ASREN
Arab States Research and Education Network

CNRST

# Summary Report
# e-AGE 2015

## The 5th International Platform on Integrating Arab e-Infrastructure in a Global Environment

## Under the High Patronage of His Majesty King Mohammed VI of Morocco


Sheraton Casablanca Hotel and Towers
Casablanca, Morocco
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## 1. Overview

The Arab States Research and Education Network (ASREN) was launched in 2010 under the auspices of the League of Arab States and the UN Global Alliance for ICT and Development (GAID). ASREN is a legal not for profit regional Arab organization that aim to implement, manage and extend sustainable Pan-Arab e-Infrastructures dedicated for the Research and Education communities and to boost scientific research and cooperation in the Arab countries through the provision of world-class e-Infrastructures and e-services.

### Vision

"Pan-Arab collaborative research and education projects and activities, contribute to boost the scientific research, innovation and education levels in the Arab countries by uplifting efficiency and productivity of research and education communities."

### Mission

"To implement, manage and extend sustainable Pan-Arab e-Infrastructures dedicated for the Research and Education communities and to boost scientific research and cooperation in member countries through the provision of world-class e-Infrastructures and E-services".

### Objectives

"ASREN aims at building, maintaining and consolidating regional e-Infrastructures dedicated to e-science and education across the Arab countries, by developing, managing and operating a regional network that interconnects the NRENs of the Arab countries, promoting harmonization of policies and standards in relevant areas at the regional level and advocating at the regional level amongst decision makers and stakeholders.

ASREN also contributes to creating and sustaining National Research and Education Networks (NRENs), by supporting them in implementing leading-edge technological solutions while pursuing cost-effectiveness and favouring the exchange of expertise and best practices amongst the NRENs personnel in the region.

ASREN facilitates collaboration and cooperation among the researchers and academicians in the Arab region by increasing the availability and accessibility of knowledge resources for students and researchers, promoting the development of Arabic contents and its availability, facilitating knowledge exchange and transfer processes across the region and with relevant partners in Europe and worldwide and promoting the adoption and usage of e-Infrastructures and services among the scientific community, also through training and tutoring activities and strengthening regional partnerships and encouraging joint scientific research at all levels".

## 2. What is e-AGE all about?

Integrating Arab e-infrastructure in a Global Environment e-AGE, is an annual international platform conducted by the Arab States Research and Education Network, ASREN. Since launched in December 2010 at the League of Arab States, it was decided to have this annual activity moving from one Arab country to another. e-AGE comes in line with ASREN's major objectives related to creating awareness, promoting R&E collaboration and joint activities and establishing human

networks in order to facilitate collaboration and cooperation among researchers and academicians in the Arab region and the rest of the world.

ASREN started concrete steps towards interconnecting researchers and academics across the Arab States by launching its fi¬rst PoP in London Telicity. In cooperation with Ankabut, the Advanced UAE NREN, the first Arabian Global Educational Open eXchange (AGE-OX) has been launched in Fujairah. ASREN is also working with its partners on new PoPs in UAE, Egypt and the Maghreb region. ASREN is also supporting the development of NRENs in some Arab countries. ASREN will give special attention and more focus on users and how the e-Infrastructure can support their needs in terms of services and applications. More sessions will be dedicated to the users to present their research and education activities and then to identify how these users can be better served by NRENs.

## 3. e-AGE 2015

The e-AGE platform had established itself as an important venue for networking among experts and scientists from all over the world. In e-AGE 2015, we will keep the focus on Intercontinental Connectivity of the Pan Arab Network. The e-Infrastuctures are evolving in the Arab region at both national and regional levels as more than 15 Arab countries now have NREN in place or starting their NREN. At the regional level, ASREN announced the operation of the Arabian Global Educational Open PoP (AGE-OP) in London Telicity in cooperation with GEANT Association, Ankabut announced the operation of the first Arab Global Educational Open Exchange AGE-OX in Fujairah in cooperation with Internet2.

It is the time now for e-AGE 2015 to pay more attention to users, applications, services and inclusion of stakeholders in research and education and related services to enable and to facilitate collaboration to encourage resources and knowledge sharing. We will facilitate discussion and more sessions, panels, meetings and workshops to present and exchange research and education experience and innovations. Access to resources, services and applications will be another area of focus during the conference. In short words, e-AGE 2015 is coming with "Revealing and Harvesting Knowledge" as the main theme of the conference and all activities will be centered on it.

Following the success of e-AGE in the past four years, e-AGE 2015 included events, workshops and meetings centered on the following themes:

- Main Conference e-AGE 2015, 7-8 Dec, 2015/ The 5th Annual Meeting of ASREN
- The 8th Event on Euro-Mediterranean e-Infrastructure
- EUMEDCONNECT3 and AfricaConnect2 Project Meetings
- AROQA 7th Annual Conference, 7-8 Dec, 2015
- AROQAs' Workhops on "Quality Management Systems" and "The Outstanding Leadership Role in the Institutional Improvement and Development".

