



# HFFC2018

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IdeaSquare, CERN

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The background is a gradient of blue, transitioning from a lighter shade at the top to a darker shade at the bottom. In the four corners, there are white, stylized circuit board traces. These traces consist of straight lines that turn at right angles, ending in small circles that represent components or connection points. The traces are more densely packed in the corners and become sparser towards the center.

# FUTURE OF EDUCATION

HOW TO PROVIDE THE EDUCATORS THE TOOLS TO EDUCATE THE NEXT GENERATION FOR THE WORLD THEY WILL LIVE IN AND NOT FOR THE WORLD OF TODAY?

The future is  
an asset, a  
resource and  
a narrative to  
be employed.



**4** QUALITY  
EDUCATION



**GOAL 4:**  
ENSURE INCLUSIVE AND QUALITY EDUCATION FOR ALL  
AND PROMOTE LIFELONG LEARNING  
OBTAINING A QUALITY EDUCATION IS THE  
FOUNDATION TO IMPROVING PEOPLE'S LIVES AND  
SUSTAINABLE DEVELOPMENT. MAJOR PROGRESS HAS  
BEEN MADE TOWARDS INCREASING ACCESS TO  
EDUCATION AT ALL LEVELS AND INCREASING  
ENROLMENT RATES IN SCHOOLS PARTICULARLY FOR  
WOMEN AND GIRLS.

BASIC LITERACY SKILLS HAVE IMPROVED  
TREMENDOUSLY, YET BOLDER EFFORTS ARE NEEDED TO  
MAKE EVEN GREATER STRIDES FOR ACHIEVING  
UNIVERSAL EDUCATION GOALS. FOR EXAMPLE, THE  
WORLD HAS ACHIEVED EQUALITY IN PRIMARY  
EDUCATION BETWEEN GIRLS AND BOYS, BUT FEW  
COUNTRIES HAVE ACHIEVED THAT TARGET AT ALL LEVELS  
OF EDUCATION.

## SDG 4 “EDUCATION FACTS”

- Enrolment in primary education in developing countries has reached 91 per cent but 57 million children remain out of school
- More than half of children that have not enrolled in school live in sub-Saharan Africa
- An estimated 50 per cent of out-of-school children of primary school age live in conflict-affected areas
- 103 million youth worldwide lack basic literacy skills, and more than 60 per cent of them are women

# SDG4 “TARGETS”

- By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and Goal-4 effective learning outcomes
- By 2030, ensure that all girls and boys have access to quality early childhood development, care and preprimary education so that they are ready for primary education
- By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university
- By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship
- By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations
- By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy
- By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture’s contribution to sustainable development
- Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, nonviolent, inclusive and effective learning environments for all
- By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries
- By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing states

# TECHNOLOGY

[HTTPS://WWW.WEFORUM.ORG/AGENDA/2017/01/TECHNOLOGY-IS-CHANGING-THE-WAY-WE-LIVE-LEARN-AND-WORK-HOW-CAN-LEADERS-MAKE-SURE-WE-ALL-PROSPER](https://www.weforum.org/agenda/2017/01/technology-is-changing-the-way-we-live-learn-and-work-how-can-leaders-make-sure-we-all-prosper)



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The future is not pre-ordained  
by machines. It's created by humans.

**ERIK BRYNJOLFSSON**

Director, MIT Initiative on the Digital Economy

- THE FUTURE OF TECHNOLOGY AND HUMANITY  
[HTTPS://WWW.YOUTUBE.COM/WATCH?V=4UO1FLCQENK](https://www.youtube.com/watch?v=4UO1FLCQENK)

**WHAT KIND OF WORLD DO WE WANT?**

**WHAT VALUE DO WE PLACE ON RELATIONSHIPS IN SOCIETY? ON INDIVIDUAL AND COLLECTIVE RIGHTS? ON RESPONSIBILITY IN GOVERNMENT AND BUSINESS?**

**ARE WE SERIOUS ABOUT ENDING INJUSTICE? OR COMPLACENT ABOUT HOW MANY PEOPLE ARE POOR OR WILL DIE PREVENTABLE DEATHS?**

**HOW TO GET EDUCATION TECHNOLOGY RIGHT?**



# WORLD HUMANITARIAN SUMMIT 2016

[HTTPS://WWW.GLOBALPARTNERSHIP.ORG/](https://www.globalpartnership.org/)

