab Knowledge Index is established through Mohammed Bin Rashid Al Maktoum Foundation and the excellent partnership with the UNDP to activate further initiatives and distinctive programs during the coming period to spread, nationalize, and then export knowledge to the outside world, so that they can realize our real status.

The existence of sensitivities that may be generated from the Index have become unendurable by the Arab world, if we relied on the existence of the order of separating locations of Arab countries and its evolution when applying report indicators. Therefore, we have decided to move away from assessing states and conduct classifications to categorise their development. In addition, we have agreed to highlight the positive attitudes derived from the application of the report and the Index, considering that it is one of the most sincere cognitive indexes, and an Arabic-Arabic index.





DR. Tarek Shawki



Media has a vital and fundamental role in introducing and the recent cognitive concepts and disseminate the culture of innovation and resulting economic revenues

I would like to express my most sincere thanks to Mohammed Bin Rashid Al Maktoum Foundation for fostering this huge work, which would truly reflect the Arab cognitive reality, through which the establishment can be done to create a bright future for our Arab nations. Today, the Arab world in particular faces great and enormous challenges as well as the disruption that affects the new generations to whom we must provide a decent future. The Arab Knowledge Index and the Knowledge Summit appear to give a clear and wonderful vision targeting hard work, and properly depends on solid and real foundations.

Media has a considerable role to introduce the new cognitive concepts

I believe that the media has a vital and fundamental role in introducing and promoting the importance of knowledge in our Arab nations to create establish the concepts of innovation and its relationships with the importance of investment and resulting economic revenues when using them properly. The prevailing concepts look at profitable considerations from the view of quick gains, unlike investment in knowledge, which needs long time to bring fruitful results.

Finding work plans at the level of governments and decision-makers

All the concerned institutions shall take the Arab Knowledge Index to greater horizons to ensure that it reaches a large number of people to see and understand it optimally. Therefore, it can come up with useful lessons, and find work plans at the level of governments and decision-makers to develop their



The media has a vital and fundamental role in introducing and building the importance of knowledge as a key pillar in our Arab nations. Moreover, it should play its vital role to educate people on concepts of innovation and its relationships with the importance of investment and resulting economic revenues when using them properly.

deficiencies, which are indicated by the Index.

I would like to point out that it is important to have a reasonable reading to all numbers disclosed by the Index in order to make comparisons between the standards that govern the issue of a certain cognitive issue to elucidate the facts to the readers. It is also important that we develop the tools of the Index to establish knowledge-based measurement to children's skills in the 21st century. This measurement will come out with new results that reveal to us how to prepare the plans, which the children will deal with in the future, and move away from the traditional performance and old results, as skills evolve rapidly to fit the new reality of our societies in terms of technological development.

Leading projects in Egypt to promote knowledge

The United Arab Emirates and the Arab Republic of Egypt are lucky to have conscious and wonderful leaders, who know the

importance of working toward foreseeing the future. Egypt adopts this vision entitled «toward an Egyptian society that learns, thinks, and innovates», a principle that is based on the notion of continuous education forever, which is the same methodology UAE adopts in its development projects. «Knowledge Bank» project in Egypt is a good model that reflects how to utilise the presence of a large platform of information where it is a huge knowledge portal that helps professionals in finding the Truth. Information have been gathered from their original sources and put into a single platform includes 30 sources that provide valuable content of information and figures to adopt in creating clear plans for future projects in the country. This is the first step in building a society that learns how to invest in knowledge, simply because it is one of the most modern terms that can be utilised to convert knowledge to useful projects. This type of investment has not become a luxury, but it is very necessary for the industry of the future in any country that seeks to have a growing role between developed and modern countries.





DR. Najoua Ghriss

The Arab Knowledge Index has followed a specialized methodology in the course of establishing its components, which cover many areas. Moreover, the Index is not an objective itself; it is only a mean for a higher end. The object is to dedicate a reality that depends on knowledge as a guide, find creative solutions to face future problems, help developing countries to find solutions for their problems away from the traditional ways, and utilise the considerable improvement in technology field and reflect it on the development of services provided to our Arab nations.

The Index serves as a monitoring, evaluating and measuring tool for the current status

The Index serves as a monitoring, evaluating, and measuring tool for the current status, a person may say: Why does this Index appear now, especially there are other indexes do exist? Moreover, how would this Index add new issue to our reality? We, in turn, respond that the previous indexes remained powerless in relation to the issue of discovery of local developmental innovations. This Index helps in the discovery of the precise details of things that may seem small and insignificant; meanwhile, utilising these details can lead to impressive results. The Index works on this issue. In addition, the economic dimension prevails the Index, the thing that we seek, simply because of the reasons for the welfare of societies, their interest of their economies and the use of innovative methods of production. In addition, the Index focuses on the special part of keenness of people, their existence, and role at all levels. This initial diagnosis of Arab cognitive reality has passed through several stages, which included starting the checking and follow-up process of any other similar indexes in the Arab countries. Then the stage of critical descriptive reading to these Indexes so we can find out the deficiencies and negatives to be avoided. Moreover, we have discussed the construction phase in order to lay the foundations and pillars, which enable the application and launch of the Index.

The Index will develop six sectors

Through this concept analysis, we could determine the areas to be addressed by the Arab Knowledge Index, which depend on six sectors. The sectors include education in all its categories and levels, whether undergraduates, postgraduates, or professional education, in addition to information, communication, economy, research, development, and



innovation sectors.

All these sectors are considered key and primary to prospect bright future that suits our Arab history, utilising Arab nations and youth energies productively.

Connection with experts externally and internally

For that purpose, we have used the cooperative method through which we can contact many experts abroad, rather than our Arab scientists. We have utilised these indexes and consultations in developing regional workshops to review the results accomplished and work further on these outcomes.

This considerable work and accomplishment needed a big team, especially the artistic team to collect information and data, one of the difficult stages, which we faced because of the scarcity of correct and documented information, rather than its truthfulness and modernity. All that work needed intensive work by the responsible of the Index, to filter this information in order to rely on them correctly away from the exaggerations and the directives, which they imply.

Further development horizons in the future is a must

This scientific and cooperative systematic work resulted in the emergence of the Arab Knowledge Index so that it can compete with other indexes. Moreover, we acknowledge that it is necessary to work in the future and permanently on more development and promotion



This considerable work and accomplishment needed a big team, especially the artistic team to collect information and data, one of the difficult stages, which we faced because of the scarcity of correct and documented information, rather than its truthfulness and modernity.

of professional creativity in the Index. This will enable us to enter into organisational partnerships with other indexes and entities both internally and externally, in order to develop and launch the Index with its potentials to widen the horizons of competitiveness, which will have positive results on the Arab world.

Five cognitive equations faced the work teams

Upon looking at the challenges and difficulties that faced the work teams of the Knowledge Index, we can say that we took into account the existence of five difficult equations during data collection and identification of work trends for the issuance of the index. These equations included the importance of taking into account the privacy and cosmic issues, as we had to take into account the existence of specific indexes of the Arab world reality, and at the same time avoiding isolation from the outside world. Therefore, we wanted an Index to be a cognitive gate that make distances, which separates us from the developed world, close. Thus, we thought to develop special standards for our reference when comparing ourselves with advanced countries to know how far we stand from them.

The second equation discussed the importance of adhering to the flexibility and rigidity at the same time, so we tried to find an applicable index. Moreover, we discussed the third equation entitled «the anticipated and the possible» and the fourth «shorthand and inclusiveness» Finally «the current and the future». Thus, this was a big challenge for us, especially in light of the unavailability of information in an easy way, which will enable us to develop a future plan for the collection of data away from the complication, which currently exist.





DR. Eric Fouache



What we have now is literally a huge project that proves UAE ability to lead the sustainable development engine

Knowledge Index emphasises UAE leadership in the sustainable development sector

It was urgent to produce a yearly knowledge index, especially in the light of the current developments of the Arab Spring. The world is waiting eagerly the results of the Arab Spring. However, UAE as usual develops meaningful initiative to lead the change toward establishing the positive effects and implant basic concepts of civilised developments of people on the scales of the Arab world and Gulf area.

Meaningful approach among the results of global practices results and the needs of Arab people

This Index is launched from the region to the world, depending on methodological approaches that develop and train human capabilities in order to establish an integrated organisation to monitor statistics and collect and analyse data in a comprehensive manner, which does not depend only on process of survey and collection of data that determine the knowledge reality, but it exceeds toward establishing prospects supported by recommendations and comments to decision-makers in order to establish the cognitive future on specific basis and standards. It is the first time to see a huge project such as the Knowledge Index that monitors the the knowledge reality through Arab people. UAE adopts establishing data and information sources for the first time about the Arab world in order to produce an Arab Index that monitor the knowledge reality and provide practical solutions for the Arab societies, which enrich the concepts of knowledge, innovation, youth support, and providing Arab minds with huge resources of knowledge. Thus, everyone shall adopt the principle of "Education First", then enhance it with a meaningful initiative to measure education outcomes and knowledge results, so that everyone can use it in analysing and determining his needs. Whenever you go to a doctor he gives you diagnosis and the medicine but no one will never impose you a treatment you do not want to follow.



Knowledge Index provided a practical example of a huge project based on a comprehensive strategy and an integrated concept

This huge project is the first-of-its-type, but it is important to develop a comprehensive and strategic framework for the efforts to be continued and the results to be completed to reach tangible and effective results. The encouraging part is that we witness the launch of the project as per yearly outcomes that integrate within several collective responsibilities to achieve the objectives. This big project remains a significant step on the right path to build a better future for the Arab young people and the Arab Data. I feel so happy when I look at the work methodology of this huge project to see the amount of cooperation with global and leading institutions, which has big experience and specialisation such as the United Nations Economic and Social Council as they have specific standards, which is not necessarily complying with the conditions and environments through which the Index will work. In fact, the experience will be necessarily useful to be build upon in a manner that comply with the desired objectives and goals. After that, we can define the gaps and work in a comprehensive and meaningful manner to build framework of training and preparing the required cadres in work teams in every country. Thus, we can redraw mechanisms and means that enable local work teams in these countries to perform its missions to monitor, collect, and

analyse information and data. This will enhance the required outcomes to provide the Knowledge Index with information that has credibility and reality.

My career experience in UAE allowed me to learn about the positive image of Arab communities

I have experienced similar situations throughout my career in Paris-Sorbonne University Abu Dhabi. I was surprised when I did some interviews with some students from Arab origin coming from Europe or Middle East. They told me "we are so proud to be here in UAE, it is the first time we have a positive image of the Arab world". So, there is a big challenge that UAE is not only presenting itself as an Arab country, but it adopts leading Arab initiatives such as this kind of projects that aims at producing the index data and extract results and through which we can now the future of knowledge of the coming generations. Therefore, UAE proves to the whole world that you can put the road marks for the future and walk the path depending on integrated methodological and scientific manner.

We have a real example of a huge project, which gather between the knowledge value and the cognitive economy

The big challenge is not the type of data that the index collects and analyses, but the basic organisational methodology, which facilitate all the bodies to follow a unified manner to monitor and analyse data through unified standards, to turn the final outcomes to readable results on basis of economy, marketing and investment, namely the big data that this index can extract and turn it to economic revenue. We have real examples of institution that gain a lot of profits through selling data, by monitoring, collecting and analysing them to indexes. Therefore, data in this age represents one of the profitable investment types. Collecting data and making it available is a clear responsibility of the governments, that it makes first to provide this to the beneficiaries. At the same time, the government can collect data in indexes that can be employed as an investment that gets profitable revenues. What we have now is literally a huge project that gathers the big value in the content and the great profit regarding the different shapes when it is employed in the cognitive economy concept.





Audience Questions

- What about managing ideas and turning it into implementation?
- What are the standards required in cases of difficulty in measuring some objectives, and if there an intention to join some foreign countries in the future to the Arab Index?
- Why there is no cooperation with the Arab League in order to establish a new affiliate institution, one of its duties is measuring the developments in our Arab world?