## 4. Participants

As a Platform on Integrating Arab e-Infrastructure in a Global Environment, the e-AGE 2015 was attended by more than 120 academics, network professionals, researchers, scientists, and high -level decisionmakers from governments, enterprises, NGOs, embassies, academia, and civil

society. The e-AGE Platform became a very important venue for networking among experts and scientists from all over the world.

Representatives from many countries participated in e-AGE meetings including Algeria, Australia, Bahrain, Belgium, Brazil, Brussels, Canada, Chile, China, Cyprus, Egypt, Ethiopia, France, Germany, Ghana, Greece, Iraq, Ireland, Italy, India, Jordan, Lebanon, Libya, Malawi, Malaysia, Morocco, Netherlands, Oman, Palestine, Poland, Qatar, Saudi Arabia, Singapore, Somalia, South Korea, Spain, Sudan, Sweden, Switzerland, Tunisia, Turkey, the UAE, the UK, the USA and Yemen.

## 5. Highlights from the Opening Ceremony

### 5.1 Session (1): "Opening Ceremony and Welcoming Remarks"

***Salem Al-Agtash moderated the openning of e-AGE 2015 jointly with AROQA 7th Conference***

"Under the High Patronage of His Majesty King Mohammed 6th of Morocco, we meet today for the 5th International Platform on Integrating Arab e-Infrastructures and the 7th Annual Conference of Quality in Education as unique platforms to create dialogue, exchange ideas, and work together to build strong communities in universities, businesses, and organizations, and create a sustainable bridge with Europe, the Whole Africa, and the World,

On behalf of my colleagues at the Arab States Research and Education Network and the Arab Organization for Quality Assurance in Education, we are honored with your participation and thank you for taking much of your time and be with us today in Casablanca-on the north western cost of the Chawiya plain of Morocco.

Our Chairman and inspiring leader – His Excellency Dr. Talal Abu-Ghazaleh -has laid the basis to setup successful, effective, and yet sustainable quality of education and e-Infrastructure organizations that link pan-Arab research and education institutions at the regional and global levels. Talal Abu-Ghazaleh Foundation, a global leader in professional services operating in more than 83 countries in the world, has been the host for these prominent organizations, primarily initiated in 2007 and 2010 under the auspices of the League of Arab States,

The European Commission, GEANT Association, and the National Research and Education Networks of Morocco, Egypt, Tunis, Algeria, Sudan, and Jordan (The founding members of ASREN) have had a great impact on the set up of the Arab regional network in the context of the Europe -Mediterranean Connect project with generous continuing funding schemes since 2004.

With our partners in Europe, Africa, and the rest of the world, we will continue to build our education and research communities with a noble objective that is centered on broadening our outreach and strengthening our friendship not only in science but also in culture and humanity. This is a very critical time and we need to be sincere with our children and prepare for them a safe and peaceful environment

In general, the term «e-Infrastructure» refers to high-speed networks for science, which we need to develop completely across the Arab region-Thanks to the European Commission – for their generous support during the past 10 years.

Today these networks embrace open exchange, collaborative participation, transparency, voluminous access, meritocracy, and community development.

The challenge that remains - the limited bits per second capacity and cross-boarder connectivity -to make our research and education institutions interconnected and for our young generation not to be left behind in the digital age.

We meet today with participants representing businesses, universities, and governments from all over the Arab region, from Europe, North and Latin America, and Asia, in a frame of Panel sessions and workshops and more than 60 research papers from our Scientific communities. All papers have undergone a peer review and we accepted 10 papers and 8 posters related to e-Infrastructures and 15 papers related to quality of education".

## The opening continued with the following opening keynotes:

**HE Dr. Talal Abu-Ghazaleh, Chairman of Arab States Research and Education Network, Jordan**

HE Talal Abu- Ghazaleh extended a special tribute and deep appreciation for the important and timely high patronage of His Majesty King Mohammed VI of Morocco, which is considered as a fascinating support to the pan-Arab research and education activities, e-infrastructure networking and Quality of Education. He also thanked His Excellency Rupert JOY, Head of Delegation of the EU to Morocco for taking the time to join the conference. This is seen as a signal of great support to the efforts in developing research networking for the whole Arab region. He also expressed his appreciation His Excellecy Dr. Sabri Saidam, Palestenian Minister of Higher Education and Scientific Research, as well as His Excellency Yasser Abdel Moneim, Director of Education and Scientific Research, The League of Arab States - our partners in developing the Arab network for research and quality of education. HE Dr. Abu-Ghazaleh also expressed his tribute and appreciation to the conferences partners and members, university presidents, directors, and VIP delegates from across the region and the world.