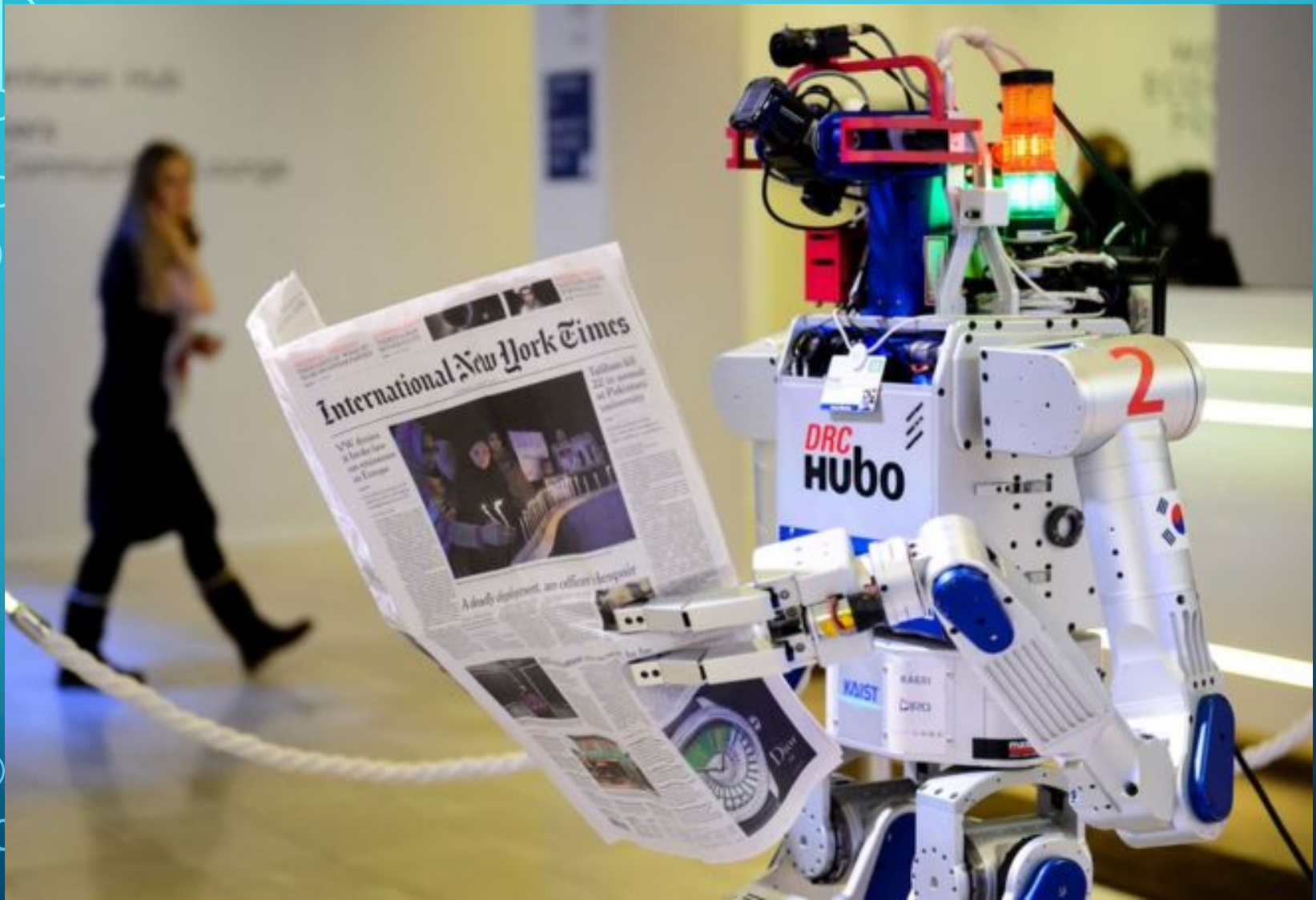


## HOW TO GET EDUCATION TECHNOLOGY RIGHT?

“THE EDUTECH SECTOR HAS SEEN EXPECTATIONS OUTPACE OUTCOMES BEFORE. FIVE YEARS AGO, EDUCATION TECHNOLOGY PROFESSIONALS FOCUSED ON GETTING TECH — COMPUTERS, TABLETS, PHONES — TO PARTS OF THE WORLD THAT LACKED IT.

