



Published & Printed  
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# Flashes from Knowledge Summit 2017

The Fourth Industrial Revolution







## The Summit in Numbers



Audience

4,800



Registration

7,900



Media  
coverage

649



Summit Followers over  
media and social media

24,323,138



Days

2



Sessions

21



Speakers

105



Official website visits

373,000



Followers of the summit over Social Media

31,579,241



Interaction and views of  
the Summit activities

Interaction and views of  
the Summit activities

Interaction and views of  
the Summit activities

Interaction and views of  
the Summit activities

923,016

16,244,924

11,650,640

2,760,661



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Under the Honorable 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





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His Highness Sheikh

**Hamdan bin Mohammed  
bin Rashid Al Maktoum**

**Crown Prince of Dubai and Chairman  
of the Executive Council**







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**His Highness Sheikh**

**Ahmed bin Mohammed  
bin Rashid Al Maktoum**

**Chairman of the Mohammed bin Rashid  
Al Maktoum Knowledge Foundation**













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Day  
One 1



# Hall 1





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## Opening session

- Opening events
- Opening video
- Opening ceremony
- Address by the Mohammed bin Rashid Al Maktoum Knowledge Foundation
- Address by the Guest of Honor
- Announcement of the Global Knowledge Index results
- Announcement of the Mohammed bin Rashid Al Maktoum Knowledge Award winners
- Announcement of the Knowledge Ambassadors
- Launch of Illiteracy Challenge initiative

### Guest of Honor

**Dr. Hani F. Mulki**, Prime Minister – Hashemite Kingdom of Jordan.

### Speakers

**H.E. Jamal bin Huwareb**- CEO, Mohammed bin Rashid Al Maktoum Knowledge Foundation (MBRF)

**Dr. Hani F. Mulki** - Prime Minister – Hashemite Kingdom of Jordan







**H.E.**  
**Jamal bin Huwareb**

**The slogan for Knowledge Summit 2017 is «Knowledge and the Fourth Industrial Revolution»**

Knowledge Summit is a global summit and its activities are characterized by its global impacts. The Summit unveils the details of the Global Knowledge Index project, the first of its kind worldwide, during which our strategic partnership with the United Nations Development Programme (UNDP) culminated with the aim of monitoring worldwide knowledge.



Knowledge Summit 2017 launched its fourth edition to mark a decade of achievements and successes for the Foundation since its establishment. It has launched qualitative initiatives and projects that have contributed to the promotion and dissemination of knowledge not only in the Emirate of Dubai but also in the region and the whole world.



**Dr.**  
**Hani F. Mulki**



**The Fourth Industrial Revolution and all its components came to empower humans, not to empower machinery, automation or digitization in its narrow framework**

Today, artificial intelligence exists everywhere around us in the form of automated vehicles, drones, translation software or software used to explore new medicines, computer designs, 3D printing, materials engineering, e-commerce as well as genetic, biological and synthetic engineering.



More importantly, the amount of adaptation to the knowledge revolutions of this generation is much greater than my generation and those who preceded me.



## Winners of The Mohammed bin Rashid Al Maktoum Knowledge Award 2017

The Knowledge Award 2017, valued at USD 1 million,  
has been awarded to:



**Prince Mohammed bin  
Salman bin Abdulaziz Charity  
Foundation «MiSK»,  
and the award shall be  
presented to Badr Al Asaker.**



**Dr. Hiroshi Komiya**  
Chairman of Mitsubishi  
Research Institute



**Dr. Wendy Kopp**  
CEO of Teach for All



| Knowledge  
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Day  
One 1



# Hall 1





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## Session 1

### Decision-making in the era of the Fourth Industrial Revolution

#### Session topics

Panel discussion with the guest of Honor about decision-making under the Fourth Industrial Revolution.

#### Moderator

**H.E. Reem Al Hashimy**, UAE Minister of State for International Cooperation, Director General, EXPO 2020 Dubai Bureau

#### Speaker

**Dr. Hani F. Mulki**, Prime Minister – Hashemite Kingdom of Jordan





**Dr.**  
**Hani F. Mulki**

## Significant increase in productivity in the business sector

We have talked about artificial intelligence, robots, electric cars, automated cars and drones, but some people say this Fourth Industrial Revolution will increase unemployment and concentrate wealth. With the beginning of this revolution, we know that there will be a great accumulation of wealth in the hands of a limited number of people, but will this continue? In my estimation, no.



In the Fourth Industrial Revolution, the world will focus on minds, and natural resources will not be the basis but man will be the capital of development in world countries.





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## Session 2

### The digital revolution and its role in traditional and social media

#### Session topics

- Technological development and its impact on media
- Using technology to fact-check fake news
- Media access to all citizen journalism
- Social media channels as a source of income
- The role of social media in disseminating news
- In the Fourth Industrial Revolution, will robots replace the author?

#### Speakers

**H.E. Noura Al Kaabi**, Minister of Culture and Knowledge Development

**Mr. Majed Al Suwaidi**, Managing Director, Dubai Media City, Dubai Studio City, and Dubai Production City

**Mr. Ludovic Blecher**, Head of the DNI Innovation Fund, Google

**Mr. Will Moy**, Director of Full Fact

**Dr. Larry Birnbaum**, Head of the Computer Science Division and the Co-Director of the Intelligent Information Laboratory at the Northwestern University

#### Moderator

**Muna Abu Sulayman**, Media Personality and Co-host of TV show Kalam Nawae'm







**H.E.  
Noura Al Kaabi**



### **The government is organized in a technology-friendly way**

The new cabinet reshuffle discussed the issue of the people who represent us, such as the Minister of Artificial Intelligence and the Minister of Science. The Council of Ministers is called the Cabinet of the Future. Being members of the cabinet, we are looking at the shift from traditional ways to technology and development as we have ambitions to achieve.



The ambition exists, and we seek to explore, empower young people, and push the government to work as well as adhere to and integrate this future agenda into everything we do.