HE Dr. Abu-Ghazaleh expressed his appreciation to the conference hosts Le Centre National pour la Recherche Scientifique et Technique (CNRST), with the great support of Dr. Driss Abutajdine, the Director and his team, for their great hospitality and support. And expressed his tribute and appreciation to the sponsors for their generous support which made the event even possible and highly appreciate. He also welcomed the delegation of the European Commission and European partners from EUMEDCONNECT3, Africa Connect 2, and MAGIC with great appreciation for their technical and financial support since 2004 and beyond, as well as the delegation of the Arab countries – Algeria, Egypt, Lebanon, Mauritania, Morocco, Oman, Palestine, Somalia, Sudan, Tunisia and the UAE, as our partners in developing the Arab research and education network, and quality

of education, and finally welcoming the delegation of the US Internet2, and representatives of regional research and education network from Asia Pacific, Europe, Latin America, and Canada, with them, ASREN will continue to work to develop coordination and interoperations towards a global network for research and education.

His Excellency asserted the growing interests of Arab NRENs for joining ASREN as shareholders with Lebanon becoming an active partner in research and education networking, in addition to the NRENs in Jordan, Morocco, Sudan, Egypt, Tunisia, United Arab Emirates, Somalia, and Iraq research and education networks. He continued, ASREN will continue to serve the Arab region in developing best practice NREN model and provide pan-Arab e-Infrastructure connectivity at the regional level. He also announced the launch of ASREN's operational point of exchange in London (Lonon PoP). This point of exchange is now connected to the European GEANT network and to the rest of the world's research and education network. ASREN's Pop links a number of Arab NRENs for direct peering for research and education, now in the pursuit of AfricaConnect2, which we announce today with 26.6 Million Euro funds from the European Commission to transform African science and education.

He Added that Africa Connect 2 will create the first Pan-African Research and Education infrastructure coordinated by the African networking organizations: Arab States Research and Education Network (ASREN), West and Central African Research and Education Network (WACREN), and UbuntuNet Alliance, in partnership with the European counterpart GÉANT. The objective is to establish a largely EU co-funded project to provide high-speed Internet to African research and education. . In addition to that, he announced the establishment of the Lebanese international research and education link via the American University of Beirut to the European GEANT via ASREN PoP, building on the success of Jordan's 155 Mega bits per second STM1 link funded by TAGOrg. Which will help to introduce tools for developing collaboration and cooperation between scientists, researchers and students and to enhance the quality of education and research. Also he announced the development of inter-operational platforms and success deployment of Eduroam in more than 10 countries in the Arab region.

Dr. Abu Ghazaleh asserted that Talal Abu-Ghazaleh Organization will continue to support research and education in an effort to assist in the development of a broader and more inclusive information society in the Arab world. And asserted that he supports developing quality of education through the Arab Organization for Quality Assurance in Education - AROQA. This year's AROQA's 7th Annual conference focuses on quality standards and accreditation in education. In this regards, he announced that the quality standards and accreditation of schools are now being implemented in a number of schools in Jordan, as well as the announcement of releasing the 3rd issue of the first Arab Journal of Quality in Education, a specialized peer reviewed and indexed Journal.

In closing, Dr. Abu- Ghazaleh concluded his speech by saying "This event is an opportunity to consolidate our efforts together towards developing a better network infrastructure and a better quality education for a prosperous future of our young people."

**HE Dr. Sabri Saidam, Minister of Higher Education & Scientific Research, Palestine**

HE Dr. Sabri Saidam commenced his speech by welcoming HE Dr. Talal Abu-Ghazaleh, as well as other prominent figures and esteemed guests. Dr. Saidam also expressed his pleasure to attend this important international platform which includes research, education and technical experts from more than thirty countries worldwide. HE Dr. Saidam expressed his and gratitude to all the previous attempts to link the Arab e-Infrastructures in regionally and internationally to achieve a knowledge breakthrough benefit from the new electronic age.

Dr. Sabri said that he does not doubt that an important knowledge achievements may be accomplished from this efforts, and helped in establishing important academic and technical relations. But we must have the courage to ask ourselves, Have we succeeded, after about two decades, to change the developmental reality in our countries and to move our people from the state of cognitive stalling to the state of developmental Achievements, to achieve intellectual and economic important global competition, which reflects on our society? He also said "We maybe have established for many success stories in our countries, or with some of our regional and international partners, but we certainly did not yet achieved the desired cognitive Arab victory, and did not use the full resources available, and did not conquer hunger, poverty, deprivation, chapters of collapse, murder and bloodshed. A society made to know not to go hungry nor prey to backwardness and extremism, therefore, today's meeting is not just a passing meeting nor chance of wailing, But to welcome the lives of more dignity associated with the communion between knowledge-makers".