EDUCATION TECHNOLOGY WAS DRIVEN BY THE HARDWARE — THE TECHNOLOGY ITSELF — WITHOUT ADEQUATE CONSIDERATION FOR THE CONTENT HOUSED WITHIN THE TECHNOLOGY AND WHAT WOULD OR WOULD NOT CATCH ON IN CERTAIN CONTEXTS.”

CHRISTOPHER FABIAN, CO-FOUNDER AND CO-LEAD OF UNICEF’S INNOVATION UNIT.



# POSSIBLE THEMES?

- Purposeful learning
- Competencies
- Building and restoring resilience
  - Trauma, alienation, aggression, violence, radicalisation, extremism, terrorism
- Content and design
- Inclusive access at various levels
  - Mobile Services
  - Open Learning Platforms
  - Inter-generational Solidarity
- New Economy

# KNOWLEDGE EXCHANGE

EXPLORATORY MEETING TO DEFINE NEED, CHALLENGE AND OPPORTUNITIES

SET BASIC SPECIFICATIONS AND REQUIREMENTS

BRAINSTORM A FIRST PILOT IMPLEMENTATION

# Big Data Landscape 2016 (Version 3.0)

## Infrastructure

**Hadoop On-Premise**  
cloudera Hortonworks MPP Pivotal IBM InfoSphere bluedata jethro

**Hadoop in the Cloud**  
amazon Microsoft Azure Google Cloud Platform IBM InfoSphere CAZENA TREASURY DATA alitiscule Dubai

**Spark**  
databricks GridGain TACHYON NEXUS

**Cluster Services**  
amazon amazon EMR Interneer HPCC SYSTEMS docker MESOSPHERE Core OS popperdata StackIQ

## Analytics

**Analyst Platforms**  
Palantir Quid Enigma Digital Reasoning KORTA INSIGHTS

**Analytics Platforms**  
Microsoft QUAVUS Datableer Bottlenose interana

**Data Science Platforms**  
context relevant CONTINUUM DataRobot Alpine plotly MODE dataiku torian DOMINO what ALGORITHMIA

**Visualization**  
tableau Google Cloud Platform Qlik Looker Riolambi GCHARTX dataroma CHARTIQ

## Applications

**Sales & Marketing**  
RADIUS Gainsight bloomreach Zeta EVERSTRING blueyonder livefyre Lattice kahuna infer SAITHRU persado AVISO userSense QUANTIFIND ACTIONIQ fuse machines ZENGA IQ

**Customer Service**  
MEDALLIA ATTERITY CLARIBRIDGE CLICKFOX STELLAService NG@DATA Preact DigitalGenius appoint WiseIQ

**Human Capital**  
gild Connectifier textio entelo hiQ

**Legal**  
RAVEL JUDICIA Everlaw Brevia PRESENTION

**NoSQL Databases**  
amazon DynamoDB Google Cloud Platform Microsoft Azure ORACLE mongoDB MarkLogic DATASTAX Couchbase KERO SPIKE SequoiaDB redislabs influxdata

**NewSQL Databases**  
SAP Clustrix Pivotal paradigm4 nuodb memsql VOLTD splice MariaDB citusdata deopdb Trifaction Cockroach Labs

**BI Platforms**  
Power BI amazon amazon WEBSERVICE Domo Wave Analytics birst GoodData VIZIUM platfora atscale

**Statistical Computing**  
sas SPSS MATLAB

**Log Analytics**  
splunk sumologic kibana CLOUD PHYSICS loggly

**Social Analytics**  
Hootsuite NETBASE DATASIFT tracx bitly synthelio simplereach

**Ad Optimization**  
AppNexus MediaMath critico rocketHub OpenX theTradeDesk Integral Algorithms dslibery DataXu Applier MOAT

**Security**  
CYCLANCE CounterTack cyberreason ThreatMetrix AREA1 SECURITY ControlOne Recorded Future Guardian Analytics FORTSCALE sift science TAPAD sif science

**Vertical AI Applications**  
facebook Clara KASIST lumata

**Graph Databases**  
ne4j ORACLE SIFANA OrientDB InfoGraph

**MPP Databases**  
TERADATA VERTICA NETEZZA action Kognitio SQLstream

**Cloud EDW**  
amazon amazon WEBSERVICE Google Cloud Platform Microsoft Azure Pivotal snowflake INTERLOG Infoworks

**Data Transformation**  
alteryx talend TRIFACTA tamr Panata StreamSets Alation

**Data Integration**  
informatica Par potential to work MuleSoft snaplogic Bedrock Data xplenty

**Real-Time**  
amazon amazon WEBSERVICE METAMARKETS streami confluent dataArtisans

**Machine Learning**  
Azure Machine Learning H2O Amazon SKY TREE rapidminer DATASTAX deepsense VISIUM PredictionIO glowfish