**Mr.**  
**Majed Al Suwaidi**

### **We have attracted most of those creative contents to Dubai**

Based on what we have seen in the past few years, I think we will talk a bit about history here. There is a lot of amateur content available on the internet, but this content is not strong enough or does not meet the minimum value for which it has been created.



We have tried to disseminate a new vision that will lead to creating more valuable content for the public, which required us to invest in various equipment, development and strategies.





**Mr.**  
**Ludovic Blecher**

The Fund operates in two parts: content industry, and research and training. In the Newsroom and news training center, Google products are available to collect the uploaded data that makes up your story. This phone is a project created by publishers with the support of Google but it is still the publishers' project, as we do not invest, but we give.



We should think of something to change the way content is produced, and we must reshape journalism. It can only be done by self-development, finding new ways to distribute and tailor content, and look for new storytelling templates.







**Mr.**  
**Will Moy**

## **Fake news has become the talk of the hour over the past few years**

One of the problems observed at the time of the US elections last year was that people were creating websites and making up fake stories to attract people to those sites and earn advertising revenues due to the large number of visitors.



**There are really interesting problems represented in content creation with the aim of manipulating public opinion, and to direct political events and currents.**





**Dr.**  
**Larry Birnbaum**



## **The goal of technology is taking data and turning it into stories**

To make this possible, you need to work on a scale that you care about and love. Instead of one store for many people, there will be your own shop, your own data, your children, baseball, football, financial situation and health. These applications are obviously very positive and beneficial to people.



**We have built transparent technology that can explain logic' to people, and I think we have a better chance to avoid manipulation.**





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### Session 3

**A session for the Mohammed bin Rashid Al Maktoum Knowledge Award winners**

#### **Winners of the Knowledge Award for 2017:**

**Ohud Al Arfaj** Projects Manager of Prince Mohammed bin Salman bin Abdulaziz Charity Foundation «MiSK Charity Foundation»

**Dr. Hiroshi Komiyama** Chairman of Mitsubishi Research Institute

**Dr. Wendy Kopp** CEO of Teach for All





**Mrs.**  
**Ohud Al Arfaj**

**The Prince Mohammed bin Salman bin Abdulaziz Foundation is a non-profit charitable organization dedicated to fostering and promoting learning and developing youth leadership skills for a better future for Saudi Arabia**

The MiSK Foundation is an institution established by His Royal Highness Crown Prince Mohammed bin Salman bin Abdulaziz in 2011. MiSK seeks to achieve these goals by creating programs and partnerships with local and international organizations in various fields as well as with a variety of items, where MiSK invests in the intellectual capital and helps in the release of the energies of Saudi youth and young people in the region.



**MiSK has launched the MiSK Grand Challenge to motivate young people to come up with solutions to the real problems facing global communities in the field of education.**





**Dr.**  
**Hiroshi Komiyama**



## Building Trust to Change the Planet

We must build confidence to change the planet, and this fact is the fundamental reason for caring for the sustainability of human civilization.

It is worth mentioning that in the 20th century, human activities began to expand significantly and rapidly, the concentration of carbon dioxide increased in atmosphere and the global average per capita GDP rose sevenfold. One of the important concepts for my vision is saturation, and sooner or later, the world population will be saturated on our limited earth.



Recycling old handmade products is much easier to many people than digging rocks underground, but it is possible to build better society that is based on civilized mines and can maintain the earth cleaner and more beautiful and make the people happier.







**Dr.  
Wendy Kopp**

## Teach for All

We need to create something called “Teach for All” to drive the power of the rising generation of graduates in this field to work with the most marginalized children. I thought it would make a real difference in the short term of children’s lives, and it would make a real difference in the long run by reshaping the generation’s priorities.



We must spend the first two years after graduation in urban and rural public schools instead of banks.





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## Session 4

### Building sustainable excellence

#### Session topics

- Administration in the UAE
- Achieving excellence: Dubai as an example
- Government of the future

#### Speaker

**Dr. Ahmad Al Nusairat**, General Coordinator of the Dubai Government Excellence Program, UAE





**Dr.**  
**Ahmad Al Nusairat**

**I would like to talk about government excellence and outstanding management in the UAE in general and Dubai in particular**

In the past year, the United Arab Emirates has risen five places from 15th to 10th in the Global Competitiveness Report. Many of our institutions have achieved the first place in the world in terms of performance. In the field of electricity delivery, we find that DEWA is the first in the world. In facilitation of building permits, Dubai Municipality comes in second worldwide.



Administration is the oldest function in history, and if two persons gather to achieve a particular goal, management will be their third.





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## Session 5

### The co-create effect of the Fourth Industrial Revolution

#### Session topics

- Evolution: In the Fourth Industrial Revolution, every individual, team, and organization must evolve to remain relevant
- Relationships: What if that evolution came from collaborative co-creation from a few, but deeply meaningful, strategic relationships
- Unique phases: That evolution may include iteration, innovation, or disruption opportunities
- Ecosystem: Your relationship signal scouts can enable the process of adaptive innovation
- Talent agenda: The Hollywood talent model focuses on few value creators
- The process: A co-create canvas is your journey's GPS