He also stressed that it is in our charge, us the conference participants, as friends, experts and specialists to come out of this event armed with a clear plan of action to be responsible of it the next two years, and in this context, he said, "we all had fed up form slogans and talking about wishes and ornamented speeches, and began to look for results". In this regards, he announced opening the doors of the Palestinian Universities, schools and institutions for everyone, whether both in a Palestinian Moroccan relationship directly, or Palestinian international relationships, to serve the e-government programs of education, and the promotion the research and education connection and the development of scientific research through the concept of schools and universities and others which applied now.

Finaly he noted that he is one of the firm believers that liberating education and technology are ways of victory, how does not extend our hands to all who share our vision and determination.

**HE Yasser Abdel Moneim, Minister Plenipotentiany, Diector of Education and Scientific Research, League of Arab States, Egypt**

HE Mr. Yasser Abdel Moneim welcomed the distinguished guests and he expressed his sincere thanks and appreciation to His Majesty King Mohammed VI, and His Excellency Mr. Rupert Joy, head of the EU mission to Morocco, also gave his thanks to HE Dr. Talal Abu-Ghazaleh, and the Minister of Higher Education and Scientific Research in Palestine HE Dr. Sabri Saydam, and Dr. Driss Abutajdine. He also welcomed the experts, academics and all participants and expressed his thanks and gratitude to HE Dr. Talal Abu-Ghazaleh on the good organizing and the generous hospitality of the event.

Mr. Abdel Moneim asserted that education is the beacon that guided the people to their way in life, that is why education and knowledge are essential in promoting prosperity and development of communities, he added "a country that is working to enhance its education system is a state that excels in all social, cultural, economic and political fields".

He also stressed that the educational institution should be working on developing the students' technical and scientific skills, because there can be no development in the field of education without scientific development, nor can be scientific development without the development of the educational institutions. He added that we must focus on the quality of education in the Arab world for the improvement and development of outputs and the achievement of all requirements and the needs of society and community requirements.
He concluded by thanking the audience for their participation in this event, wishing the continuous progress and success for it in the future.

**HE Rupert Joy, Head of Delegationof the European Union to Morocco**

HE Mr. Joy welcomed HE Dr. Talal Abu-Ghazaleh, the ministers and the distinguished guests, and he expressed his pleasure to be part of the e-AGE 2015 event. He added; the EU attaches great importance to such regional platforms which encourage and promote dialogue, partnership and which work to raise the awareness of key issues for the Mediterranean region.

Today and the next days we have the opportunity to focus on Intercontinental Connectivity of the Pan Arab Network, thereby discussing and exchanging research and education experience and innovations.

We can learn very valuable lessons from each other and they may be very pertinent for a number of countries, in particular given that almost all countries of the region are confronted with serious employment and social issues, aggravated by the 2008 global financial crisis as well as the economic impact of the Arab Spring.

Europe is not an exception. We face the same questions as our neighbours. We all face the same

global challenges. We all want to provide wellbeing and high quality services for our citizens. So, we must work together to give ourselves the best possible chances to achieve exactly that. And one of the answers is that we must invest in openness and research!

The EU is committed to work closely with all partner countries in order to reap together the benefits of a stronger role of research and innovation. An enhanced focus on research and innovation is key for the creation of growth, employment, and also peace. It is a constant endeavour that is crucial for sustainable economic development and building more inclusive societies.
Ladies and gentlemen,

Research and innovation partnerships are bridges of cooperation and diplomacy, enhancing political stability, sustainable economic development and employment. Before we even consider the many benefits of diversity that science and research can deliver.Bridges such as this conference and the respective endeavour to link our research communities.

But also bridges like PRIMA for example: The Partnership in Research and Innovation in the Mediterranean Area. PRIMA will mobilise joint research on two of the most urgent challenges to the Euro-Mediterranean area: the efficiency and sustainability of food production and water provision. We all live from the same earth, we all drink from the same water cycles. We need our neighbours to be close partners and research helps us to unite.

And there are examples of openness further afield. Launched in 2004, SESAME is a centre of scientific and technological excellence in the Middle East. Its members include countries from Iran to Israel to Palestine, from Cyprus to Turkey. And the EU has contributed a great deal to it. It may still take time for the science of SESAME to have significance for the whole world. But already, it holds great significance at regional level. And in this context I am glad that the EU has obtained observer status earlier this year to SESAME, allowing European researchers to join in.