DR. Tarek Shawki: As for how to manage innovative ideas, it is important to reach all those who benefit from the application of new ideas, such as school students and undergraduates. Egypt has provided the Knowledge Bank to be one of the tools that help them to get the correct and documented information. Moreover, there are efforts for curriculum development to manage and apply positive thoughts. In addition, modern technological means shall be utilised, such as creating electronic applications that students can easily refer to for new knowledge content that helps them develop their ideas.



DR. Najoua Ghriss: here are many statistics authorities in the Arab world who pay attention only to quantitative data and numbers, where they don't focus on adding value of research to help benefit beneficiaries. However, there is a lack of

coordination with such countries to build upon their outcomes of information and making best use of it in other countries. The only successful practice has been led by Mohammed Bin Rahid Al Maktoum Foundation, due to that fact that it has a comprehensive and standardised index of information that reflects our current status, and as well as being available to all beneficiaries in the Arab world. Now we have a vision of the coming steps after the issuance of the Arab Knowledge Index, during the development phase and continuous efforts. Furthermore, contacting the Western world and international specialised organisations to inform them of the updates, benefit from their potentials, and exchange expertise and information. It is possible to participate with the Arab League to open new projects and programs that enhance and promote knowledge in our Arab world.



H.E. Jamal Bin Huwaireb: The Index is a real beginning for a large future work. Moreover, we should not consider that the Index holds magical solutions for the problems of our Arab world, but it should be considered as a starting point for the future. In particular, «The knowledge and innovation are the oil of the future», and all Arabs shall pay attention to that issue, officials and non-officials, to uphold the sovereignty of their nations through knowledge.



The Knowledge Summit 2015

The way to innovation

#knowledgesummit



قمة
المعرفة 2015
الطريق إلى الابتكار
#قمةالمعرفة



Day Two

Second Session

"Indexes of knowledge, information technology, research, development, and innovation"

Session Topics

- » The Importance of information technology and if it is separated from the other indexes or interfering with it.
- » What do we mean by the economic indexes that have influence on the cognitive situation?
- » Has it been important to merge the research and development index with the innovation index in one index?
- » Do these indexes face the problem of data scarcity?
- » The most important outcomes of these new indexes.
- » Horizons of development of technology, economy, research and innovation indexes.

The Knowledge Summit

Speakers

DR. Yousry Al Gamal

Former Minister of Education in Egypt and the former Chairman of the Board of Trustees at Egypt-Japanese University of Science and Technology.

DR. Khalid Al Wazani

Strategy and Knowledge Advisor at MBRF

DR. Motaz Khorshid

Former Egyptian Minister of Higher Education and Scientific Research.

DR. Jacques van der Meer

Head of Innovation and Competitiveness Department at European Investment Bank

Moderator

Nada Harward

Expert in International Law and Adjunct Professor at Paris-Sorbonne University, Abu Dhabi



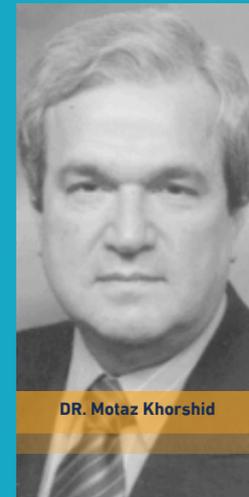
Nada Harward, Expert in International Law and Adjunct Professor at Paris-Sorbonne University, Abu Dhabi.

Nada has global experience for more than 18 years in the International Affairs. Her experience is in several disciplines such as International Law, Political Science, Human and Woman Rights, International Organisations including the United Nations, Cultural Centres, and International Museums. She has acquired great experience in management of development and cultural projects.

DR. Jacques van der Meer, Head of competitiveness and innovation Department at European Investment Bank. His interest in Intellectual Capital and Research and development areas from his Ph.D.-study (1987), which addressed the key issues for successful R&D-strategies in the semiconductor and pharmaceutical industries. Before joining the EIB in 1991, Jacques van der Meer lectured Strategic and Innovation Management at the Rotterdam School of Management of the Erasmus University.



DR. Jacques van der Meer



DR. Motaz Khorshid

During the period 1999-2006, he served in the government of Jordan as Director General of Customs Department, and Advisor at the Royal Hashemite Court, Director of Economic and Development Division at the Royal Court, and Managing Director of Social Security Corporation. DR. Motaz Khorshid, the former Egyptian Minister of Higher Education and Scientific Research. He is the Vice-president of the British University in Egypt. He was the Deputy of High Studies and Research Affairs Department in Cairo University. Professor Khorshid has been working since 1996 till now as a professor in Decision Support and Modeling at Faculty of Computers and Information, Cairo University. Throughout his long rich career path, Professor Khorshid has participated in many applied research projects. He as well has been an advisor of several national, regional and international organisations, and he has more than 75 important scientific publications.

DR. Khalid AlWazani is currently the Strategy and Knowledge Advisor for Mohammed Bin Rahid Al Maktoum Foundation. he used to be the Chief Economist/ Strategist of Issnaad Consulting. Just before that, he served as General Manger & CEO of Saraya Aqaba Real Estate, Taameer Jordan Holdings and Darat Jordan Holdings successively. DR. Wazani has many publications, studies, research papers and published books. He is an active member in many vocational and scientific forums and centres. He as well served as a chairman and member of various institutions and companies.



DR. Khalid Al Wazani



DR. Yousry Al Gamal

DR. Yousry Al Gamal, Former Minister of Education in Egypt and the former Chairman of the Board of Trustees at Egypt-Japanese University of Science and Technology. Professor Al Gamal holds a D.Sc. in Computer Science from the George Washington University 1985, and a recipient of Richard Merwin Award 1984.

The Knowledge Summit

2011

The way to innovation



Nada Harward

Speaking about Indexes of knowledge, information technology, research, development, and innovation makes us discuss three of seven indexes stated by the team assigned to develop Arab Knowledge Index, which the Mohammed Bin Rashid Al Maktoum Foundation works on with cooperation with United Nations Development Programme (UNDP). The indexes included "research, development, innovation, information technology, communications indexes and economic areas". Therefore, we start our session today with this question; what is the role of the index in helping community knowledge, and what is the methodology it adopts, rather than challenges and obstacles that face the index?





UAE stepped forward towards establishment of cognitive community that depends on innovation

I would like to express my sincere thanks to the Mohammed Bin Rashid Al Maktoum Foundation and the UNDP for their help on this index, which is important to our Arab communities, especially that the terms of knowledge community, knowledge economy, communications, internet, networks and applications of governments and institutions, are all themes of significant index within knowledge indexes.

Communications and information are the backbone of knowledge economy and society

The impact of the availability of communications in the field of education has allowed the availability and quality of information, as well as access to distinguished educational services and competitive distinct content that goes to everyone, particularly in poor and remote areas. For example, in terms of quality, the use of modern techniques, graphics, and simulation has become considerable means that we use in our way to deliver information in an easy and affordable way to recipients, which has not existed before.



Measurement is a basic element necessary for information technology and communication

The measurement principle and access to indexes become dependent on information technology and communication. The abundance of digital information has played a major role in setting the foundation of that index. If we look at the United Nations versions of global competitiveness reports, we will find that these data will reflect the developments of each country with respect to information technology and communications. Information technology is affected by the infrastructure existing in the countries and its level of progress, through measuring the availability of information networks, knowing the communication cost among these countries, means of use, and efficient use, in addition to the required deployment. All these factors are essential to ensure the efficiency of the index we are working on.

UAE stepped forward towards establishment of cognitive community that depends on innovation

There is a general atmosphere in any society or state, such



the use of modern techniques, graphics, and simulation has become considerable means that we use in our way to deliver information in an easy and affordable way to recipients, which has not existed before.

as the spread of reading, awareness, and the extent of the scientific material and studies, and math. If we look at UAE, we will find that it has made great strides in this direction, and it preceded many countries regarding the preparation of students for research and innovation, and the rehabilitation of society in general for the future. The pre-university education is influenced so much in terms of outputs, which affect universities as well. The legislative climate in any country is very important in terms of its impact on the performance of knowledge and education index especially that it is one of the most important issues of health care development and e-participation. When designing the combined index of information technology and communications, we took into account the direct and indirect part in the research, innovation, education, patents, development issues and health care. We made the balance among all our objectives, and then we put all the achieved cognitive indexes in a detailed guide that explains and separates the planned objectives, which comply with international practices, UN and international institutions, and the World Bank periodicals, and the national periodicals of each country, and information technology strategies in many countries.

Day Two | Second Session
Indexes of knowledge, information technology, research, development, and innovation





DR. Khalid Al Wazani



Arab Knowledge Index has been developed to be the compass of decision-makers in the Arab countries

- DR. Khalid Al Wazani, Strategy and Knowledge Advisor at MBRF. I have the honour to contribute to this big Arab cognitive project, which will work on developing a basis to go forward toward a bright future for our Arab countries, especially that this is my second time to participate in the project of Arab knowledge report. We, the participants, always discuss and negotiate together to achieve the best. The MBRF has adopted significant work, which establishes the basis of knowledge in our Arab countries and looking for the future. This has been achieved through the cooperation with UNDP, in order to promote knowledge, serve our Arab world, and provide information to decision-makers, researchers, and students. For this effort, I have to thank 51 participants in MBRF under the supervision of H.E. Jamal Bin Huwairib, Managing Director, who accepts nothing but accomplishment and success. This special group of participants managed to emerge the Knowledge Index, the thing that makes us proud.

Arab Knowledge Index ..the compass of decision-makers in the Arab countries

The Arab Knowledge Index has emerged to be the compass of decision-makers in our Arab countries, in terms of creation and innovation, and the Arab researchers to know methods of scientific work development and updates. The Index will address the ordinary reader to get additional information in any cognitive field, which is related to our Arab world. In addition, the MBRF does not care to know the ranks of the countries through this Index in terms of its mission development and progress, but



to explain how to work and set the basis of knowledge and the utilisation of the available resources for the benefit of our generations and our common future.

In terms of economic approach, we have looked at the precedent accomplishments, and we found out that the other indexes focused on every related thing to economic frame and the openness indexes. The number of indexes used to establish this fact ranged from 10 to 14 indexes. If we look at the recent indexes developed by the teamwork, we will find that they have set 32 cognitive indexes. However, who reads these indexes will find that they covered issues of organizational performance, human resources, competitiveness, and the use of communications and information technology to serve economy. All these indexes are created and new. Now, we have an index that states the elements of production, work, the capital, and regulation, in addition to involving new cognitive index that shows how smart countries help their citizens.

We have build upon the precedent accomplishments, and we found out that the other indexes focused on every related thing to economic frame and the openness indexes. The number of indexes used to establish this fact ranged from 10 to 14 indexes. If we look at the recent indexes developed by the teamwork, we will find that they have set 32 cognitive indexes that regulates the methodology of the index, utilising the experience of the global organisations, and cooperation with statistics centres in the Arab world to complete the data.





DR. Motaz Khorshid

The indexes of research, development, and innovation have taken much time for the teamwork to achieve this index, especially in terms of methodological part regarding the link between scientific research and innovation. This point is to support social and economic development. Simply through this point, we can link this issue with the knowledge of economy. Moreover, we can link and evaluate states' performance and know to what extent it could reach advanced positions in scientific research and innovation. The index also provides comprehensiveness and consistency, which the assigned teamwork has worked to achieve.

Research and development are accomplished through a guide that contributes in increasing the reserve of society knowledge

Research and development are accomplished using a guide through which we can contribute to increase the cognitive reserve of society. In addition, it has a significant role in finding and utilising knowledge in different applications. Particularly, there is a new vision to utilise innovation in the development process in any society. We have technological innovation that works on finding new innovative methods for new productive operations, which can develop products. Moreover, it can ensure high economic revenue. In addition, there is non-technological innovation that works on finding an advanced administrative base for institutions and entities, through which it can develop the performance that ensures the success of service and development plans provided to the audience.

As a team concerned with the work of cognitive indexes, we were interested in the concept of the relation between scientific research and innovation. We found that there are essential inputs and factors; state that today we are witnessing a concept of research, development and innovation, and that the cognitive process does not stop at the range of research. Therefore, the issue ends at this point, however we should continue in this direction so that communities can benefit therefrom. In addition, scientific research should be linked with innovation, especially at the level of scientific research centres in our Arab societies.