#### Speaker

**David Nour**, CEO of Nour Group



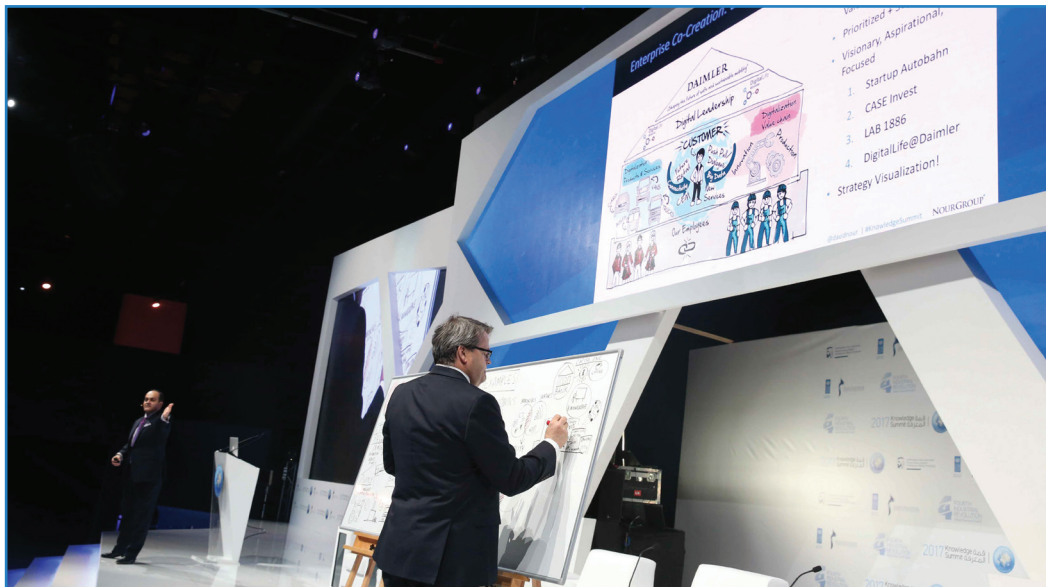




**Mr.**  
**David Nour**

## I want to address a better idea for the application of the Fourth Industrial Revolution

Ideas that contributed to the success of previous stages of evolution may not help in the development and progress to another stage. There are two major challenges to how the institution develops: the technical aspect and the culture of the labor force. We do not only need bodies, but we need intellectuals to think and identify how to overcome obstacles. This is how we can strengthen culture and support the institution.



Digital migration is anything like automation, large data, or access to information or ideas about changing the way we achieve business revenues.





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## Session 6

### Cybersecurity, AI and digitization enablers: Challenges and expectations

#### Session topics

- Cybersecurity: Applications and response to cyberattacks
- Hacking: Is there a safe zone?
- Internet of Things (IoT) and Big Data
- Social networks and personal information security
- Connected societies and AI technological infrastructure

#### Moderator

**Dr. Nouraldin AlYousuf**, Emirati TV Presenter

#### Speakers

**Khalifa Alshamsi** Group Chief Corporate Strategy & Governance Officer, Etisalat Group

**Pablos Holman** Inventor & Cyber Security Expert

**David Rose** CEO at Ditto Labs, and Founder and CEO of Vitality

**Charlie Miller** Head of Autonomous Vehicle Security at Chinese ride-sharing company Didi Chuxing





**Mr.**  
**Khalifa Alshamsi**



### Risks and security gaps

I think we should first look at the opportunities and then define the risks and security gaps, and think about easing them and filling the gaps. This has emerged in recent years through the state transformation into full mobile solutions, then the announcement of adopting “blockchain technology”.



It is really important in this case to identify the use of the latest technology, areas and locations of exposure to security breaches and any other related issues.







**Mr.**  
**Pablos Holman**

## The new technology is called the future tool

When you are trying to invent new technology, you are trying to invent for the future. The next step is to make a product, and even when you create a product, you do not have enough time to care for the security aspect. Therefore, you shall not have enough time to detect security problems, as is the case with major entities.



When you are trying to invent new technology, you are trying to invent for the future.





**Mr.  
David Rose**

### **Integrating technology into everyday objects is my goal**

The gradual transformation to artificial intelligence is important. I think it is just integrating a small part of communication and smart elements into ordinary devices or things. For example, you cannot play “Angry Birds” or other games on Google Earth’s table. Of course, it is possible to integrate the game, but I decided that this is all that we are going to do with this place.



**In some devices, there is no need to save data. Therefore, in some cases the question may be who has access to the information and how long does he own access?**





**Mr.**  
**Charlie Miller**



### **New technologies have the same old problems**

I agree, many of the new technologies have problems such as those we have encountered with phones and computers in the past or even cars. There is no big difference. Email theft has the same consequences of killing threats if we look at the idea that the computer will physically control everything.



**Many of the new technologies have problems such as the ones we have encountered with phones and computers in the past or even cars. There is no big difference.**







| Knowledge  
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Day  
Two **2**

# Hall 1





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## Session 1

### Global Knowledge Index

#### Session topics

- The importance of the Index and the role of the Foundation in disseminating knowledge
- The importance of partnerships with the United Nations Development Programme in supporting knowledge and development in the Arab region and the world
- Key findings
- The knowledge gap between the Arab and Western worlds

#### Speakers

**H.E. Jamal bin Huwareb** CEO, Mohammed bin Rashid Al Maktoum Knowledge Foundation (MBRF)

**Dr. Hany Torky** Chief Technical Advisor, Arab Knowledge Project

**Mr. Michael O'Neill** UN Assistant Secretary-General

#### Moderator

**Mohammad Abu Obeid**, Journalist and News Presenter, Al-Arabiya





**H.E.**  
**Jamal bin Huwareb**

## The launch of the Global Knowledge Index in cooperation with the United Nations Development Programme

If we do not have an Index today for our achievements, we will not know our future, we will not know our world order, and we will not know how to develop our tools and plans. Now every ruler and entity in the entire world can get this Index or even download the application of «Knowledge for all» to know its place among the countries of the world.



Those who are not ready for the future will have greater fear, lose wealth and be lost for years, as His Highness Sheikh Mohammed bin Rashid Al Maktoum said: Preparing for our future is a necessity, not a luxury. Unprepared governments will suffer from missed opportunities and lost wealth.







**Dr.  
Hany Torky**

## Data gap between the Arab and Western worlds

We prove that the Index, through its seven sectors, is like isolated islands, but there is interaction between them. If the Arab countries can integrate or deal with these sectors as one unit, we will be able to eliminate this knowledge gap. The composite index takes into account some different sectors. We do not look at the state, but look at the limits of the established methodology.



There is no knowledge gap between the Arab world and the Western world. However, there is a gap in data. This is the first thing we want to talk about.





**Mr.  
Michael O'Neill**

## Leadership and Vision

UNDP is very proud to be working with the Foundation to pursue the vision of His Highness Sheikh Mohammed bin Rashid.

I think the UAE is ranked second in the economy index. So, it is important to bear in mind these practical examples of leadership, vision and what we are trying to achieve.