The events of the Arab Spring called for a new vision for Cooperation in Research and Innovation between the EU and the Mediterranean countries, which would create the conditions for developing a new cooperation partnership. Our European Neighbourhood Policy was updated to take account of the developments in the Mediterranean. In May 2011 the EU published a joint communication on a new approach to strengthening the partnership between the EU and the Neighbourhood countries.

In terms of research and innovation, the focus is on working towards the development of a "Common Knowledge and Innovation Space" that would pull together policy dialogue, national and regional capacity building, cooperation in research and innovation, as well as greater mobility for our researchers.

This approach was recently reconfirmed when the revised European neighbourhood Policy was launched (18/11/2015), speaking of "connectivity" as a key priority of EU and Neighbourhood countries relations and emphasising the objective of increased participation of neighbourhood countries in EU initiatives, among which figured the connection to GÉANT, our pan-European R&D network

An important basis for our approach, both in the EU and with our Mediterranean partners, is an awareness of the role that science, research and innovation play in economic and social well-being, and of the importance of coordinating national efforts to tackle our common societal challenges.

Our programme Horizon 2020, the EU's programme for Research and Innovation for the period 2014 – 2020, takes full account of the need to integrate efforts and to cooperate to tackle societal challenges, and it is our principal instrument for supporting Euro-Mediterranean cooperation in research and innovation. With an overall budget of 80 billion Euro over seven years, Horizon 2020 will present a wealth of opportunities for researchers in EU and Mediterranean countries to work together.

HE Mr. Joy concluded by emphasising the incredible power of science and research for diplomacy. It is the elevated language of science which unites even mortal enemies. Scientists don't wage wars. They solve problems. They come together to reveal the mysteries of the universe. and he hoped the e-AGE 2015 conference will contribute to find common solutions to the common challenges we all face.

**Driss Abutajdine, Director of Le Centre National pour la Recherche Scientifique et Technique (CNRST), Morocco**

Mr. Driss began his speech by expressing his gratitude to the organizers for choosing Morocco to host this important event and for choosing CNRST as a partner. He also extend the sincere gratitude on behalf of the organizers to His Majesty Mohammed VI for having honored us by granting his patronage to the event.

The development and strengthening of national infrastructures and their networks is an important prerequisite for the research development, because it allows researchers to connect, and enables them to exchange content. Morocco is currently developing a policy to support research through strengthening the infrastructure for both digital access, and sharing heavy equipment access of scientific information, in order to provide Wi-Fi access to all universities and campuses, and to connect them with MARWAN Network; which is now preparing for its fourth release. MARWAN 4 will allow more bandwidth and open the connection to all public and private educational institutions.

MARWAN; like other Arab universities' networks; should not be limited to providing internet access only, but also to allow the exchange and sharing of digital content. And in this direction we propose to develop the Arabic open archives in general, and in the field of humanities and social sciences in particular, this will give visibility to the Arabic scientific output in these areas, allowing the integration and the exchange of its' content on these networks. Morocco has already launched The Moroccan National Thesis Library "Toubkal", in 2008, which is the national catalog of theses and dissertations, Toubkal is an initiative of the Moroccan Institute for Scientific and Technical Information (IMIST) that allows high visibility theses and dissertations in Morocco and in the national magazines online.

Mr. Driss concluded his speech by reiterating his thanks again for choosing Morocco as a host and CNRST as a partner.

**Salem Alagtash concluded the opening session by announcing the following:**

1. A great appreciation and gratitude to the European Commission for funding new phase of e-Infrastructure in the region, which is AfricaConnect2 with 26 million Euro to support high speed communication network across Africa.
2. The Kick off of the Lebanese International Research and Education Network with the American University of Beirut, leading this initiative to connect with GEANT Network in the ASREN London-PoP to connect with seamless resources of what is available in Europe and advanced countries.
3. The collaboration of the efforts of 10 Arab Research and Education Networks in eduroam which is creating environment of accessibility to resources across the world, as well as edugain.

## 5.2 Appreciation and Recognition


In recognition and honor for their efforts and their role in the success of the e-AGE 2015 conference and activities, and for their continuing support to ASREN, HE Dr. Talal Abu-Ghazaleh, ASREN Chairman, along with Yousef Torman, ASREN Co-Managing Director, have given the appreciation shields to the following:

*HE Rupert Joy, Head of Delegation of the European Union to Morocco*


*HE Yasser Abdel Moneim, Minister Plenipotentiany, Diector of Education and Scientific Research on behalf of the League of Arab States for the continuous support.*


*Centre National pour la Recherche Scientifique et Technique (CNRST) for hosting the event represented by Mr. Driss Abutajdine, Director of CNRST, Morocco*

*EUMEDCONNECT3 Project for the continuous support in the development of research and education in the Mediterranean region represented by Mr. David West, EUMEDCONNECT3 Project Manager, UK*