The reality of the Arab world is important when forming the cognitive indexes.

In formulating these Indexes, we should take into account the reality of the Arab world, as it suffers from an obvious absence of scientific research culture. Moreover, there is a clear weakness in relationship of applied research bodies and all other community institutions. In addition, there is another factor; university graduates are lacking skills. Besides, there is no recent research infrastructure, which only exists in some countries. We have already taken all these difficulties and obstacles into account when issuing the indexes of knowledge economy, information technology, research and development, and innovation.

There are two main trends of innovation indexes, the UNESCO leads the first trend, which believes that there is a necessity to deal with innovation as a process with inputs and outputs and other indexes are added, as the UNDP implements, which is implemented by the UNESCO. The other trend is the emergence of a new idea that is the presence of innovative communities, which is related to the political stability and the outstanding government roles and performance in some countries.

Cognitive studies lack analytical approach to better utilise it

We have tried to make the balance between both trends through working on some indexes, including the indexes of research,



We should significantly expand the promotion of scientific research culture among our Arab societies. In the forefront comes the economic institutions that seek to develop themselves economically through innovative products permanently. This should be enhanced through the provision of laboratories of scientific research by those institutions.

development, innovation, economic, and social structure. Finally, we have established a scientific methodology to reach our objectives regarding setting up knowledge economy indexes. We started to develop a methodology related to higher education and pre-university stage, besides a methodology related to a statistical field to help reach a general index we could depend on in our future work as a team.

There is no doubt that this great effort lacks the analytical part to emphasise these studies, and future work on the development of the indexes of knowledge economy, information technology, research, development, and innovation. Moreover, a part deals with the information gaps that exist due to the lack of information, which our work continuously needs, as well as the differences from one country to another.





DR. Jacques van der Meer



Five revenues of the European Investment Bank leads to cognitive development

I would like to express sincere congratulations for Mohammed Bin Rashid Al Maktoum Foundation for such great initiative and the dedicated efforts to invest in knowledge and related indexes as well as the huge research work to enhance knowledge in Arab countries as a foundation for future progress.

The European Investment Bank cares about the economic and social development

I would like to say that the European Investment Bank has been established according to the European Convention held in Rome 1950. In fact, it is not literally an investment bank but it is a bank for economic and social development that has been established to develop the South regions in Europe. Till now we have 27 member states as members in the Bank, and our revenues are estimated at 70 billion Euros per year. One fifth of these revenues will be allocated to cognitive development, 50% to fund research and developmental projects, 17% for innovation and 33% for higher education and science, which is allocated to European countries that suffer and to the private sector.

Distinguished partnerships between the European Union (EU) and Mediterranean Arab countries

The EU has partnerships with other countries around the world and in the Arab region, around the Mediterranean, therefore, we are concerned with funding cognitive projects in the Arab region around the Mediterranean.

In 2015, we and the World Bank have published a report regarding the Arab economy development adopting the knowledge-based economy as a basis. We have found sufficient information on the educational performance and knowledge, which are the basis of development process, and you should implement that process. Some governments as we see here today in UAE. When we speak about innovation we find no data, so where do we invest, and what are our priorities when we need to develop innovation in the Mediterranean countries?



Several international reports focus on the importance of science and technology

There are several reports and this is the latest report of UNESCO, which mainly focuses on science and technology and reflects to what extent the science, knowledge and innovation have arrived in this region. 95% of expenditure on research and development in the region mainly depends on the general expenditure.

If you compared this situation with Europe, you will find that the private sector that gets almost 5% of the GDP, spends two thirds of the expenditure on research and development. However, if you want to study and know the mechanism of research and development in the private sector, you will find no data. The only exception which I would like to praise is the Egyptian example that has performed many surveys on research and development in the private sector. So, in order to respond to the provided data, we should understand the innovation system and challenges thereof in the region. «.

Innovation management councils are necessary for communities

In Europe, there are innovation management councils, meanwhile we



The main objective of knowledge economy and information technology index is to establish an economic database in a bid to enhance economic development and create employment opportunities that enhances social solidarity and best achieves adequacy between productivity and competency

did not find anything similar in the Mediterranean countries. Since, we are a part of the Technical Centre for innovation of the Mediterranean countries, which has been established by the World Bank, the European Investment Bank and the French Agency for development. This centre contains Morocco, Tunisia, Egypt, Palestine, Jordan and Lebanon. We have suggested to conduct a dialogue to understand innovation in those countries. The first dialogue has been held in Amman and discussed the innovation concept and mechanism and the role of the private sector in managing this role.

Experts have denied the region's need to establish innovation management councils that take into account the particularity of the region as the case in Europe. They did not believe that the index of science and technology or the European Council for innovation have the ability to establish similar councils without the same level of experience. We pursued some meetings held with the experts at the Arab League in Cairo, with the attendance of 35 experts. The meetings concluded that there is a potential of 65 indexes, then in the second session held in Amman the indexes were up to 25. We are trying through these indexes to evaluate the innovation system and the process quality.

Results of indexes discuss science effect on communities

The results of other indexes that we have seen, raise the question that does innovation also include science effect on the community? The indexes showed how to enter mental gains in measuring the innovation volume and effective investment role as a source of transmitting knowledge, social credit systems, available credit systems that encourage innovation, as well as ISO 9001, cooperation between the





The difference between the knowledge index and the innovation index provided a good leap

public and private sectors in the field of research, innovation, facilitation of startup, medium and high-tech exports and the added value generated from these exports and trademark registration because recently patents are not the only indicator of the research and development performance.

Establishment of economic information base is required

The purpose of this index is not only to develop an index; but also to establish economic information base not for newspapers articles but for the purpose of economic development, creating career opportunities and social solidarity. I have seen several consolidated indexes and statistics in which people ask: Why do not we cooperate with ALECSO, SISCO or ESCWA? I do not represent these unions but as they are a part of my group, it is interesting to cooperate with. Moreover, we can utilise Europe that can educate Egypt how to do those researches.

Big contribution of innovation in finding new cognitive values

There is another thing those data need, which is innovation in books, films, music, and animation and how it contributes in export and creating new values. Unfortunately, the data has not been completed and I do not know the reason. There is another thing, which is the data related to social innovation; which I emphasis «Social Innovation», and why is it important? Innovation is not a high technology or just information technology and communications. «

In fact, the difference between the knowledge index and the innovation index provided a good leap. Everyone wishes to invest and the motive behind investment is knowledge. We will have knowledge in investment areas and how to enhance this economy. In addition, money is not the problem because we want lasting human development and growth.

40% of investment in the Arab countries is directed to the construction sector

I emphasize that in a recent study by the World Bank in the period between 2000 and 2010 in the region that only 40% of Investment was directed to construction. Investment in key sectors such as energy, oil, and gas has reached 20%, and this percentage resulted in providing 12% job opportunities associated with investment.

If you looked at the manufacturing sector, you will find that it represents 20% of the investment, and that creates 50% of career opportunities. There is another sector, which is service sector that represents 8% of the direct investment and provides 20% of career opportunities. Therefore, what we need from innovation in the area of science and technology is the topic of this discussion. In addition, competitiveness comes in the infrastructure of development, modernisation and equipment.

Concerns about priorities.. education, research or economy

Through questions of the audience, I noticed that there is a big concern regarding the real educational, research and economic sector. So, will the problem be in education, and labour market or science, technology and innovation? This is a real concern as in the future we should pay more attention to this issue.

For the European experience in this field, it is not more different from the one that we have here. In Egypt, there is only 2% of companies that care about innovation and derives its programs from research and academic bodies, which is an issue that needs a solution. How can we exchange this experience? In Egypt, We have Modernity and Innovation Centres. «

Vocational training centres reduces rates of unemployment

When the issue is related to innovation and labour market, we have as well some countries in Europe that has 50% of unemployed young people, then we remember that the basic objective of education is to create hope, the thing which places responsibility on our shoulders. Therefore, we begin to establish vocational training centres as it happened in Morocco and Tunisia; how many are they? what is their influence? How can e utilise them? I believe that this issue is extremely significant and should be answered.



Audience Questions

The way to innovation

What is the importance of developing cognitive and innovative plans for every Arab country, and how can countries benefit from each other regarding the management of innovation?



DR. Motaz Khorshid: We should significantly expand the promotion of scientific research culture among our Arab societies. In the forefront comes the economic institutions that seek to develop themselves economically through innovative products permanently. This should be enhanced through the provision of laboratories of scientific research by those institutions such as the European countries. This step should be economically successful for the countries and their communities, and reflected on people who work there. Now, we should know that those who work in scientific research within universities are almost 60%, but this percent is weak in the economic sector. Moreover, training is very important strategy for specialised society members. There should be strategies that strengthen this aspect continuously, and we should spread the concept of «lifelong learning» to ensure a positive outcome that changes our cognitive reality significantly.

What is required to benefit from the Arab Knowledge Index, and ensure the benefit of researchers and communities thereof?



DR. Yousry Al Gamal: The Arab community and governments after the issuance of the Arab Knowledge Index should feel remarkable development changes. Moreover, there should be communications with the competent bodies to find work plans, which can change the negative reality and develop the existing status. Particularly, the Index is considered a clear compass toward providing capabilities and knowledge, rather than finding out the negatives we have to overcome in a scientific way that depends on statistics and numbers to achieve that objective. We should also depend on the recent available data to move forward with strategic development plans of the Arab countries, and develop work plans that can be monitored in this cognitive field.





The Knowledge Summit 2015

Day Two

Third Session

<<Education Indexes in the Arab Region>>

Session Topics

- » Components of Education indexes in the Arab Knowledge Index.
- » Three Educational Sectors: Singularities and Integration.
- » Why Cannot We Depend Only on World Indexes in Education?
- » Indexes of Technical Education: Between the Importance of the Sector and the Dilemma of Data Provision, and How Can We Overcome This Problem?
- » Indexes of University Education, and the Effect of Private Education on the Index.
- » Do Education Indexes suffer lack of data?
- » The Most Important Discoveries in Education Indexes Horizons of Developing Education Indexes.
- » Data Problems in the Arab Region and Possible Solutions to overcome them.

The Knowledge Summit

2024 The way to the future

Speakers

DR. Najoua Ghriss

Professor at the Higher Institute of Education and Continuous Training in Tunisia.

DR. Ali Hamadi

Technical Education Expert, and Expert at the Arab Labour Organization.

DR. Mohammed Ismail

Head of the Statistics Department at the Faculty of Economics and Political Science, Cairo University, and Consultant of the Head of Central Agency for Public Mobilization and Statistics, Egypt.

DR. Essam Heggy

Egyptian space scientist at N.A.S.A.

Moderator

DR. Ali Al Kaabi

Vice Dean of College of Education at the UAEU



DR. Ali Al Kaabi is the Vice Dean of the College of Education at the United Arab Emirates University (U.A.E.U.). He is the acting General Coordinator of the UNESCO-Hamdan Bin Rashid Al Maktoum Prize for Outstanding Practice and Performance in Enhancing the Effectiveness of Teachers. He is also a member of the National Commission of Culture and Education and the State Council "Information For All Programme" (I.F.A.P.), which operates under the auspices of the U.N.E.S.C.O. DR. AlKaabi has had a number of research papers published in specialized periodicals, and has contributed to a number of conferences and seminars; he has also participated in a number of television programmes focused on education.

Dr Essam Heggy is an Egyptian space scientist and one of the most important Egyptian geologists in America, he works at the Houston Space Centre. He is currently working in the radar imaging section developing rocket propelled engines in N.A.S.A., as he also oversees many of the scientific tasks aimed at discovering other planets in the solar system, and is professor of space science at the University of Paris in France. The Arab League and Times Magazine Pittsburgh US have classified DR.Essam Heggy as one of the most important intellectual figures of Egypt and the Arab world.



DR. Essam Heggy



DR. Mohammed Ismail

DR. Mohammed Ismail is currently Head of the Statistics Department, Faculty of Economics and Political Science, Cairo University. DR.Mohammed Ismail wrote more than 60 papers and reports on diverse topics, in addition to giving lectures in many international scientific conferences. DR Mohammed Ismail has worked as a consultant for a wide range of organizations and institutions including the Information centre of the Egyptian Cabinet, the Egyptian Central Agency for Public Mobilization and Statistics. He is also a member of the International Statistical Institute.