This index is based on tremendous collaboration over the 10 years of partnership between UNDP and the Foundation which included Knowledge Reports, Information Portal, Arab Reading Index, Arab Knowledge Index, and now the next phase with the Global Index.





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## Session 2

### 3D-printing of human organs and genetic editing: A disability-free future

#### Session topics

- 3D-printing of body organs: Spare parts on demand
- Genetic editing: Re-engineering the cell
- Medical breakthroughs to treat widespread diseases
- Digital surgeries: Using VR for surgery-training
- Neurotrophic electrode transplant in human brain improving memory and increasing intelligence

#### Speakers

**Dr. Philip Kennedy** Founder of Neural Signals Inc. (NSI)

**Dr. Anthony Atala** Director of the Wake Forest Institute for Regenerative Medicine

**Mr. John Nosta** Digital Health Philosopher, Former CEO, Apple and Pepsi

**Prof. Shafi Ahmed** Cancer Surgeon & Associate Dean of Bart's Medical School

**Mr. Raymond McCauley** Co-founder of BioCurious and Biotechnology Scientist

#### Moderator

**Dr. Ali Hilal Al-Naqbi**, Director, Abu Dhabi Polytechnic







**Dr.  
Philip Kennedy**

## New hope in the treatment of stroke

The first patient was a stroke patient and was unable to move, so we made a speech restoration to him. We needed someone who was sound and healthy and then later struck by stroke to tell us about the experiment, therefore I did it myself.



I feel confident now that we can actually take people who cannot speak for various reasons and implant a chip to allow them to control speech. I feel comfortable because I have planted that and could treat speech disorder.





**Dr.**  
**Anthony Atala**

## Longevity with healthy life

Everybody wants to achieve longevity through science, right? However, the challenge is not just longevity, it is actually the quality of life that you have irrespective of your age. You can live longer, but if you live longer and you start having major weaknesses, that is a challenge.



3D printing has really made advancements in this field, certainly in the last decade. It is going to be a critical factor in advanced manufacturing.





**Mr.  
John Nosta**



## Organ transplant

When you think about it, I mean in terms of neural implants, it sounds very science fiction. It is not extraordinarily to check the brain clinically to validate its soundness and stimulate the brain in Parkinson's disease. Probably the best example of this is the shift to neural interfaces such as cochlear implant.



To me, I think 3D-printing is one of the few technologies that have such a rich and broad appeal across so many different sections of the community; when your children can play with a 3D printer, yet we can also build a house, a building, or an organ with 3D-printing. I think that is testament to its place in society and where it is potentially going to be in the future.







**Prof.**  
**Shafi Ahmed**

## Change the way we practice medicine

3D virtual reality has become cheaper. I could equip my hospital with low-cost equipment, which would have cost about GBP 100,000 three years ago. Let's talk about the future and think about the real kind of expensive medical technology. In about 5 or 6 years, we're going to jump onto a ship and go to Mars.



This is the most exciting time for medicine because of the conversions of knowledge, not in the future, but today.





**Mr.  
Raymond McCauley**

**I think some of the biggest advances are now because the enabling technologies are getting exponentially cheaper**

Biotechnology has begun with the emergence of computers in 1972. It is starting to become something that not only large institutions do but is very personal. We are about to see a revolution there that includes some of these jobs, like manufacturing jobs, going away and that means – for every one of us – losing many professions we had educated our children for.



**I think these new technologies such as 3D-printing, bioprinting, gene editing and regenerative medicine are some of the advanced cellular technologies applied now.**



# Honoring the Knowledge Ambassadors

Knowledge Ambassador



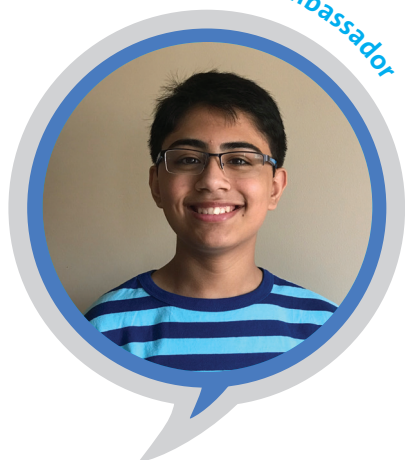
**Jason Silva, Media Artist,**  
TV Personality and Fu-  
tunist

Knowledge Ambassador



**Muna Abu Sulayman,**  
Media Personality and Co-host of  
TV show Kalam Nawae'm

Knowledge Ambassador



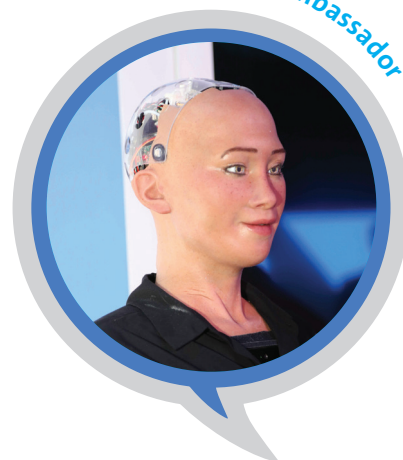
**Tanmay Bakshi,**  
Software Developer, Author, and  
Keynote Speaker

Knowledge Ambassador



**Major Rashid Hamdan Al-Ghafri,**  
Head of Biology & DNA Section,  
General Department of Forensic  
Sciences and Criminology at Dubai  
Police General Headquarters

Knowledge Ambassador



**Sophia,**  
the robot developed  
by Hanson Robotics





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## Session 3

**Fourth Industrial Revolution: A future outlook**

### Session topics

Foresight of a future shaped by the Digital Revolution

### Speaker

**Jason Silva** - Media Artist, TV Personality and Futurist





**Mr.  
Jason Silva**

## **We build machines and then machines build us**

Again, everything we design in this world designs us. It is like a continuous process that is called self-improving feedback rings. We build tools and these tools change what is available to us; and by using these tools, we do not need to create other tools.



Now, we shall see the emergence of transformative techniques that will change the concept of being human. What is going on in my mind now is a phrase that says, 'There are decades where we do not witness anything happening, and there are weeks where we witness events that need decades to create'.