**Speech & NLP**  
NarrativeScience NUANCE WatsonAPI ARRIA aprial controlio IBM Watson Cortana. sentiment VIV nora Numenta darifai

**Horizontal AI**  
IBM Watson Cortana. sentiment VIV nora Numenta darifai

**Publisher Tools**  
Outbrain Taboola quantcast yieldbot

**Govt / Regulation**  
Socrata OPENGOV EN FiscalNote enigma PROSPAL mark43 OpenDataSoft

**Finance**  
affirm LendingClub OnDeck Kreditech finance LendUp Kabbage tudemark INSIKT uoro Dataminr Lenddo KENSHC AIDYA SENTIUM Quantopian sentiment

**Management / Monitoring**  
New Relic APDYNAMICS amazon amazon WEBSERVICE acrtio Numerity splunk DADADOG Trocena DRIVEN Avard

**Security**  
TANIUM illumio CODE42 DataGravity CipherCloud VECTRA asprl BlueTalon

**Storage**  
amazon amazon WEBSERVICE Google Cloud Platform Microsoft Azure panasas nimblestorage COHO Cumulo

**App Dev**  
apigee CRASK Typesafe DRIVEN

**Crowd-sourcing**  
amazon amazon WEBSERVICE CrowdFlower WorkFusion

**Search**  
hp ELASTICSEARCH Lucidworks elastic ThoughtSpot MAANA swiftype Algolia SINEQUA

**Data Services**  
UO OPERA Mu Sigma EXL

**For Business Analysts**  
Origami Logic ClearStory CIRRO import

**Web / Mobile / Commerce**  
Google Analytics mixpanel R.J Metrics BLUECORE AMPITUDE granify sumall Airtable retention custora

**Education / Learning**  
KNEWTON Clever eclarra PANORAMA knowle

**Life Sciences**  
23andMe Counsyl Recombine KYRUS FLATIRON zymergen HealthPop METABIOTA ZEPHYR HEALTH OVI GINGERIO transcriptic Glow enlitic AICure Atensee

**Industries**  
OPOWER eHarmony RetailNext STITCH FIX WorkFusion BLUE RIVER TACHYUS Seeq FarmLogs SwiftKey HowGood collect statrose BOXEVER

## Cross-Infrastructure/Analytics

amazon amazon WEBSERVICE Google Microsoft IBM SAP sas JIRA data hp Vertica vmware TIBCO TERADATA ORACLE NetApp

**Framework**  
hadoop HADOOP YARN Spark MESOS TEZ Flink CDAP

**Query / Data Flow**  
SLAMDATA SLAMDRILL Google Cloud Dataflow

**Data Access**  
cassandra HBASE mongoDB CouchDB riak OPEN TRIO nifi

**Coordination**  
talend Apache Zookeeper Apache Ambari

**Real-Time**  
STORM Spark APEX Flink TACHYON druid

**Stat Tools**  
ScalaLab Numpy SciPy

**Machine Learning**  
mllib Apache SINGA Aerosolve Caffe FeatureFu WEKA DIMSUM jupyter DL4J

**Search**  
elasticsearch Solr Lucene

**Security**  
Apache Ranger Visualization Caspan

## Open Source

## Data Sources & APIs

**Health**  
Apple JAWBONE GARMIN practice fusion fitbit Withings VALIDIC RELATMO kinsa Human API

**IOT**  
UPTAKE ThingWorx helium samsara

**Financial & Economic Data**  
Bloomberg THOMSON REUTERS DOW JONES Y DLEE PREMISE S&P CAPITAL IQ quandl xignite CBINSIGHTS matlarm StockTwits Gestimize PLARD

**Air / Space / Sea**  
PLANET EARTH spire WINDWARD CRUISE SKYCATCH Airware DroneDeploy

**Location / People / Entities**  
acxiom Experian EPSILON InsideView GARMIN foursquare STREETLINE esri CIMSON Hexagon CARTOBI factual PlacesIQ CIRCULATE placemeter BASIS Sense