DR. Ali Al Hamadi

DR. Ali Al Hamadi is a technical adviser to the Minister of Vocational Training and Employment, he holds a PhD in sociology from Paris-Sorbonne University. Professor Ali has published more than 30 studies in Arabic and French on human resources, globalization and economic knowledge. DR. Ali Al Hamadi held many senior positions including managing director for the National Agency for Employment and Independent Work which is the subsidiary of the Ministry of Vocational Training and Employment. He is also a certified expert at the Arab Centre for Human Resources Development (Tripoli, Libya), in addition to other Arab centres.



DR. Najoua Ghriss

DR. Najoua Ghriss, professor at the Higher Institute for Education and continuous formation in Tunisia, education expert in Arab Knowledge Index, and former Head of Education Science Department at the Higher Institute for Education and continuous formation. Professor Najwa, Researcher collaborating with the National Centre for Renewal pedagogical and educational research in Tunisia. She is a member in research laboratory of «education, learning and psychology» at the Higher Institute for Education and continuous configuration, and a member of the Association of «the development of school-based education.» Moreover, she participated in several regional and global forums that has interest in educational issues, as well as many contributions with regional and international organisations including the Arab knowledge Index of the UNDP and Mohammed Bin Rashid Al Maktoum Foundation.

The Knowledge Summit

2016

The way to innovation



DR. Ali Alkaabi

The Knowledge Summit is an achievement supported by leaders who love excellence

DR. Maged Othman confirmed that what has been witnessed during the Knowledge Summit is peerless accomplishments, and would deserve to be called "A Summit of Knowledge" because of the experiments and ideas it contains. Also, the presence of rational leadership and political will come to ensure the importance of collective work and insightful vision towards the future, and the power to go high in wider horizons of development. The sessions have showed the great importance to turn ideas into real opportunities, targeting human service by benefiting from innovative positive ideas, and turning them into reality that we can utilize.

Moreover, the Summit has stressed the importance of giving enough room for innovation with the purpose of development.

The sessions have explained the importance of reading to enhance knowledge, and that the call lead by UAE announcing 2016 as a "year for reading" is one of the achievements that emphasize the direction leadership has imparted toward the consolidation of knowledge to explore a brighter future.

The concept of measurement occupies a great importance in the promotion and development of knowledge, as it is a guiding compass for all developmental projects in any Arab country. The Arab Knowledge Index using this approach reflects the current reality in our world; so there could be a clear picture of the most important challenges in order to overcome them.

Turning the reality of Knowledge From Consuming to Innovative

The emergence of the Arab Knowledge Index is a pure Arab reference that can transform our reality as knowledge users into knowledge innovators. Therefore, we should direct thanks to the Mohammed Bin Rashid Al Maktoum Foundation for conducting this huge work which would transfer our Arab Countries to new development zones, focusing on caring for man, so that we can overcome the future challenges that will face us.





DR. Najoua Ghriss



Educational curricula in schools and universities need a new formulation to create a continuous incentive to acquire knowledge.

International studies on education indexes have mainly focused on educational achievements in subjects like mathematics and science; since many communities depend on them to drive the achievement of their future plans. In addition, the U.N.E.S.C.O. has been interested in quantitative indexes of any given community with respect to knowledge and education. However, the common factor in all cases has been the scarcity of data and information that help understand the real knowledge status in the Arab communities.

3 major indexes and pillars include intellectual and methodological aspects and observe localization

While working, we have adopted a methodological pillar that considers the interaction with statistical indexes, so that we could anticipate its effects. The Education Index includes three key sub-indexes that focus on the intellectual and methodological aspects and keep in view the particularity of the Arab region. Concerning Knowledge Capital, it is the sum of basic skills provided by education curricula, as well as learning skills acquired in the whole life, outside the educational institutions. The second main pillar revolves around the Enabling Environments that have links to children and families. We also took into account the indexes related to schools, teachers, educational opportunities, and enabling tools, the economic and educational level of the families, which help prepare students to deal with different levels of education. Moreover, we reckoned with the general development context and the fact that educational institutions were affected by the general environment of the country where they existed. By general environment, we mean the availability of education resources, as well as the political atmosphere and quality of life, not to mention the social aspects, such as equal education chances for everyone. Moreover, another aspect of



Math and science are essential for future plans. International studies on education indexes have mainly focused on educational achievements in subjects like mathematics and science; since many communities depend on them to drive the achievement of their future plans.

this atmosphere is about whether all schools are offering equal qualifying chances or not.

Indexes as an attempt to understand the reality from a holistic perspective

These considerations may serve as an integrated system that best describes the education indexes in the Arab region. In the process of creating this index, we considered not to restore the existing problems. We rather tried to diagnose all the obstacles in order to devise solutions to overcome them, especially as the Arab world is suffering from many of them and as we have no instant solutions. Therefore, these indexes were an attempt to

understand the reality from a holistic perspective, while keeping in view the particularity of our Arab world communities. Concerning the development of the indexes of university education, pre-university education, and technical education, we hope to create a scientifically and practically applicable index that can convey information. Our ambitions go beyond gaining only statistical information. We need detailed information that could be extrapolated so that decision-makers could utilize them properly.

We must work on developing the variables, most notably the lack of data

We must work on developing some variables, most importantly the lack of data especially with regards to the aspect of «values and attitudes» which we added to the Index. No one has ever conducted that survey before; therefore, this variable remained blank. We must also provide indexes that can measure knowledge, the progress achieved and where we stand, and to link these indexes to their global counterparts to be able to make comparisons. It is also essential to enrich these indexes and open windows on the Arab areas in crises, especially since there are gaps between the Arab countries on the education indexes, particularly after the Arab spring.





DR. Ali Al Hamadi

I would really like to thank His Highness, Sheikh Mohammed Bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai, may God preserve him, the Mohammed Bin Rashid Al Maktoum Foundation, and the United Nations Development Programme (U.N.D.P.), for this great opportunity to learn about the reality of knowledge in the Arab world. In addition we want to analyse it in order to explore the prospects of excellence and the beginning of a new renaissance for our Arab nation.

Technical education and vocational training in the Arab world are declining

I have worked in the field of technical education and vocational training in the Arab world for years. I believe it is necessary to create indexes to assess and measure the development performance in this sector and to rate each period. These indexes should be clear, understandable and should have specific and applicable inputs and outputs.

As an expert in this sector, I dare say that the data found about it in the Arab world is almost non-existent. Moreover, the scarce data available exists in each country solely, and there is no exchange with other countries which share a similar status in technical education. It is also not available or published on information outlets. Only the international organizations and bodies have access to such data because they are concerned with the case of studying these countries; however, researchers do not have access to them. This is one of the major obstacles those researchers face.

Information exchange between Arab states is missing

The Arab Labour Organization issued a statistical booklet, but it lacks a lot of data and information on many sectors of vocational education. Then, the organization introduced the accredited Arab network of labour market, but it also lacked detailed data. When it comes to new projects, we always make good beginnings, but we do not turn them into accomplishments, although they are the real reflection of the use of this information, fruitfully and correctly. The Arab Labour Organization launched professional selectors and the Arab Decade for Operation. Nevertheless, there is no close follow-up on the achievements. It is also notable that the Arab countries do not pay attention to this issue and that they do not cooperate to benefit from the information each one



of them has, although such cooperation, especially if set-up within a framework, could lead to a real development of the Arab technical and vocational education in our Arab world. Moreover, Arab states always lack data, information, and means of communication between them. While comparing the indexes of education in the Arab world, I found that there are backgrounds that we should begin with, namely unemployment and tight labour market, which are supposed to absorb competent executives and professionals. I believe it is necessary to create indexes to measure the high rates of unemployment, as well as the concept of leadership that dominates the political and economic discourse, whether the discourse of specialists or non-specialists. Although everyone is talking about this issue, the results are inadequate and weak compared to other countries in the world. If we examine the numbers, we find that in the Arab world, there are eight organizations per one thousand activists, while the global average is 45 organizations per one thousand activists and in Latin America 19 organizations per one thousand activists. Therefore, we cannot overcome the problem of unemployment through traditional solutions and confine it to the concept of supply and demand. Dealing with the problems related to jobs from this angle is useless; so, we must raise the spirit of the pioneering mentality among the young people of the Arab world.



The reality of technical education and vocational training in the Arab world is witnessing a major crisis, as I realised through my dealings and experience in this sector for many years. I think it is necessary to have indicators to assess and measure the development performance and compare rates every now and then.

Creating indexes that account for the economic return of technical education

Ambition is the driving force in any business but realism is also required. Therefore, we are using the available indexes with the given information and data they can afford, so that we may achieve the required objectives, even partially, to achieve even one-step forward. Therefore, we are using new indexes and setting new goals. For example, in the economic returns for Technical Education, I did not find any index that measured them. In addition, we cannot find statistics or data that measure the competitiveness of salaries.

Vocational education is a cornerstone of development in the Arab world

Humanity has entered a new adventure by entering the world of knowledge, which pushes us toward globalization. Sometimes we have the choice and sometimes we do not. For example, we have the choice of entering the adventurous world of knowledge and the new smart economy, and seize opportunities to promote development and avoid the downsides of globalization, or retreat to ourselves. However, we have another choice, which is not derived from our own will, to exploit the advances and new technologies to enhance the knowledge-based economy, employment, vocational training and operation. I regret to say that vocational education in the Arab countries is facing a negative view, although it is a cornerstone in the development process.





DR. Mohammed Ismail

Setting knowledge indexes denotes a global methodology and steps that take into account different variables. To learn how the lack of access to data affects the efficiency of any education index, we should know that researchers use a number of variables in their studies. Therefore, access to data is essential to ensure the effectiveness of indexes. Moreover, if variables do not indicate any information or data, they become worthless. In such a case, to overcome this obstacle, researchers may use other convergent and similar indexes that give the same results.

The lack of information creates a gap that must be bridged in the future

The lack of statistical data draws our attention to the information gap, which we should work on bridging in the future. The provision of information ensures that the efforts of researchers are fruitful. For example, the data of university education suggests that the higher education index contains 78 variables, while the actual number of existing variables is only 17. This reflects the enormous difficulties researchers face. Moreover, the scarcity of data and information may cause ruling out other indexes, which affects the work in general. In addition, comparing different indexes, as is, without considering the different conditions of environments and countries is useless. Therefore, knowledge indexes should be based only on the available data, and then the development of these indexes may be pursued in the future.

The Arab Knowledge Index is definitely a serious effort that is brought forth thanks to the initiative of the UAE leaders. The first version of the index and its six components truly reflect the reality of knowledge in our Arab world. Moreover, there is a good chance to develop the index in the future by providing more statistics and constantly reviewing the variables.



Lack of information may lead to the exclusion of certain indexes which will impair work in general. Comparing indexes as they are is futile in case circumstances are not similar in terms of conditions and environments.



DR. Essam Heggy



The development which UAE is witnessing traces back to the huge progress in the levels of its universities.

The importance of the Education Index in the Arab region is that it enables us to learn about the success of the educational institutions, and to get to know the positive impact this has on the Arab economy and reality. We should not be busy with the ranking of Arab universities among the best universities in the world, because the role of universities is different; they are concerned in spreading awareness, knowledge, and tolerance. Our universities are already playing this role to the fullest. The European universities, however, have a different vision of the educational process, as they are interested in developing industrial and economic tools of innovation, which is reflected in the economies of these countries.

The significant development UAE is witnessing is due to the great progress its universities are achieving

The great development UAE is witnessing is in large part due to the significant progress its universities are achieving. Therefore, it is fair to say that the Arab universities have a significant role to play in the renaissance of our countries. It is not important that these universities occupy advanced worldwide ranking. We should focus on our image as professors in the eyes of our students, rather than focusing on attaining an advanced ranking in the classifications of scientific institutions. The Arab world does not need these classifications currently, as it is evident that if one of the Arab universities is classified among the best 100 universities in the world, it does not necessarily mean that that university is making a difference, in terms of knowledge and development, in the Arab community. Therefore, we should not mind these classifications and focus more on the internal role which universities should play and take advantage of their capabilities and their potential especially since our universities are familiar with the problems of our communities and have solutions for them. The Emirati and Tunisian experiences in education, particularly their well-established universities, may serve as a good evidence of how successful the investment in education and knowledge is and demonstrate that they may transform societies for the better.