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## Session 4

### The future of creating content

#### Session topics

- The future of media and content: Multichannel, multimedia, multilingual and multinational
- Impacts of the Fourth Industrial Revolution on the media and content business
- Creative AI: Will the smart machine be the next genius?
- Blockchain, and how it could turn the industry upside down

#### Speakers

**Dr. Marta Piekarska** - Director of Ecosystem, Hyperledger

**Stephanie Duncan** - Digital Media Director, Bloomsbury Publishing

#### Moderator

**Juergen Boos**, Director of the Frankfurt Book Fair







**Dr.**  
**Marta Piekarska**

## The Foundation's objectives

The Foundation's objectives are to create core codes and frameworks for distributed accounting books and open source platforms for institutions to support institutions' transactions, provide community-oriented, open and balanced infrastructure, build technical communities, educate the public and, more importantly, strengthen our community among other communities.



HyperLider has established a global, open source collaborative software community, part of the Linux Foundation, and develops blockchain for institutions.





**Mrs.  
Stephanie Duncan**

## Printing contributed to the dissemination of knowledge and books easily

It is all about using digitization to make information available, and for resulting opportunities, they are very successful. The most important point about digital books is to make books popular and available so that people can do things that were only available to a few of them. Another example is self-publishing, where anyone can now publish whatever he likes.



If you like to listen to this dialogue using the Google Pixel phone, it will translate the dialogue simultaneously to 40 languages, it is an amazing tool, I think.





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## Session 5

**AI: Future of human-robot co-existence...alliance or rivalry?**

### Session topics

- Artificial Intelligence: A threat or an opportunity for mankind?
- Cyborgs: From science fiction to reality
- The robot on the board of directors!
- Will robots integrate into human society?

### Moderator

**Lynn Chouman**, Journalist and Business Programs Presenter

### Speakers

**Brigadier Khalid Alrazooqi** General Director of Smart Services Department,  
Dubai Police

**Tanmay Bakshi** Software Developer, Author & Keynote Speaker

**Dr. David Hanson** Sculptor and Technical Consultant

**Anders Sorman-Nilsson** Founder of Thinq Inc.







**Brigadier  
Khalid Alrazooqi**

## Dubai Smart Initiatives

We launched the Dubai 10X initiative, where we want government agencies in Dubai today to apply what other cities worldwide shall implement 10 years from now. There are many initiatives and projects launched in Dubai. In Dubai Police, we have launched an innovative technology based on intelligence to make decisions.



We aim to have all our services based on artificial intelligence and intelligent services, and we plan to make Dubai the smartest city in the world.





**Tanmay Bakshi**

## Using artificial intelligence

My role in this project is to develop an automated system that helps girls by identifying patterns of brain waves to reveal their desires and expressions to people or systems. As humans, we can only understand simple and common patterns. We cannot understand brain waves, but artificial intelligence can process brain signals and analyze them.



The Cognitive Story works to improve people's lives using artificial intelligence. The first goal of this project is to help a girl with Rett syndrome.





**Dr.  
David Hanson**

## Machines must be taught exactly as human beings learn

We all know that children learn until the moment they learn to be imaginative. Similarly, machines must be taught the ability to imagine and ethical values and to see the consequences for the actions we do. If we do not teach them love and good, perhaps bad consequences will take place.



Information is the primary focus of artificial intelligence, therefore it is necessary to identify the information on which future perceptions must be based.







**Mr.  
Anders  
Sorman-Nilsson**

## Artificial intelligence and interest in its techniques are increasing

As future observers, we are developing scenarios for the future that include both preferred and non-preferred options. Of these scenarios, universities should provide education that is appropriate for future jobs so that students will be active in this area. During our dialogues with institutions about the future, we will find that the trend will be towards artificial intelligence interfaces.



We have to discover how to combine human intelligence with artificial intelligence, to be part of this industry that has become a necessity for the world and cannot be ignored. We have to deal with it and face the challenges of this transformation.





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## Session 6

### Economy and the Fourth Industrial Revolution

#### Session topics

- Bitcoin: a virtual currency and a cashless world
- Blockchain Trust Protocol and cutting out the middleman in the business world
- Jobs between humans and robots
- E-shopping: The end of brick-and-mortar trade?
- Participatory Economy: the return of the barter system?
- Grey Economy: Spotting the light on the shadow economics

#### Speakers

**Selim Jahan** Director of the Human Development Report Office (HDRO) of UNDP, New York

**Carl Benedikt** Director of the Program on Technology and Employment at the Oxford Martin School

**Charlie Morris** Chief Investment Officer, at NEWSCAPE Group

#### Moderator

**Tom Goodwin**, EVP of Innovation, Zenith Media





**Dr.**  
**Selim Jahan**

## Employment problems

Because of these extreme attitudes in terms of work and employment, we find that inequalities are increasing, and this difference in work contributes to the promotion of inequality. The issue is that certain jobs will disappear, and the big change that will happen between 2020 and 2025 is that half of the jobs we know today will not exist for long.



High-quality jobs that require good technical skills are on the rise and their job market is open and global, therefore this is the best time for skilled labor, and there is no worse time for low or no-skilled labor than this time.







**Mr.  
Carl Benedikt**

## Future labor markets

I would like to give you an overview of the kinds of jobs that we think will disappear within a few decades and its impact on the workforce, because there is widespread belief that the expansion path of automation will not provide enough jobs in the future. I think this is wrong.



We have seen that women have acquired automation systems considerably over the past century, while men have only recently acquired it. We can see that the decline in male participation in the labor force has already accelerated, especially since the emergence of computers in the 1980s.





**Dr.  
Charlie Morris**

## Uses of blockchain

The speculation is big and there are no profits, but dreams are big and many people enjoy them. I think there is something great that will come out of this technology in the same way that the internet made its way in the late 1990s; most of those who dreamt of the internet have gone away. I think that blockchain is very similar to our lives.