**Other**  
qualtrics panjiva DATA.GOV

**Incubators & Schools**  
GA PLURALSIGHT DataCamp INSIGHT DataElite The Data Incubator HBIS

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# TOP 7 TECHNOLOGY TRENDS FOR 2018

MARK VAN RIJMENAM, DATAFLOQ

- **1. Artificial Intelligence Will Take a Leap Forward, without Human Data**
- **2. Blockchain Will Mature and the Initial Coin Offerings (ICO) Hype Will Slow Down due to Regulation**
- **3. Our Privacy Continues to Be Threatened, but a Solution is Coming**
- **4. A New Approach to Data Ownership is on the Horizon**
- **5. Edge Computing Enables Intelligent Networks**
- **6. A Quantum Computing Arms Race Will Lead to First Results**
- **7. Prescriptive Analytics Will Start to Deliver on its Promises**

[https://www.slideshare.net/vanrijmenam/the-top-7-technology-trends-for-2018?utm\\_source=datafloq&utm\\_medium=ref&utm\\_campaign=datafloq](https://www.slideshare.net/vanrijmenam/the-top-7-technology-trends-for-2018?utm_source=datafloq&utm_medium=ref&utm_campaign=datafloq)

# AI, BIG DATA, MACHINE AND DEEP LEARNING

- Purpose
- <http://www.un.org/en/sections/issues-depth/big-data-sustainable-development/index.html>
- Big Data to tackle grand challenges: A look at IBM Research Africa's projects (<https://www-03.ibm.com/press/us/en/pressrelease/50396.wss> )
  - Health and Education
  - Disaster Risk Reduction and Climate Adaptation
  - Human mobility
- Human Rights and SDG Monitoring /Humanitarian Accountability



# AI, BIG DATA, MACHINE AND DEEP LEARNING



How data science and analytics can contribute to sustainable development

**1 NO POVERTY**  
Spending patterns on mobile phone services can provide proxy indicators of income levels

**2 ZERO HUNGER**  
Crowdsourcing or tracking of food prices listed online can help monitor food security in near real-time

**3 GOOD HEALTH AND WELL-BEING**  
Mapping the movement of mobile phone users can help predict the spread of infectious diseases

**4 QUALITY EDUCATION**  
Citizen reporting can reveal reasons for student drop-out rates

**5 GENDER EQUALITY**  
Analysis of financial transactions can reveal the spending patterns and different impacts of economic shocks on men and women

**6 CLEAN WATER AND SANITATION**  
Sensors connected to water pumps can track access to clean water

**7 AFFORDABLE AND CLEAN ENERGY**  
Smart metering allows utility companies to increase or restrict the flow of electricity, gas or water to reduce waste and ensure adequate supply at peak periods

**8 DECENT WORK AND ECONOMIC GROWTH**  
Patterns in global postal traffic can provide indicators such as economic growth, remittances, trade and GDP

**9 INDUSTRY, INNOVATION AND INFRASTRUCTURE**  
Data from GPS devices can be used for traffic control and to improve public transport

**10 REDUCED INEQUALITY**  
Speech-to-text analytics on local radio content can reveal discrimination concerns and support policy response

**11 SUSTAINABLE CITIES AND COMMUNITIES**  
Satellite remote sensing can track encroachment on public land or spaces such as parks and forests

**12 RESPONSIBLE CONSUMPTION AND PRODUCTION**  
Online search patterns or e-commerce transactions can reveal the pace of transition to energy efficient products

**13 CLIMATE ACTION**  
Combining satellite imagery, crowd-sourced witness accounts and open data can help track deforestation

**14 LIFE BELOW WATER**  
Maritime vessel tracking data can reveal illegal, unregulated and unreported fishing activities

**15 LIFE ON LAND**  
Social media monitoring can support disaster management with real-time information on victim location, effects and strength of forest fires or haze

**16 PEACE, JUSTICE AND STRONG INSTITUTIONS**  
Sentiment analysis of social media can reveal public opinion on effective governance, public service delivery or human rights

**17 PARTNERSHIPS FOR THE GOALS**  
Partnerships to enable the combining of statistics, mobile and internet data can provide a better and real-time understanding of today's hyper-connected world



# AI, BIG DATA, MACHINE AND DEEP LEARNING

- Ownership
- Ethics
- Regulation
- Accountability
  - Garbage in Garbage Out
  - Artificial intelligence is now an arms race. What if the bad guys win? (WEF (Dubai) 2017)