The need to closely follow up on the implementation of the Arab Knowledge Index

We must vigorously follow up on the implementation of the Arab Knowledge Indexes and their development with the governments and executive and educational institutions. We also need to instantly identify the results of implementing the indexes and note the improvement in knowledge tools and disseminate them. Doing this constantly ensures achieving good results for the people of the Arab world. Moreover, those indexes should be an actual index for each country to measure how efficient its educational institutions and scientific research organizations are. With regards to how to identify the effect of Education Index on universities, it is necessary first to identify who is concerned. It is important to look at Arab universities as shapers of the minds of the youth, especially that the minds of young Arabs have changed a lot over the past ten years and that they aspire to live in the developed countries because they enjoy greater freedom. If we look at the first creativity index, we will find out that there is no creativity without freedom. Here, we need to emphasize that freedom is not necessarily equivalent to chaos. Therefore, Arab universities should offer more freedom to stimulate young people's creativity and to develop those educational institutions.



The great development UAE is witnessing is in a large part due to the significant progress its universities are achieving, forming the innovative mind to all these achievements. Therefore, it is fair to say that Arab universities have a significant role to play in the renaissance of our countries. The educational experiment of UAE in terms of powerful universities is a proof to the success of investment in the field of education and knowledge, which will transform societies for the better.

Our communities are deeply rooted, therefore, we must promote the values of creativity and knowledge to remind new generations of our achievements in the past. I would like to emphasize that mistakes on the path of creativity are allowable and acceptable. It is not the end of the world to make mistakes but we should benefit from accumulative experiences.

Sheikh Zayed was a great man who realized from the beginning the importance of education

The Education Index is a message to all people in our Arab region. It entails an urgent development of the education in our countries or otherwise we will face underdevelopment. To make the most out of the Education Index, we must be united and start immediately. We must invest in education if we want to achieve a better future. There is no better example in this context than the late Sheikh Zayed Bin Sultan Al Nahyan, may his soul rest in peace. He was a good example of the people who learned from the experiences of life. He realized, thanks to his profound vision, that the development of education was inevitable to achieve the development of UAE His vision has turned into reality as we can easily witness through the occurring developmental leaps in UAE





Audience Questions

The way to... Q. The new generations have the right to know the reality of education and the difficulties it is facing, what are they?



DR. Najoua Ghriss: We have a big problem in our schools; which is that children learn only to get degrees and certificates. Schools fail to make knowledge an aim. That is why we lack today fresh minds that are able to grasp modern realities. We teach students to memorize only what they are taught, rather than teaching them how to learn. We should also change such behaviours and teach our children to be productive. We should also reconsider the educational philosophy in schools and universities to create new motives for the acquisition of knowledge and study the evaluation methods of exams, which have many negative aspects especially as current problems go beyond the indexes.



DR. Mohammed Ismail: Our children have no idea about knowledge indexes; therefore, we have begun in the Statistics Department at Cairo University to educate students on the goals of education indexes. We have a team doing that job, to have new generations that look for information and appreciate it. This will help provide the indexes with the information they need to set the targets, which in turn, will reflect on the success of any development plans.



DR. Ali Al Hamadi: The Arab and Islamic heritage is full of positive ideas that call for action. We should attract people to the technical and vocational education because it is as good as any other type of education. In fact, technical labour is more knowledgeable than scientific labour. However, the reality of the labour market in the Arab world shows that 30% of employed labour are poor. Therefore, the knowledge-based economy should work on expanding this segment and work to develop their capacities and circumstances.





The Knowledge Summit 2015

Day Three

to innovation

First Session

<<Innovation in Education..
Future Outlook>>

Session Topics

- » How has innovation affected the creation of new media types?
- » Has this development led to the fading of older patterns?
- » What are the positive impacts of modern transport and technological development?
- » Does innovation have a positive outcome, or did this come at the expense of content and professionalism?

The Knowledge Summit

2014 The way forward

Speakers

David Bennett

Chief Development Officer - National Geographic Society

Nayla AlKhaja

Emirati film director, screenwriter and producer

Ali Mustafa

British-Emirati filmmaker, director and producer

Riz Khan

TV Presenter

George Kordahi

TV presenter

Moderator

Mohannad Al Khatib

News Presenter, Sky News Arabia



Mohannad Al Khatib joined Sky News Arabia as a News Presenter.

Mohannad started his career as an International Radio Broadcaster at the Voice of America radio station in Washington DC. Then in 2001, Mohannad joined MBC as a Talk Show Host based in Beirut.

He later joined Al Arabiya as a Senior News Anchor and the host of a weekly current affairs programme. Mohannad subsequently took up the position of News Presenter at Future TV in 2007, hosting a weekly round-up of major International news called "Radar 360". Mohannad holds a BS in Economics and Business Administration from the University of Towson State University in Maryland, along with an MA in International Affairs from the American University of Washington.

David Bennett is the National Geographic Society's chief developments officer, and he leads the team that engages individuals and institutions worldwide to generate philanthropic support for the Society. His previous experience includes serving as Vice President of United Cerebral Palsy of America and as Director of the Fundraising and sponsorship group of "Odell, Simms & Lynch", a consulting firm that provides services to non-profit organizations. Bennett is actively involved in community service. He is secretary and a member of the board of St. John's Community Services, a non-profit that serves children and adults with developmental disabilities.



Nayla AlKhaja

Nayla AlKhaja is the first female film producer in the United Arab Emirates. She is the CEO of D-SEVEN Motion Pictures. Being the first UAE national woman to embark on such a career, Nayla received media attention and accolades from as far away as the Washington Post, N.H.K. and the B.B.C. World. In recognition of her achievements, Nayla has received numerous awards globally and across UAE including the Best Script Award in the Gulf International Film Festival 2010 for her script (MALAL), a film which won 1st place in the Muhr Emirati category in the Dubai International Film Festival in 2010.



David Bennett



Ali has worked on short films and TV commercials for over 10 years. Ali set up his own production company A.F.M. Films in 2006. In 2009, Ali's and the UAE's biggest achievement in film "City of Life" was released. Ali's first big budget feature captured the hearts and minds of a nation. Digital Studio magazine awarded him '2010 Young Filmmaker of the Year' and Variety magazine said that he had proven to be the Gulf's first director of international standing.



Ali Mustafa



Riz Khan

Khan has conducted a variety of high-profile interviews with a diverse range of issues. Co-anchoring the very first show on "B.B.C. World Service TV News" in November 1991 gave Khan an acclaimed public visibility that grew even more when "C.N.N. International" hired him in 1993 as its leading news figure. In 2005, he moved to "Al Jazeera", becoming a founding director of the now globally acclaimed network Al Jazeera English. His work as an accomplished speaker and moderator over the years has him in high demand at leading global events.

George Kordahi began his career in written media, as well as television, working both for Lebanese Television and "Lisan Elhal" newspaper. In 1979, George Kordahi joined Radio Monte Carlo in Paris, and remained there until 1992, when he reached the position of Editor in Chief. In 1992 George Kordahi moved on to head "Sharq" Radio Station in Paris and he was recruited to take over the ailing "M.B.C. F.M." in London in 1994, where he managed to turn the station into a multimillion dollar highly profitable organization. In 2000 George Kordahi became the highest paid TV presenter when he moved to "M.B.C." Channel to become the first and only Arab presenter of the world famous programme "WHO WANTS TO BE A MILLIONAIRE". George Kordahi also holds a position as U.N. Goodwill Ambassador, as well as several other honorary charity positions.



George Kordahi



David Bennett



Full commitment of reporting events honestly and objectively is one of the duties of the Mass Media.

Multiple key points to enhance the role of innovation in film making:

The subject at hand is one of the most exciting topics of interest to us, particularly since the National Geographic Foundation has used visuals to deliver news about 125 years ago, when our pictures first emerged in magazines around 105 years ago. Based on facts learned from my career, I can focus on the role of innovation in movie making through three key points; the first point is the contribution of technology and innovation in the expansion of the availability of the movie industry to make the product eventually come out in the best form. The second point is the contribution provided by technology and innovation in multiple channels of distribution with respect to movie industry. The third and last point is the expansion of the ability of movie making and its sharing, and that matter involves pros and cons for us.

Modern imaging technology saved energy and money:

When we started the transfer of images before the existence of visuals, the prices of cameras were extremely expensive and this required a great effort for us to capture a single image. However, thanks to modern technology, we can now take pictures underwater while it was impossible to do so in the past. Technology is credited with cutting costs after we had to bear heavy costs to produce and publish a content. The size has also its own impact; now, we can capture many images, which was not possible in the past due to the large size of devices. When we talk from the perspective of technology,



we think about making devices and providing the capacities to deliver news. While there is also another challenge that should be taken into account; namely how can we cover events with high quality?

Technology helped for speed dissemination of news at less cost:

If we look into the world of social media, we will find that it contains an enormous number of contents that are being shared all the time; for example, we find billions of images on 'Instagram', and millions of video footages are being downloaded on 'YouTube' every hour. Hence, the role of technology is that it has made news delivery easier without more costs. Anyone can get news from any source and this has advantages and disadvantages. The good thing here is that news is transferred over for more people from different groups, but the bad thing here is that the same content may be distorted.

Using innovation to cover all events quickly and accurately:

The challenge is great since you have to cover a greater number of events and employ innovation at the same time to make a larger number of people's voices reach the world, as well as ensure the highest quality of content, and whereas innovation and technology provide contributions, they also impose a lot of challenges. I think that the challenge, which is facing us today, is how to exploit opportunities that technology has given us, but we have to use it in the transfer of correct news, show more about the natural world, and make appropriate content for local communities. Technology has given us the opportunity to report news, and I am talking about us as a nation, individuals, culture or entity. For us, we are now able to take better pictures of lions and the moon, and we expanded in the use of modern technologies more than ever before, but how do those pictures compose a good story addressing a world witnessing many economics, and environmental changes, in terms of development?



The Knowledge Summit

2015

The way to

We are committed to the coverage of all that honestly and objectively without distortion or change. Today, society has an opinion after it becomes able to comment on all events and messages being dealt with through reliable media, and I see this as a great development.

Full commitment to cover events truthfully and objectively:

We are committed to the coverage of all events honestly and objectively without distortion or change. Today, society has an opinion after it becomes able to comment on all events and messages being dealt with through reliable media, and I see this as a great development.

In this regard, the issue of the balance between demand and supply emerges, but it is unfortunate that the audience has become interested in worthless things. The reason for this is the lack of awareness and education, and when producers see this increasing demand, they invest more money to produce such worthless programs.

We should go back to education so that people would know what is good for them and we should improve public taste, and then people will not waste their time watching material that might be fun but it was not quenching the thirst of aware educated people. I also believe that the multiplicity of channels has led to significant competition that is not in the interest of content quality.

Cinema is strongly influenced by modern innovations:

I wish to refer to the role of innovation in the cinema, where many formulas have been created that would allow access to more movies like the 'D.C.B.' formula that allows the storage of many films; makes competition bigger, and affects the economic movement to watch movies in theatres.