*ALECSO as a partner, represented by Ms. Lina M. Idrissi, BCA ALECSO, Morocco*


*Dr. Shaher Momani, Dean of Science at University of Jordan, Jordan as a keynote speaker.*

*Naseej as a platinum sponsor*

*meditel as a silver sponsor*

*CERN as a bronze sponsor*

*ICANN as a sponsor*

*TATA Communications as a sponsor*

The Opening Ceremony has witnessed a signing ceremony of cooperation between GEANT Association and ASREN in the framework of the EC funded AfricaConnect2 project. In this project, the African networking organisations Arab States Research and Education Network (ASREN), West and Central African Research and Education Network (WACREN), and UbuntuNet Alliance, in partnership with the European counterpart GÉANT will establish a €26.6m EU co-funded project to provide high-speed networks to African research and education.The high-speed networks will serve the entire African continent and connect them to the European GÉANT network, allowing students, researchers and academics to collaborate with their peers from around the world. The connectivity boost will not only advance research and education in Africa with opportunities like e-learning and cloud computing, but it will equally benefit global scientific studies in areas such as climate change, biodiversity, food security, malaria and other infectious diseases. A central part of the recently announced Africa-EU Partnership, AfricaConnect2 will fulfil both continents wish to connect research and education communities across borders and accelerate scientific breakthroughs.

## 6. Highlights from the Sessions and Discussions

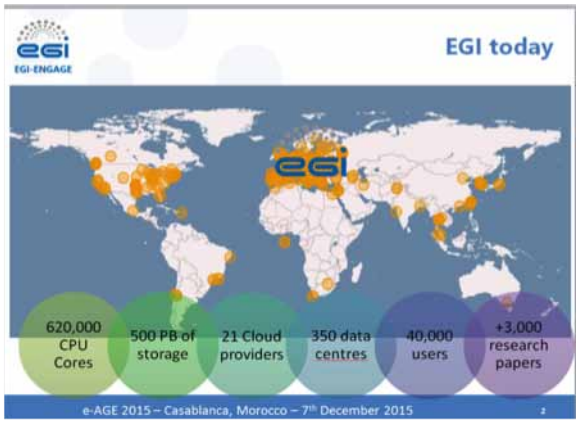
### 6.1 Keynote (1):

**Yannick Legré, "Towards an Open Science Commons", Director, European Grid Infrastructures, The Netherlands**

Yannick highlighted the situation of EGI today as shown in the figure, he afterwards summarized the EGI Federated Services which includes Single Sign-On, Service Registry, Accounting, Service Availability and Reliability Monitoring, Information System, Virtual Machine Image catalogue and image replication mechanisms and more.

He added that Open Science is about opening of the creation and dissemination of scholarly knowledge towards a multitude of stakeholders, from professional researchers to citizens.

**Yannick also presented the Open Science Commons, which is:**




- A set of interrelated resource systems governed as commons that support the open creation and dissemination of scholarly knowledge
- An area of study in the commons theory applied to open science
- Offering knowledge and expertise for scientific software, applications, tools
- Knowledge and expertise from a network of European training and education centres
- Scientific software is open, documented, discoverable, supported
- Support to access different capabilities (HTC, HPC, cloud, open research data, tools, applications, software…)

Yannick Summarized the contributions of EGI, which are federate digital capabilities, resources and expertise, operate services across the federated infrastructure, co-create and integrate open and user-driven services and solutions, and be a trusted adviser on data and compute intensive science.

At the end he showed how everyone can you contribute in EGI by becoming a participant of EGI and open it to the world, federating your resources and expertise, being an innovation driving force by co-creating and integrating open and user-driven services & solutions and at last becoming a building block of the Open Science Commons.

## 6.2 Session (2): " Pan Arab e-Infrastructure and Networking Development"

Yousef Torman, co-Managing Director, ASREN, Jordan (Chair)


Yousef opened the second session, and he explained that the first session in each e-AGE Conference is dedicated to present the recent developments on the e-Infrastructures in the Arab Region.

Yousef summarized the outcome of the previous conferences and recalled the last e-AGE 2014 Conference in Muscat at which 14 Arab NRENs presented their updates in addition to ASREN.

He added that For this year, we will demonstrate updates from Oman, Lebanon, Morocco and ASREN, In addition to the new AfricaConenct2 Project which opens new opportunities for the developments of e-Infrastructures in our region.