By using blockchain technology, you will be able to control the process from one point and will have multiple distributors that you have not met before. At the same time, blockchain eliminates potential fraud and unauthorized after-sales conversions.





| Knowledge  
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Day  
Two **2**



# Hall 2







Knowledge  
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## Session 1

### Publishing and the Fourth Industrial Revolution

#### Session topics

- Industrial revolutions in publishing: where are we and how did we get here?
- Digital future: What's coming next for publishers and writers?
- The self-publishing and social media explosion: What does it mean for publishers, writers and readers?
- Books or content: Has the retail market changed too quickly?
- Reading between the lines: What will 4IR do for readers? The revolution's impact on readers' behavior

#### Speakers

**Jane Friedman** Professor of Writing, Media, and Publishing at the University of Cincinnati and University of Virginia

**Neil Hewison** Author, Translator & Former Associate Director for Editorial Programs (AUC)

#### Moderator

**Flora Rees**, Head of Education, Training and Publishing, Emirates Literature Foundation





**Mrs.  
Jane Friedman**

## The struggle of authors and writers

I think authors are struggling to compile the terminology and key words. If you work in publishing for a long time, you will have the experience and understanding of the issue of category identification, but this is all about traditional books. If you are an author who has not published books before, you will find the issue of categorization and classification completely unnatural for you.



So, we've published new books dedicated to you. All you have to do is get them, for example through Amazon and other websites. There are publishers who are very active while others are still struggling.





**Mr.**  
**Neil Hewison**



## Classification and categories

The market and the university are pressing us to be clearer on this issue. The editorial discussion we held in Egypt was that we – the editors – are the ones who decide which book is very good, we decide the opinion of the market, where it will be in bookstores, and where it will be exhibited on shelves.



If we cannot determine how the book is marketed to our market colleagues, we may have failed to sell the book.







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## Session 2

### Panel discussion with experts on the statistical structure of the Global Index

#### Session topics

- Challenges to structuring indexes
- The ideal path to create an index
- The impact of big data on global indexes

#### Speakers

**Dr. Mohamed Ismail** Chairman of the Statistics Department, Faculty of Economics & Political Science, Cairo University

**Dr. Milorad Kovacevic** Chief of Statistics, Human Development Report Office, United Nations Development Programme, New York

#### Moderator

**Dr. Ali Hadi**, University Professor and Chair of the Department of Mathematics and Actuarial Science, Founder of the Actuarial Science Program





**Dr.**  
**Mohamed Ismail**

## Applying index criteria

The important step in index formation is concepts, including the choice of variables, as we rely on global methodologies based on three elements. The first element is the review of literature, the second component is the experience extracted from international institutions and bodies, which are widely used indexes and have a high global standing, and the third component is specialists in different fields from many countries in training academics followed by a review of these indexes.



In fact, we will not reinvent the wheel, but there is an independent methodology consisting of composite indexes. So, in the beginning we will talk about the used variables and data, the subject of normalization, the choice of weights and the calculation of the index.





**Dr.**  
**Milorad Kovacevic**

## The importance of using the Human Development Standard

On the other hand, human development uses individuals because individuals are the real wealth. The purpose of this development is to improve living styles, to live properly, and lead a decent life. The extra economy identifies things people consume, and this is known as human welfare. The correct composite measure must consist of general criteria, must be consistent and easy to describe, and must take into account general concepts.



Today, the most important aspects of HDI should be considered. These include a conceptual framework that directs measurements but they are normal measurements that provide good communication yet inaccurate measurement. They are always more inclusive than these normal measurements, but how do these measurements exist or affect the society?







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## Session 3

### Global Knowledge Index: Indicators of Higher Education, Research, Development and Innovation

#### Session topics

- The importance of indicators for higher education, research, development and innovation
- What challenges do these indicators face?
- Key findings
- How to use findings to the benefit of the Arab region and the world?
- Promoting the indicators

#### Speakers

**Dr. Motaz Khorshid** Former Minister of Higher Education and Minister of Scientific Research, Egypt

**Dr. Ali Ibrahim** Professor, UAE University

**Dr. Hugo Hollanders** Economist and Researcher, Lead Author of the EC'S European Innovation Scoreboard

**Dr. Anuja Utz** Senior Operations Officer, World Bank

#### Moderator

**Dr. Abdel-Rahim El-Atri**, Professor of Higher Education, Sidi Mohamed Ben Abdallah University, Morocco





**Dr.**  
**Motaz Khorshid**

## Scientific research is an integral part of the Knowledge Index

Scientific research is an innovative system activity in the storage and use of knowledge in a variety of modern applications. Scientific research is therefore a new product of knowledge and one of its main components, but innovation varies in that it contributes to the creation of various goods and services and marketing methods, whether new or improved.



The importance of this indicator lies in how we can judge the extent of approaching and moving away from knowledge and in comparison with the rest of the world in terms of proximity and being away from the level of knowledge.





**Dr.  
Ali Ibrahim**



### Arab status and self-criticism

The answer from my point of view, and I hope that no one understands that it is the view of the team, is that the status of the Arab world is very low, so criticizing ourselves is a must. This is the feature of the index: it tries to give the status of several sectors together so that we can depend on them in the future.



We must not only show the disadvantages, but act after the diagnosis of the situation and stop criticizing ourselves; we have many mistakes, but we never move.







**Dr.**  
**Hugo Hollanders**

### People's views and their impact on the Index

The idea is that we must be careful when dealing with a knowledge index and there's no harm in comparing the index with other criteria. Policymakers need to know what is going on around them, and therefore, need up-to-date information. We need to know the status of the economy and the relationship between self-development and creativity, and we can use the index to know that.



We must be creative and innovative, and use the sciences which exist in our country. This is necessary and must be taken into consideration and pursued, and you have to know what is happening in your country and evaluate the events.





**Dr.  
Anuja Utz**

## Transforming the economy into a global technology-based economy

We have made great efforts in the Arab world to turn its economy into a global technology-based economy, and we have found many countries that are beginning to move towards this type of economy such as the UAE, Tunisia and Morocco. There are initiatives to know the state's position in terms of technology and innovation in comparison to its neighbors and different countries around the world.