One of the points that we would like to discuss is the business aspect of all this: how has the technological innovation impacted organizations such as the National Geographic in terms of the

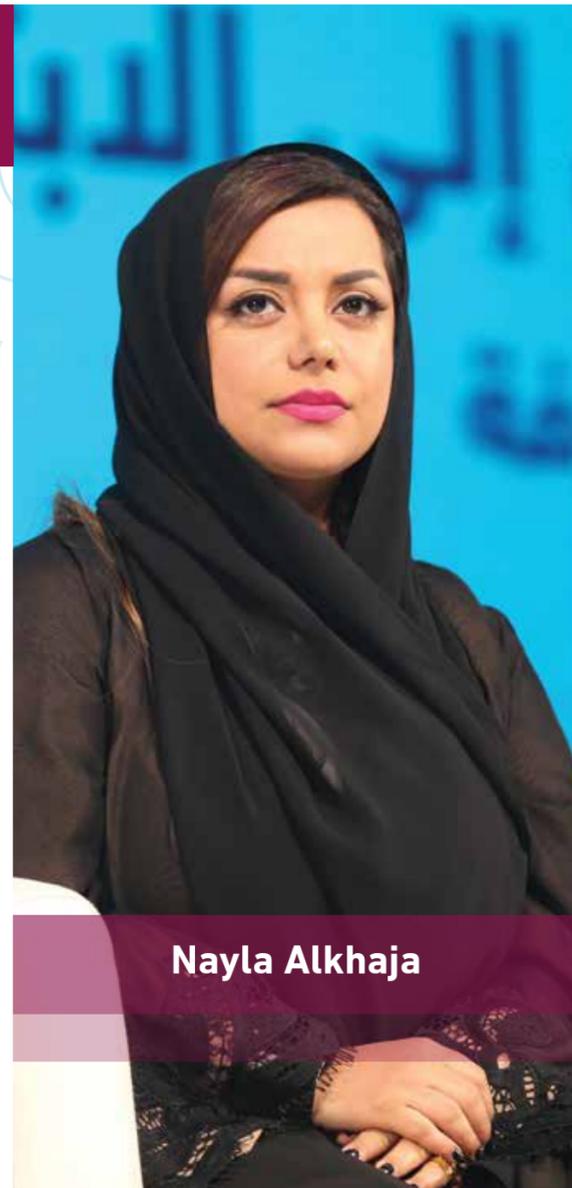
nature of work followed in this organization? The large number of contents and getting them easily have led to lower the value of such contents. Here, I do not mean low quality, but I mean physical value, and our sales have dropped more than previously. In fact, we work for an organization with a message and an objective, and we put in our considerations things more important than material things, and rely on other means, but the economic challenge remains.

The rehabilitation of ordinary people to show innovation and transfer cultures:

Technology is available now in the hands of people and they can do something creative, and we need to think now about how to highlight creativity and culture of a place like Dubai, with people owning simple tools in their hands to express this to the world.

I believe that public universities and cinema institutes are responsible for this, as well as information documents that should help achieve this. I may well benefit from the support of others who have had special experience in this field. So, the question is; can we support all this with training, tools, and encouragement to provide opportunities for the people and show them how to learn from the things that we share?





Nayla Alkhaja

Cinema industry depends mainly on the amazing innovations of its equipment

The amazing developments that our world is witnessing are found in all jobs and professions. The devices that are used in the cinema industry have been affected such as high-definition cameras and assistant equipment, as well as programmes and techniques that are used professionally within the cinematic scenes filmed using graphic. Cinema itself has become a huge industry, relying on developing its devices; down to a dazzling stage that largely attributed to higher profits earned by the industry, and the huge revenue spent to promote the industry.

Rapid technical development every day and an impressive impact of new works:

Film directors have a great way of attaining success that will not be achieved without the provision of impressive works, the ones that have become completely dependent on benefiting from the technical and technological development of devices, and tools that are used in the film making.

Meanwhile, the technical development has accelerated significantly, with a new technical development emerging every day at a fast pace, that has a direct impact on the introduction of new impressive works. If we go back to film making tools 12 years ago, compared to what they are now, we will stand impressed in front of this development, and this explains where we were and where we are.

Modern cameras saved effort, time, and ensured impressive impact:

I will give the example of a situation where I was a few years ago when I wanted to shoot a scene for sunrise from the top of one of the towers in Dubai. To shoot this scene in a professional way, and provide a clear picture of the meaning that I wanted to deliver, I had to seek the support of a crane cleaning buildings to climb out and shoot the scene.



Cinema itself has become a huge industry relying on developing its devices; down to a dazzling stage that is largely attributed to higher profits earned by the industry, and the huge revenue spent to promote the industry.

Of course, this situation involved big risk and was extremely dangerous for my safety due to the heavy weight of the cameras that I was using at the time of filming. When comparing this with the same scene now, we would not incur such suffering again, thanks to the tremendous progress that has occurred in cameras in terms of weight, accuracy, and the impressive performance of imagery. This is a clear example of the impact of technological development on the equipment of film making, and how they have become now, and of course, this development has covered all the details and stages of this industry, which is one of the most expensive industries in the world.

The evolution of films is important, and the focus should be on content creation:

After the invention of the flying camera (Drone Camera), a director can now get footages that were not available before, and you can find on the Internet a lot of information on the film evolution, but the important thing to me is how the content is created. All people can now open their cameras to take shots within five or ten seconds and upload the pictures on 'Instagram' and possibly the image quality is low. When I think of cinema in the 1980's, and I may belong to the ancient film school, I think of music and say: we have lost a golden age because we have not lived in that era.





Ali Mostafa



When you think about the UAE film making, you should think in a creative way

Studying cinema in the old way reflects the importance of each part of its making:

I can speak as a film director, since we are talking about the technical development of things; when I began to study films in London, I learned the cutting of true films according to the old-fashioned way, and we have learned how to edit. They have actually taught us the importance of each frame we use. When I photographed my first film in 2009, which I called the «City of Life», I did not know that it was the last time I was shooting a film; I mean I am filming my commercial ads now, but everything has come from the past. The only thing that I remember in the filming of my films is that we enjoy accuracy in everything we do, because the matter is not just about the rotation of the camera. When filming, you are governed by the budget set, and if the budget exceeds the set figure, it could be a difficult matter. Digital Cameras industry has witnessed significant developments: I think that everything has now become digital since we continue to use the same cameras (Arri) and now (Arri Alexa) and everything has become digital.

Digital Cameras industry has witnessed significant developments:

It is amazing that you, as a filmmaker, capture some of the pictures for which you have already made a montage while shooting films like taking shots. Therefore, it is regrettable that this does not help montage because of the large number of images, but it helps directors to shoot films. I now use a (Arri Alexa) camera that has



become smaller, and the producing company has manufactured a new tiny version called (Mini Alexa) which is much smaller than the old camera, which was of substantial size.

Small-sized cameras help produce the best scenes:

I have used this camera for filming this year, which helped me to shoot the whole film, with most scenes shot in streets while driving a car. If the place was larger, we would have used a bigger camera, but we used a small one that was suitable for the place where filming took place. This shows the technological development that has occurred in cameras from being ordinary cameras to the 2k cameras that we use so much because of their cheap price. For example, when we were shooting the scene of a car collision in the movie "City of Life", we were driving the car directly towards the 3mm camera placed in a steel box to keep it safe without being exposed to any damage. Now, you can buy a camera of this magnitude for 400 euros and you do not have to worry about its safety. This type of camera helped us a lot in this regard, and it is noticed that the technology serves the environment.

Cinema development included all the elements of the film making:

Many years ago, we had a text supervisor who was mainly responsible for writing his notes on the script as to the best positions for shooting the scenes, and capturing video footages, while hundreds of papers were placed in front of him. However, now everything is stored in iPad or any electronic format, which was new to me when I asked the supervisor scripts: 'What are you doing?' he said: "I correct the script on iPad and send it in (PDF) format to the director to start shooting the film. In fact, this helps to know the number of texts that we read, the number of texts that we print, and the papers that are lost. In brief, I have the ability now to read the whole script on iPad; thus preserving the environment."

My colleague director Nayla said something important about the machines (Drones) that carry the cameras, and how the invention of these machines has helped improve the film making, especially in movies that do not require a big budget in photography. Actually, I use these machines to film commercials in order to focus on the product. This helps me work without a



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The way to innovation

People should understand that film-making is the most expensive industry in the world, and there should be a huge business to fund it, as it is part of the economy. Therefore, the government should support it, and it is important that people understand that film-making is not so easy.

helicopter and a photographer inside it, something that is indeed very expensive. Now you can get these drones very cheap from anywhere.

Arab films mimic techniques used in Hollywood:

When we think about the UAE film making, we should think in a creative way because we create a new industry, and I was happy when my last two films were displayed in cinemas. However, this will not last for a long time, as many Emiratis love to go to the cinema to watch Hollywood films more than Arabic films, so we are working on the same technology as that used in Hollywood films.

In addition, my last film was the first Arabic film revolving around the topic of prophecies, which will be presented next year. We are trying to attract other viewers from different areas; this is what I call creative thinking, which is very important.

Making technology available to all negatively affected production:

There is no doubt that making technology available to all people and enabling them to create films has affected the quality of the material presented to the public and led to negative impacts. Owning a camera and focusing its lenses on something does not mean that you can produce a film.

Talented young people have a chance to unleash their innovative thinking:

Innovation has become available to people with great talent and what happened in Saudi Arabia was a good example of this. There was a group called 'Telvaz11', whose members used to perform comic sketches with the assistance of two wonderful directors: Meshal Aljaser, and Ali Kalthami. Although they found no support for their idea, they managed to get the materials and the cameras like 5d, which can be purchased from any store, and their product is of high quality. This is what happens in big movies, which use large and complex tools, now become easy and simple.

People should understand that film-making is the most expensive industry in the world, and there should be a huge business to fund it, as it is part of the economy. Therefore, the government should support it, and it is important that people understand that film-making is not so easy.





Riz Khan



Technological innovations helped in creating new media patterns.

Major development of tools and innovative media

It is interesting; when I think of innovative media in terms of being the father of a daughter, I see how these media and contents are delivered to her in a manner quite different from that I was used to. When I was her age, I was thinking of a mutation that we have reached, and my beginning was in the B.B.C. Radio. At that time, we used to cut the tape by using a certain code, this was the usual method, and we used to carry heavy equipment. Then, I moved to TV, and that was the time of my transition from film to video. In those days, we had big video tapes (called U-Matic), their quality was very low, and we had huge cameras that required very expensive lenses. Several years later, thanks to the change and transformation, especially in terms of video tapes which have turned from U-Matic to the smaller Betamax ones, I became suddenly able to carry three film cameras with lenses, the sound equipment, and all the accessories in one piece of luggage.

Content industry has witnessed positive changes:

The boom of change was not limited to equipment alone; but the content itself has also changed. In my capacity as a reporter, I had to wait about one hour and a half to develop a film in order to see the content, and I had to spend such a long period in writing the text in anticipation before developing the film. Then I had to see the pictures, and introduce a short list to the assistant director - that was what I was doing to assemble the content; I had enough time for creating the content and thinking about it. Digital cameras also appeared, and broadcasting became faster. The beginning was with the emergence of live news broadcast that made the idea of really simple syndication (RSS) easy. The broadcasting of the video is now immediately after its shooting, leaving no more time for thinking.

The matter of content has seen two changes: the first change is in the method used by correspondents in assembling the text prior to the content creation, and the second change is the really simple syndication (RSS); it has become easy for you to cover the event without the need to know many things.



What you should be thinking of here is how to get the information correctly without distortion. Now we know anything without leaving our seats, you find everyone looking for any information over the phone and getting it in a few seconds. We get information from many sources, and sometimes wonder about the source of such information, the identity of the author and its validity.

Modern technology broadcasts events on the spot:

Live broadcast makes you convey what you are seeing immediately, and helps you use RSS features and cover the events according to what you are seeing with your own eyes. I would like to point out that the content has been affected by the speed of broadcast thanks to technology that helped us to cover the event at once. Thus, my daughter can receive news and get any information immediately, and in any way, through either Google, Wikipedia, any other browser or similar electronic windows. She can also see from her place any event that is broadcast live via any portable media device such as iPad, iPhone, or any other technological means. This may have left an impact on the way we look at the content and the way we receive and create such content.

Content quality and speed of transmission mean professionalism:

The role of innovation is represented in the balance and conciliation between content quality and speed of transmission. Hence, we are now more concerned with the speed of news transfer and that has become more important than the quality of the news itself. People want to know the news fast without looking at their credibility, and that is regrettable.