**David West, "AfricaConnect2 and EUMEDCONNECT3 towards development of eScience", EUMEDCONNECT3 Project Manager, GEANT, UK**

David of GÉANT focussed on the role research and education networks play in enabling eScience. By providing high capacity connectivity scientists in many disciplines in multiple locations can collaborate virtually to share and exploit data for research and innovative services. He gave a number of examples of how the GÉANT network supports life science, earth science and physics projects across Europe and worldwide, and stressed the need for better connectivity across the Arab region for science to flourish. He welcomed the increasing interest of Arab countries to take advantage of EU financial support and expertise to build regional R&E networks through EUMEDCONNECT3 and gave details of the recently launched AfricaConnect2 project.

**Yousif Asfour, "Why Joining the NREN Community is Strategic For AUB?", CIO, American University of Beirut, Lebanon**

Yousif talked about joining an NREN Community as it is a strategic decision for the American Uneversity of Beirut (AUB), and goes beyond the potential connectivity savings. He also added that NRENs provides higher education organizations with unfettered access to peer institutions and research services that further collaboration and sharing of knowledge.

Yousif highlighted some of the reasons why AUB choose to join the NREN

community, and how they plan to benefit from it by achieving Catalyze the rapid deployment of a high speed general purpose digital communications infrastructure, sharing technology services and resources among members, regional and international collaboration in education and research, joining a common culture and community for education and research organizations, engaging in shaping legislation in support the use of technology and networks in education and research.

**Abdulmonem AL Kharusi, "OMREN in the Success Pathway", OMREN Director, The Research Council of Oman, Oman**

Abdulmonem talked about The Research Council of Oman (TRC) which was setup by Royal Decree in June 2005 with the specific task of promoting, supporting, funding, monitoring, organizing and carrying out activities related to R&D and innovation in the Sultanate.

As part of its mandate and strategy, TRC aims to provide and enable a sustainable infrastructure that shall contribute to the emergence of effective national innovation ecosystem. ICT-based services, in general, and an Omani national Research and Education Network (OMREN), in particular, are seen as central part of this infrastructure.

Abdulmonem spread a shade on the main objectives of OMREN project, describing the possible value of national research and education network in Oman, explaining the challenges and presenting the current status of the project.

**Salem Alagtash, "New developments in the Pan-Arab e-Infrastructure", German Jordanian University and ASREN, Jordan**

Salem Al-Agtash gave a presentation on the development of the pan-Arab e-Infrastructure with highlights on the status of the African region with a potential of 1.1 billion inhabitants and vital energy of 700 Million youth in 55 countries. The number of users will exceed 1 Million research and education institutes and 12 million NREN users and are expected to be served by the three African regioal networks: ASREN (Arab States Research and Education Network), WACREN (Western Africa Research and Education Network), and UbuntuNet Alliance (The Eastern and Sub Saharan Research and Education Network). In the Arab region, the potential is expressed with a vital energy of estimated 20o Million youth in 22 Arab state countries and a service for more that 20 Million students in 1000 institutions.

The global integration is presented in the context of developing network infrastructure (EUMEDCONNECT), aggregation points of ASREN in London, Fujairah, and Egypt/ Jordan, and International links of 1-2 Gbps capacity to GEANT and 2.5 Gbps capacity from Internet2 through Singapore. Deploying platforms (CHAIN-REDS) have been presented with a Science Gateway implementated in Jordan, Morocco, Algeria, South Africa, and Kenya; and eduroam implemented in

Jordan, Morocco, Saudi Arabia, South Africa, Kenya, Algeria, Oman, and Qatar. These platforms will support access to resources available elsewhere (GEANT, Internet2, RedClara, UbuntuNet, APAN) Grid, HPC, and Cloud; Learning resourcess (MOOCs: EdX, Coursera, OCW), Scientific applications and Data sources, content, and repositories.

He has also presented the challenges of development in the region, summarized as follows: (1) ASREN/ NREN development - takes long for countries to participate; (2) Inability of some NRENs to raise resources for participation; (3) Limited progress and high cost of cross-border networks: Policy; Regulatory; and Perception; and (4) Lack of workable business model towards sustainability in the current terms.

The opportunities are summarized as follows: Engaging potential NRENs (Algeria, Morocco, Tunis, Palestine, Egypt, Sudan, Jordan); Raising awareness on requirements to raise resources ; Policy makers involvement; e-Infrastructures create economic cooperation. In an era of financial crisis, the Arab region grows 7 times in economic growth) and so the verall commitment from European Union - Technical and Financial and League of Arab States – Political so far are promising. The foreseen plans of ASREN are : E-Infrastructure Perspective - ASREN backbone; ASREN router and peering and Connectivity Ring and Landing Points, as well as to roll out network services as well as scientific applications at the regional level. It is expected to bring the support Arab countries in the development of NRENs and e-Infrastructure services, mainly to Identify and build research communities and implement federated identity and science gateway platforms and building capacity through joint research projects . ASREN will continue e-AGE efforts towards better integration of efforts at the regional and international levels and consolidate efforts with regional RENs. The main announcements presented are: Africa Connects with 26 Million Euro; Lebanon international connection; Palestine international connection; Increasing deployment of eduroam and eduGAIN; and DAAD funding for ASREN and BRSU cooperation to support Open Source development in Morocco – 200 K.