It is also important to collect technical skills, therefore the outcomes of the higher education system are to serve the economic sector and improve jobs by surveying the market and finding out what it needs to increase productivity.





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## Session 4

### The crucial role of data in the 4IR

#### Session topics

- What are the challenges to data collection and dissemination in the Arab region?
- Is there a gap between regional and global data centers?
- What are the benefits of the global knowledge index?
- The index faced declining data from the Arab region. How can that be remedied?

#### Speakers

**Abo-Bakr El-Gendy** President, Central Agency for Public Mobilization and Statistics, Egypt

**Qasem Al Zoubi** Director General, Department of Statistics, Jordan

**Lamia Zribi** National Institute of Statistics Chairperson, Tunisia

**Tariq Al-Janahi** Deputy Executive Director of the Dubai Statistics Center

#### Moderator

**Magued Osman**, CEO of the Egyptian Center for Public Opinion Research (BASEERA)



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**General  
Abo-Bakr El-Gendy**

## Big data and technological revolution

It was expected that this trend would affect the role of national statistical agencies because big data made data readily available. For example, with regard to smartphones, data on mobile calls and speakers, and other data are available for those who have experience in databases and how to utilize them. The enormous technological revolution requires the development of national statistical devices to keep pace with this progress.



The reliability we have obtained in terms of data has resulted in demand for data from the private sector before making investment decisions and preparing feasibility studies.





**Dr.**  
**Qasem Al Zoubi**

### The management of change

In Jordan, we are managing change because change from one platform to another in national institutions is difficult. The transition from old to modern methods requires great effort, but in Jordan, we have succeeded in overcoming this through cooperation between government institutions, since numbers and statistics are important in making decisions.



In the Arab countries, we are interested in focusing on these standards and building confidence among citizens to participate in statistics and their findings. Therefore, the most important of these challenges was to enhance the confidence of citizens in these statistics. Frankly, statistical institutions have benefitted from this technological development.







**Mrs.  
Lamia Zribi**

## Types of indexes and their elements

There are indexes produced periodically, in addition to new indexes issued by the National Council for Statistics, which meet global standards. We have relied on four elements that have grouped different areas: human resources, information technology, systems and management, and scientific research and innovation. Through this, we produced the Index, either through existing data or private surveys.



All this indicates a strong will and keenness to take steps in the statistical field, and the desire to make statistical procedures in conformity with the standards used worldwide.







**Mr.  
Tariq Al-Janahi**

### Dubai Statistics Centre

It was established only 11 years ago, but it is world-class and has won many awards. It has accomplished many achievements at the statistical level and has been highly praised at the highest standards and at the UN level. The secret lies in technology. Since the inception of the Centre, the focus has been on building a flexible and scalable electronic system so we are capable of handling data.



We cannot talk about the future of data in isolation from technological development, especially if we take an advanced position and talk about theses related to the Fourth Industrial Revolution, such as digital transformation and knowledge-based economy.





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## Session 5

### Education: Universities of the future and the requirements of the Fourth Industrial Revolution

#### Session topics

- New curricula for advanced universities
- Impact on education: Bridging the gap between universities and the labor market
- The disappearance of literary and cultural curricula and the emergence of new programs tailored to the components of the digital revolution
- Human resources: Students and teachers
- Universities prepare to adapt to accelerated development

#### Speakers

**Dr. Saaïd Amzazi** President of Mohammed V University of Rabat, Morocco

**Dr. Joseph Jabbra** President of the Lebanese American University, Lebanon

**Dr. Essam El-Kordi** President of Alexandria University, Egypt

**Dr. Riyadh Hamzah** President of the University of Bahrain, Bahrain

**Dr. Sherif Sedky** Executive President of Zewail City, Egypt

**Dr. Refaat Al-Faouri** President of Yarmouk University, Jordan

#### Moderator

**Dr. Sultan Abu Orabi**, Secretary General, Association of Arab Universities





**Dr.**  
**Sultan Abu Orabi**

## The reality of education in the Arab world

If we look at the reality of higher education in the Arab world, we will find 900 to 1000 educational institutions. In the Federation of Arab Universities, there are 350 universities, about 15 million students, and about 200 thousand faculty members. Before these numbers, there are challenges, one of which is ensuring the quality of education in Arab universities.



Is the student who graduates from Arab universities qualified and trained? Can he meet the requirements of the Arab, regional or international labor market, since many of the youth of the Arab world work abroad in America, Europe and Australia?







**Dr.**  
**Saaïd Amzazi**

### Challenges facing universities

Today, in the context of this rapid development, modern technology and innovation, universities face many challenges. The most important of these challenges is openness to modern methods and reliance on the mechanisms required by smart or digital universities. How can we imagine the shape of this smart university? In Morocco, universities have adopted a number of important projects and models, one of which was the dissemination of Wi-Fi to all universities.



The University of Qarawiyyoun was founded in the 9th century by a Tunisian woman named Fatima Al-Fihriyya, who was distinguished by her belief in the free mobility of professors and students at the time. I say that she was a pioneer.





**Dr.**  
**Riyad Hamzah**

### Accreditation criteria

In Bahrain, we've included the economic added value to our accreditation criteria. If we look at the labor market, we need graduates who create jobs, so in developing curricula, we should consider that those graduates would make courses. For this, we should provide special skills for students.



Arab universities face many challenges and many opportunities, but universities in the Arab world have long focused on inputs, not outputs.







**Dr.**  
**Joseph Jabbra**

### Education on campus

The development of on-campus education is very important to keep pace with the Fourth Industrial Revolution. As teachers, it is very important for us to become mentors and guides to our students in some way, and to move away from traditional classroom teaching and the likes.



We are in a complex world characterized by rapid progress in all aspects, requiring us to be more innovative.







**Dr.**  
**Essam El-Kordi**

## Global citizen

I would like to refer to a term widely used in western universities, especially in the United States of America. This term refers to the graduate as a global citizen, which means that he has the qualifications to work in all countries. Thus, there will be attractive and repulsive countries and graduates will be redistributed, and thus countries will fall while others will rise.