Credibility testing of information is a big responsibility:

What you should be thinking of here is how to get the information correctly without distortion. Now we know anything without leaving our



seats, you find everyone looking for any information over the phone and getting it in a few seconds. We get information from many sources, and sometimes wonder about the source of such information, the identity of the author and its validity. I believe that each generation should be taught how to get the information properly from the beginning.

Several factors control creativity in spreading the news:

When it comes to innovation in the dissemination of news, I think about some factors such as the topic of the film, the technique used in filming, the photographer, the distributor, the targeted audience, and I can add another crucial factor: the film financier. These factors have changed in the recent period thanks to technology; people are now using their mobile phones to take shots of video clips and footages; it only requires a small camera with no need for the giant cameras we used previously.

TV Channels used to finance the news industry, but the reality now is that people are sending news materials, alongside the contributions of some giant enterprises in the industry, such as News Corp or Disney in America. This development added to such elements is not just a development but also a great achievement thanks to the ease of access to the service. However, content remains the crucial factor of all because you have the remote in your hand and you can navigate on different channels.

The content may be excellent, but if the people do not accept it, it will not be considered as such. As for the news, five factors that I talked about are likely to change from being just a story to be a good topic for producing a film shown on screens.





George Kordahi



Mass Media are the main domains that have been affected by technological development.

The media positively influenced by large technological and technical developments:

For his part, George Kordahi stated that all aspects of our lives are now characterized by technological developments, which have become part of their details. The knowledge age and innovation have not stopped at a certain point in some areas, but reached minor and major issues. Hence, different kinds and forms of media, conventional and non-conventional, are considered one of these traditional areas affected by the ongoing technological development, with great benefits acquired to a considerable and an influential degree.

Amazing developments introduced into print journalism, radio, and TV

Regarding print journalism, for example, how was it 40 years ago, what is its current condition? Likewise, TV has witnessed great development, so whoever lived the two periods will notice the amazing difference, taking these sectors to better technological levels. TV has benefited much in terms of picture quality and high-quality broadcasting; making a positive impact on the final form of media message, it broadcasts. These developments suggest that TV will not reach the extinction phase despite the evolution of small devices that have replaced it and are doing its job.

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The huge development witnessed by modern devices and technologies should be accompanied by greater interest in study to enhance talents and develop youth abilities. Modern technologies helped creating a generation of talented youth who own real talents and tremendous abilities, but many youth still have talents needing to be enhanced by study and knowledge.

Amazing developments introduced into print journalism, radio, and TV

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Great development of newspapers printing and modern technology shrink borders between states:

Starting my career in the mid-seventies, I joined the proofreading section, and I realized how this job required many details prior to the phase of printing and news correction. This process was carried out in a primitive way not free from difficulty, and taking a lot of time in order to reach the final form of the newspaper and its printing. The printing process begins with lead letters, then printing on paper to initiate the proofreading process. Afterwards, the cut and paste process starts, to change wrong words and letters on models and after completion, pages are sent for printing.



Many steps in the past radio broadcast career reduced by modern development

On the other hand, if we look at the radio, we will find that amazing developments led to presenting radio materials in a better and easier way, despite the difficulties of audio materials preparation, and bringing them manually from tapes and CDs libraries to be eventually presented to the listeners. Now, the radio presenter is doing his job through a computer that has all the materials needed to make his radio programme, and this does not include the trouble of searching for anything. Through the computer in front of him, he can prepare any audible material in a minute; and thus the radio presenter becomes a director, a producer, and a technician. Technology has reduced all the old helping tasks so that he can perform them alone. Such great achievement was made thanks to the tremendous development in hardware technology and the modern means of radio, which have become dependent on them in the provision of media mission.

'Innovation or extinction', an expressive saying of His Highness Sheikh Mohammed Bin Rashid Al Maktoum

I go back to the quote of His Highness Sheikh Mohammed Bin Rashid Al Maktoum, U Vice-President and Prime Minister of the UAE and Ruler of Dubai: "Innovation or extinction". This saying realistically demonstrates the developments we should seek to keep pace with in controlling our lives. Without benefiting from this development in all areas, we judge ourselves to remain in the shade, without having a real impact while the entire world is moving around us.





Audience Questions

George Kordahi explained that new technologies will affect the professionalism of news production and good coverage of events, and that there is a responsibility on TV stations in terms of displaying image materials that they receive and the extent of their credibility. This is very clear considering that every citizen is now a reporter through their mobile phone and that the Arab Spring proved this concept through the many incorrect and false witnesses and testimonies included in those films and video clips.



Q: When can the media undertake their role of accountability toward ministries and educational institutions?



George Kordahi: There are concerns and issues dominating the course of developments in the Arab world more than the idea of accountability of a specific educational institution. Although this is something very important, of course, to monitor the performance of such institutions, the critical situation in which we live does not make us reach such a stage and make it happen.

Q: Who guides the other: does the media guide the audience or does the latter control the media based on its tendencies and requirements?



George Kordahi: The media has a great and important message relating to the awareness and development of society, as well as promoting and enhancing its concepts, and the spread of knowledge among recipients who follow the media. In my opinion, the media guide the audience, particularly if they have an effective and strong message to deliver. For this reason, I am

against the argument that the audience guides the media.

Learning and talent are partners of technical advancement for discovering positive youth models:

The easy access to modern devices and techniques has negatively affected the professionalism of displayed visual materials produced by young people to participate in contests or other programs, especially as they opened the way for everyone to test themselves in this area, which probably includes many non-talented persons, who lack professionalism to produce their films. Therefore, I stress on the importance of strengthening talents with study, and new technology helps the emergence of a new generation of innovators. Even though it is difficult because of the involvement of thousands of talented young people, but the number of talented people is small when compared to the large number of participants, which may amount to thousands.





The Knowledge Summit

Day Three

2015

to innovation

Second Session
<<Innovation in Brain Games>>

Guest

Jason Luis Silva
Media Artist and TV personality, specialist in brain games

Jason Silva is the Emmy-nominated host of National Geographic Channel's #1 rated and Emmy-nominated series, Brain Games, seen in over 100 countries. He is the creator of "Shots of Awe," a short film series of "Trailers for the mind" that serve as philosophical espresso shots exploring innovation, technology, creativity, futurism and the metaphysics of the imagination. An active and prolific global speaker, Jason has spoken at TED Global and Google's Zeitgeist Conference and keynoted multiple events for Microsoft, IBM and Adobe.





Jason Luis Silva

The next revolution is biotechnology



Thank you so much for having me here! It is an honour to be here in the Knowledge Summit in Dubai. It is actually my fourth visit to Dubai, and it is always a wonderful experience. The city is just so impressive. It is amazing to see what is happening here in terms of innovation, imagination and creativity. So, as some of you might know, I am the Host of Brain Games on the National Geographic Channel. Brain Games is a television show that plays with our perceptions and our misperceptions of reality, and today, I want to talk about our perceptions and misperceptions when it comes to innovation and technology.

Dubai as a Hub for Human Imagination

So, I am very passionate about human creativity and imagination and this has turned to passion for technology and innovation, because I believe that innovation and technology are the embodiment of human imagination. Just look at the city of Dubai, the topography of the city of Dubai is the condensation of human imagination. It is human imagination turned into concrete, as if it is spilled out from our heads into the world. We use our tools and technology to overcome our limits. Humans have this innate capacity to create tools to extend the boundaries of who we are and we have been doing this for the entire history of the human species!

Rapid technological developments have positively affected our brains

A hundred thousand years ago, in the Savannahs of Africa, early humans used to pick up sticks to reach fruits on a very high tree, we have been using our tools and technologies to extend our reach ever since. When we first started using stone tools, our jaws shrank. We build the tools and the tools change us in return. When Man first discovered fire and cooking, cooking and fire acted as an external stomach that pre-digested our food, making every meal more efficient. So, our tools and technologies have always been a

part of who we are, and perhaps the difference is that today we are living in a time of exponential technological change. Our brains have evolved in a world that was linear and local, unlike technology, which evolves at an exponential rate. This explains the difficulty for our brains to comprehend such rapid technological change. Forty years ago, we used to have a 60 million US dollar super computer for accessing which we needed a special permission, but now this huge computer has become in our hands a small smart phone, which is a million times cheaper and a thousand times more powerful.

Cell phones are the greatest invention in history

Modern tools have the ability to change the world. Every young kid in Africa has a smart phone today. Thus, our ability to communicate has become better than was the case 25 years ago. Bill Clinton wrote an article in Times Magazine called "The Case for Optimism" where he cited a 2010 U.N. development study that stated that the smart phone was perhaps the greatest invention in history to pull people out of poverty. This exponential technology has transformed and will continue to transform the world because this exponential curve is not stopping. Now some people feel a bit apprehensive because certainly the speed of change continues to accelerate. So, part of what I have been trying to do was to create short media formats to inspire people to see these disruptions and transformation as a unique opportunity in history to address the great challenges of humanity. This is embodied in a summit like this, in a place like Dubai, that believes that anything is possible. Currently, it turns out that the world of flesh and concrete is also becoming information technology. So, we are familiar with the term of 'biotechnology' which means mastering the information processes of biology because biology is a software and code. D.N.A. is a language we can now start to write, edit, and script. Just like you download the new applications on your Iphone, we are going to be able to download new software for our genes. So, now we are going to be able to reprogram our bodies away from diseases, and we are going to witness a great evolution in the field of health care. Biology is our playground. What we are going to make? This kind of evolution is going to change the game just within ten years or maybe less. People talk about "Medical tricorder" which is a smart phone-sized device that can diagnose our health better than a group of certified doctors. It is like a lab on a chip technology and an entire medical laboratory on smart phone-sized devices.

Nanotechnology already exists in nature when you plant a seed and it turns into a tree. The seed is an information file that tells the soil around to turn it into a tree. So, nanotechnology in our hands means again a software that can ride its own hardware. It is like information files that can tell a building to create itself. Nanotechnology is also progressing exponentially. The new skyscrapers in Dubai might be information files designed in a computer so that you can press print and the building makes itself. So, when you have these overlapping revolutions simultaneously emerge exponentially, you have biotechnology that change health care, and change the way we fight diseases, and perhaps would help make humans live longer. You have nanotechnology turning the physical world into a programmable medium.

The next revolution is biotechnology

The next IT revolution is going to be witnessed in the field of biology. Then we have nanotechnology through which the physical world made of atoms becomes programmable. Atoms could be turned into digitals so that we could use them in creating magical scientific revolutions. Self-assembling nanotechnology means that we can create a piece of software that tells the hardware what to do. Then we have the Artificial Intelligence (A.I.) that continues to evolve exponentially, non-biological probes and scaffoldings and non-biological minds that can merge with ours to extend our intelligence even more. These three overlapping revolutions, represented in Genetics, Nanotechnology, and Robotics (G.N.R.), will change the world in a way we cannot even imagine.

Genetics, Nanotechnology, and Robotics participate in reaching the Black Hole to overcome Singularity

So, let us talk about our future! What does that even mean? It is to look at what comes next and what might be because today exponentially emerging technologies are transforming what is possible. X-rays



will help us overcome and transcend even the biological limits. We are rewriting the software of life with biotechnology; turning matters into programmable medium with nanotechnology rather than creating sentient minds with artificial intelligence that are not bound by the limitations of biology. These three overlapping revolutions, represented in Genetics, Nanotechnology, and Robotics, together will be leveraged to lead us towards the black hole like singularity. This is the climax to which these three revolutions will come together to transcend the biological origin. It is extremely amazing! So, is "our future" hard to dream of?

Making distinction between the born and the made is a bad question to ask because if the laws of physics allow technology, and if it is made of atoms, then it is natural. If we are making it and extending our capacity, then it is good. Imagine how impoverished the world would be, if we did not invent the technology of oil painting to enable such a genius, a great artist like Van Gogh to use that technology to express beauty, or if we did not invent the technology of musical instruments to enable artists like Beethoven and Mozart to express their wonderful talents. New technologies come to enlighten our future to allow new forms of human beauty to express themselves. This is what we must facilitate.