The modernization of curricula or the creation of new programs that is so-called inter-programs have not been as fast as needed to cope with the rapid development of the past 10 or 15 years. We need a huge revolution in curricula in terms of content, new programs and way of teaching.





**Dr.  
Sherif Sedky**

### **The product offered by the university**

In terms of the product offered by the university, I think that we should focus on selecting the student from the beginning and the distinguished talents among those wishing to join the university. Therefore, we have admission tests which are different from the rest of universities. We do not rely solely on high school results, where they only represent 20% of admission criteria, since we are looking for the student's ability to innovate and understand.



**In this respect, we have launched the Pyramid of Technology in order to maximize the benefit of applied researches and patents, and to link them to industry and society.**





**Dr.**  
**Refaat Al-Faouri**



### **We need a qualitative leap in the Arab world**

However, Arab education is suffering a crisis, and this has many reasons, but the scourge of Arab education is indoctrination. We cannot progress in the education system except by moving from memorization and indoctrination to extrapolation and inference. This is what we miss in our Arab world. We need a qualitative leap. We are still advancing quantum to quality for social, political, economic grounds and other reasons.



**I have reached the conclusion that no country can achieve economic growth or social welfare without controlling the education system, and I challenge that there be a state that has advanced without controlling the education system.**







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Day  
Two **2**



# Hall 3





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## Session 1

### Global Knowledge Index: Indicators for pre-university education, technical education and vocational training

#### Session topics

- The importance of indicators of pre-university and technical education
- Challenges facing indicators
- Key findings
- How to use the findings across the Arab region and the world?
- Results of global tests such as TEMS
- The role of intellectual development in advancing the educational environment

#### Speakers

**Dr. Hassan El-Bilawi** Secretary General of the Arab Council for Childhood and Development

**Heiko Sibberns** Director of the IEA Hamburg

**Dr. Youssef Sadik** Professor of Sociology, Head of the Department of Educational Fundamentals, Mohammed V University, Morocco

**Dr. Najoua Ghriss** Professor at the Higher Institute of Education and Continuous Training in Tunisia

#### Moderator

**Dr. Ali S. Al-Kaabi**, Deputy Vice Chancellor for Students Affairs and Enrolment at UAE University





**Dr.**  
**Hassan El-Bilawi**

## The Global Knowledge Pattern

The Global Knowledge Pattern is represented in the characteristics of the knowledge-based society, the most prominent of which is the intensity of using and producing knowledge in the society. Its members are characterized by cognitive, valuable and behavioral characteristics. Cultural life is characterized by enlightenment, rationality and openness. Its institutions are characterized by the existence of enabling environments for its members, stimulating the powers of creativity and renovation besides the existence of a knowledge-based economy.



The problem that has existed for decades is that knowledge in Arab societies is transferable because we are prisoners of transferable culture. The teacher in school provides the information by quoting from others, which raises the problem of the absence of the knowledge-based pattern in our Arab world today.







**Mr.**  
**Heiko Sibberns**

## TEMS Index

Through the TEMS Index, we have been able to gather a huge record of student and teacher performances in different countries around the world in mathematics and science. During this period, the index covered 57 countries and 7 eminent entities around the world. It is used once every 4 years.



In the final stage, we collect information from school principals about the environment or the appropriate climate they can provide to the students that will help them develop their abilities as well as make presentations to students and teachers in schools.





**Dr.  
Youssef Sadik**

### Development of index components and variables

We have previously worked with input and output logic, but after careful reflection on reversing this structure and its translation into the reality of countries, especially those with demographic pressure, we developed the components and variables of the index. This helped us reach a more dynamic view based on a general reading of the reality of the economy and the labor market.



But it also includes their association with the inclusive education system. It is, in short, the index that gives us an idea about the ease of relationship between the system of education and formation from one side and the economic system from the other.





**Dr.  
Najoua Ghriss**



## Integration of Knowledge Index sectors

I would like to point out that the knowledge index is made up of several sectors but work together in a particular context. We cannot talk about education, higher education, scientific research or technology without putting them within an overall development framework. To that end, we have devoted a sub-indicator to these enabling environments that can interact with all sectors. These sectors are not isolated islands but integrated to compensate one another.



The knowledge index is made up of several sectors but works together in a particular context.







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## Session 2

**The role of technology in improving our lives**

### Session topics

- Intelligence Design: A hybridization of technology and design
- Biomimicry: Nature inspires engineering, technology and design
- Intelligent machines and humans towards a seamless coexistence
- Designers and engineers sketching the future

### Speaker

**Armen Gharabegian**

Founder and CEO of ShadeCraft Robotics





**Mr.**  
**Armen Gharabegian**

## How we can use robots in many areas, including surgery?

I am pleased to say that ShadeCraft Robotics has participated in this field. Curiosity has already prompted me to ask the doctors who perform such surgeries about the importance that robots have added to this, and the difference they have observed in the use of robots in these surgeries in comparison to the help of humans.



It is also useful here to talk about how we can narrow the gap between divergent views related to the subject of the session so that we can understand very well what robots and their functions are, and how these machines work as we see them today.





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**A session to Honor the participants in the summit and closing activities**

**Honoring personality:**

**H.E. Jamal bin Huwareb**

CEO, Mohammed bin Rashid Al Maktoum Knowledge  
Foundation (MBRF)







**H.E.**  
**Jamal bin Huwareb**

### Special thanks to media coverage and sponsors of the summit

Special thanks also to local and world media for the efforts exerted to disseminate this summit, especially Al Arabiya, Dubai TV, Abu Dhabi, Emirates, and Sama Dubai TV channels; radio channels; Al Bayan, Al Ittihad, Al Khaleej and Al Ain newspapers, and many other media institutions. During the Honoring, I will mention the Honored personalities and my colleagues at Mohammed bin Rashid Al Maktoum Knowledge



I would like to thank all the speakers and all the organizers. I would also like to extend my thanks and appreciation to the staff of Mohammed bin Rashid Al Maktoum Knowledge Foundation who organized this World Summit in the best way it should. I would like also to thank Entourage Company and UNDP. My special thanks to Mr. Hany for his important role in the success of this summit.



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