The brain cannot return to its original positions after being introduced to new ideas

Steven Johnson is one of my favourite writers, who wrote a book called "Where good ideas come from?" a natural history of innovation, where he cites the concept of "adjacent possible". He describes the adjacent possible as a shadow from the future that hovers over the now and it provides a map of all the ways in which the present can reinvent itself. So, the adjacent possible is like a filter or lens that you put on and that tells you to look at your problems as opportunities, and tells you to look at the present as a future possibility. It is a wonderful application to start using and a wonderful cognitive shift because it tells us that everything good to create begins at the edge apart from the comfort zone when we leave familiar habits and patterns of thought, and move away towards the parameters of possibility and take a risk.

We are going to make ourselves a little bit uncomfortable for the sake of thinking differently. Nevertheless, once the mind is stretched by new ideas, it never returns to its original position. This is what I love about this notion of the adjacent possible. As



the philosopher, Tom Robbins says: "You cannot manufacture imagination, innovation, and wonderment, but what you can do is to pull yourself so dramatically out of the context, i.e. out of your comfort zone, to be forced to experience marvels and amazement and all of these wonders of the world that sometimes we ignore.

The new concept of the "Internet of Things"

The world is quickly becoming intelligent and people start to talk about the concept of the "Internet of Things". What is meant by the "Internet of Things"? It means that our computational tools keep shrinking in size, as this set is getting smaller. We have the capacity to start putting computational sensors in every day's objects such as our refrigerators, cars, clothing, and in the mall to give recommendations because the networks of such sensors will know our taste and preferences and will be able to predict what we want at any given moment. Such sensors will help us to make decisions and sometimes will decide for us, and make it easier for us. Through the "Internet of Things", the world will start to give us real time feedback. One of the most important technological tools people talk about nowadays is the notion of the "Internet of Things". Nowadays we are extending intelligent sensors into the world of everyday objects. All these objects are going to be developed to provide us with information. The world is going to become sufficiently intelligent to expect our needs as if it was an extension of our mind. "When everything becomes linked to everything else, matters become part of the mind". One of the key themes behind all this talk about technology and opportunity

is presented to you today with this lens of human imagination to focus on the idea that we can do anything. I am interested in reaching people of all ages, whether they are students or grandparents, to tell them that they have to believe that anything is possible. It is all about curiosity, imagination, science, wonderment, and awe.

Awe is perceptual expansion to create a new model for the world with the human mind

Stanford University studies describe 'awe' as a feeling of such perceptual expansion that you are forced to create new models of the world in your brain in order to assimilate and comprehend what you are seeing.

So, maybe the first time you see the space telescope images of the universe, Burj Khalifa or the Emirates A380 or anything you have never seen before, you would be so astonished and your brain would be taking in a new model and would be updated by the experience. After these moments of awe, curiosity, and inspiration pass, they leave us with increased feelings of wellbeing, creativity, and compassion. Every time we do something amazing, and every time we are exposed to something we have never seen before, we gain such good feelings. Additionally, this experience of awe shall have a positive effect in our physical health and aid our creative thinking. Every time we push the boundaries, we feel good. This is so inspiring and this is what I want to leave you with when you think of innovation, technology, and imagination and that sense that anything is possible, that sense of awe, and that sense of infinite boundless possibilities.

"The Wondering Brain" clarifies that we should look thoroughly at the world

A great book called "The Wondering Brain" says that one of the ways to find wonders is by scrambling the self temporarily, to give proper attention to the things around us. Then, our brains will be stunned and astonished and feel wonderment after discovering new things. How we do this? Only those moments can make us experience ecstasy of direct energy exploding in our nerve endings. These are the moments of ecstatic awe that can expand our perceptual limits. This is what is meant by inspiration and astonishment that can only be described by poetry. We have a responsibility to awe.

I remember there was a brief conversation about Singularity

University, which was created by Google, N.A.S.A., and Ray Kurzweil. It acts as a think tank that invites graduate students to learn about exponential technology. Students come in to learn about robotics, biotechnology, nanotechnology, and essentially to learn how to think exponentially and this is the key idea. Once you start to think exponentially, the impossible becomes possible and the out of reach becomes within reach. Nevertheless, this requires a cognitive shift and a change in our intuition, so we have to rewire our brains to understand the implications of exponential thought.

Redefine "Billionaire"

Every graduating student from Singularity University is tasked with coming up with a project, a company, or invention that could positively affect a billion people. This is the ambition that they asked the students to have and this is the scale of thinking that they are invited to have. This encourages every individual to not only affect ten or twenty people, but to come up with an idea that can positively affect a billion people. This is incredibly inspiring so I created a video under the concept of "Redefine Billionaire". The basic idea is that in the twenty fourth century, those who understand exponential technologies are going to redefine the term of 'billionaire'. Billionaire will not necessarily mean the one who has a billion dollars but a billionaire shall be the one who positively affects a billion people. So, I ended up launching the video with an amazing collaborator under the Hashtag of "#Redefine_Billionaire".

We have the capacity to make this world a better place

In order to sum all these things we discussed, I would like to leave you with this message: we have the capacity to make this world a better place. Every single day, every single one of us, and every contribution we make can make the world a better place and can positively affect a billion people. One of the key messages is that we can do this with the super computers we have in our pocket. This next video was actually shot with my Iphone in Central Park in New York, and then edited by a friend. This is an example of a message that can be spread to reach a million people, shot and edited with a smart phone.





Technological development will take genetics and nanotechnology to an amazing future

Question: Technology is becoming everything in our lives, to such an extent that no aspects of human interaction or communication between people will remain. The situation will even become worse in the future, what do you think about that?



Jason Silva: Life goes on unabated and the rhythm is becoming increasingly rapid, to the extent that it would be difficult to find enough time to rest or enjoy what we love. When a new invention emerges, people receive it with surprise and curiosity. Technology, inventions, and innovation are double-edged weapons. The same thing applies to the language we speak in our daily lives. On the one hand, if we use it positively, it will bring people together, increase mutual understanding between them, help sharing ideas and information between them, and change the course of life for many people. On the other hand, if we use language negatively, it will become counterproductive, exacerbate differences and conflicts between people, and may lead to wars and bloodshed for millions of people. The same goes for technology; it has pros and cons. One of the spreading misconceptions people are embracing is that technology is the root of all evils. This belief unfairly neglects the positive aspects of technology.

Based on your speculations, can you foretell what will happen to the world in 2100?



Jason Silva: No one can tell what will happen in the near or far future. You can never depend on speculations because they are approximate, relative, and uncertain at all even if they are based on studies and researches conducted by specialized academic and research institutions.

Although the results of these speculations are uncertain, we should refer to a major point; they are usually based on trends, facts, and information issued by specialized institutions, as mentioned earlier. The interesting thing is that many celebrities in the world of technology, such as Steve Jobs, who wa
What challenges do you expect to face in light of the rapid leaps we are currently witnessing in the world of technology and innovation? My second question is related to Artificial Intelligence, could it be a substitute for human intelligence?



Jason: The challenges are numerous and we cannot count them in this session. Having said that, I would like to stress that the potentials



to overcome the challenges of technology are considerable.

How can we make sure that biotechnology will not be used in harmful purposes that may harm or eradicate humanity?



Jason: In fact, I rule out this scenario. I believe that the negative aspects of technology will not go beyond things like spreading computer viruses that are harmful to PC applications or helping hackers to infiltrate computers and steal data or destroy them. Again, it all depends on how technology is used; do we use it for the good of humanity or to harm humanity? Technology is a double-edged weapon.

How can we encourage young people and motivate them to innovate?



Jason: Based on my work in the National Geographic, I can tell you that the most important factor that helps in this regard is the media. The media can introduce awareness shows that



encourage young people to innovate and enhance their abilities to imagine and develop new ideas.

How will it be possible to control the different crimes that happen now in every corner of the world in light of technological progress that turned into a tool to commit those crimes?



Jason: What you are saying has something to do with the future challenges resulting from the technological tools, which indeed include crimes. Before the invention of computers, we were used to making our calculations manually using a pen and a piece of paper; however, even that pen and the paper were, at a certain point, important inventions for mankind; because before them people used to make calculations using their minds only.

How can we enrich the Arabic content in the field of knowledge in an effective manner? The second part of my question is: How can we achieve that through technological means?





Jason: We can enrich the Arabic content related to knowledge on the Internet through spreading it and increasing its visibility. You need to engage people on a large scale. I also believe that it is very useful to take advantage of the advanced translation technologies that are available on the Internet. I believe they help in achieving this goal. Thanks to these technologies, it is now possible to use the language in a visual rather than an audio manner, using different applications and software available on the Internet. This also helps in the communication process between people, who speak different languages; and enables them to share ideas and information. The virtual world today has a significant role in this regard because the main reason for many of the current disputes and conflicts between humans is their inability to communicate with each other. Therefore, we dream that the world becomes one unit. I believe this dream will come true when the day in which we understand each other comes.

The current generation depends on computers more than on their minds. My question is: how can we improve our mental abilities so that we do not need to count too much on these devices?



Jason: I believe we are witnessing what I may describe as overreliance on modern technological innovations, which, of course, includes computers because this might disable the human mind and our innate ability to think; one of the unpleasant things we are witnessing with the spread of technology now. For example, a hundred years ago in the United States, 90 percent of Americans worked in agriculture, which was inherited by the farmers' children. However, with the continuous technological progress, no one cares about learning farming skills. The percentage has dropped for the time being to one percent! This is because of people's dependency on technology.

How to contribute and help young people think differently and become more innovative?



Nanotechnology already exists in nature when you plant a seed and it turns into a tree. The seed is an information file that tells the soil around to turn it into a tree. So, nanotechnology in our hands means again a software that can ride its own hardware. It is like information files that can tell a building to create itself. Nanotechnology is also progressing exponentially. The new skyscrapers in Dubai might be information files designed in a computer so that you can press print and the building makes itself. So, when you have these overlapping revolutions simultaneously emerge exponentially, you have biotechnology that change health care, and change the way we fight diseases, and perhaps would help make humans live longer. You have nanotechnology turning the physical world into a programmable medium.



Jason: In my opinion, the decisive factor is the media. I am working for the National Geographic and I am presenting the "brain games" show. We have a strong reason to label the material we are presenting «the content,» and to call that content «programming» because it helps in programming our minds and stimulating our imagination. Therefore, the media is responsible for the production of content that helps to stimulate imagination.

When I say content, I mean realistic and documentary films similar to that introduced by the National Geographic. We are responsible for providing a content that broadens the perceptions of our mind. In my opinion, besides the media, there is the role of education; I mean schools that always aspire to evolve and change the methods of teaching.

How can we bridge the gap between generations that have different ways of thinking, and how can we bridge the gap between the first world and the third world, which is struggling to get food and water?





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Jason: With respect to bridging the gap between this generation and the previous generations, the first step, in my opinion, is to remind all of them that we are human beings and that we are stuck in this gap together. It is not about the fact that I belong to the current generation and you belong to the generation of the fifties or sixties of the past century. Together, we make up the community, and everyone represents the wisdom of their time. The young generation may offer fun and joy, meanwhile old people provide caution and experience. Therefore, we should not rush things; we can achieve the desired balance together. Therefore, I reiterate that we can use media to achieve unity.

How can we enrich the Arabic content on the Internet?



Jason: Sometimes I come across people wishing to translate some of my videos into Spanish, for example. Only then, I realize how it feels to be lost among different languages. That is why the applications and software that help in translation are stunning. For example, that Google application which enables you to use the phone's camera and put it on the food menu to translate it into your own language! Language is a tool to convey the meanings that come across our minds. It is



an automated process. Whenever we talk, we hope that others understand us.

How can we improve the skills of the mind rather than relying on technology?



Jason: That is a very important point you raise here. You see, one hundred years ago, 90% of the workforce in the United States were farmers. It is very likely, of course that most of the children have learned all the farming methods, which was one of the skills required at that time. Nowadays, less than 1 percent of them are working in agriculture, which means, of course, that not all the children today know about what a field is. This is unfortunate, but the fact we have to face is that we are living in a world of technology. Having said that, I did not mean to abandon learning mathematics, it is one of the basic arts we should learn. What I am saying is that when we try to separate technology from our lives, we are committing a big mistake. We should regard technology as an irreplaceable knowledge field. We should all agree on this.





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