**Hassan Bouhaddou, "MARWAN NREN & E-services", Le Centre National pour la Recherche Scientifique et Technique (CNRST), Morocco**

Hassan began his presentation by giving an introduction about MARWAN and its objectives by providing to moroccan universities a network with high bandwidth, increasing exchanges between Moroccan Universities by setting up common projects, and developing the ICT in Morocco by allowing the universities to participate in various international networking projects.

Hassan gave an overview of the stages experienced by the MARWAN network, its current architecture, and the various bandwidths offered. He also indicated some of MARWAN's e-services like Eduroam, identity federation and the Grid computing MaGrid. He also talked about MARWAN monitoring and the use of bandwidth.

## 6.3 Keynote (2):


**Shaher Momani, "Science Innovations", Dean of Science, The University of Jordan, Jordan**

Recently, the Center for World-Class Universities (CWCU) at Shanghai Jiao Tong University (SJTU) and the Highly Cited Researcher team at Thomson Reuters announced that Mr. Shaher Momani has been selected into the preliminary list of 'Highly Cited Researchers' in 2014 and 2015. The list recognizes some of the most influential scientific minds throughout the world. Researchers earned this distinction by writing the greatest number of reports officially designated by Essential Science Indicators as Highly Cited Papers. They rank among the top 1 percent of the most cited thought leaders in their fields. Mr. Momani was also classified as one of the Top Ten Scientists in the World in the field Fractional Calculus for the period 2009-current according to Thomson Reuters (Web of Knowledge).

In this talk, Shaher presented the story of an Arab scientist who conducted his scientific research in Arab universities during the past twenty years. Also, he discuss the difficulties and obstacles that faces the Arab researchers in the Arab world and how can they overcome them in order to produce research of highest quality.

## 6.4 Session (3): "Evolving Services for Science, Research, and Education Communities"

Ahmed Hassan, CEO, Egyptian Universities Network, Egypt (Chair)

**Ognjen Prnjat, "Advanced services for international cooperation: case of VI-SEEM and MAGIC projects", European and Regional eInfrastructure manager, GRNET, Greece**

The VI-SEEM project unifies the e-Infrastructures in Southeast Europe and Eastern Mediterranean (EM) regions to better utilize synergies, for an improved service provision within a unified Virtual Research Environment (VRE) to be provided to the scientific user communities. The overall objective is to provide user-friendly integrated e-Infrastructure platform for scientific communities in Climatology, Life Sciences, and Cultural Heritage for the SEE and EM regions; by linking networking, compute, data, and visualization resources, as well as services, software and tools.

The VRE provides the scientists and researchers with the support in full lifecycle of scientific research: accessing relevant data necessary for their research, using it with provided codes and tools to carry out new experiments and simulations on large-scale e-Infrastructures, and producing and integrating new knowledge and data - which is stored and shared within the same VRE. The value-added computing services provided to the researchers include grid and cloud computing, as well as large-scale High-Performance computing platforms, with a set of management tools provided for the unified management of computing resources.

On a more global level, the MAGIC project aims establish a set of agreements for participating world regions to consolidate/complete middleware for a marketplace of services and real-time applications to benefit global science communities. Regarding the scientific computing aspects of global collaboration, MAGIC project will similarly create a service-oriented approach where the a global cloud computing catalogue will be built, where the cloud service providers for research and education will be able to publish their services. The catalogue will be built on the basis of the GEANT cloud catalogue.

**María José López, "MAGIC, a Global Connection Community", Communications and Public Relations Manager, RedCLARA, Chile**
Building on the success of the ELCIRA project, RedCLARA -with partners from Latin America, Europe, the Caribbean, West and Central Africa, Eastern and Southern Africa, North Africa and the Middle East, Central Asia and Asia-Pacific- is leading MAGIC (Middleware for collaborative Applications and Global vIrtual Communities), a cooperation project which aims -from May 1st 2015 to May 1st 2017- to significantly improve the ability of researchers and academics around the world to collaborate together. Project evaluated and approved for a Grant by the EC in Horizon 2020 - EU contribution € 1,388,972. MAGIC might be the first really global collaborative project in the REN environment.

MAGIC will enable mobility and seamless access to services by promoting the establishment of identity federations connected to eduGAIN, creating awareness of privacy and security issues, and increasing uptake of eduroam. MAGIC is enabling the provision of collaboration tools and services among NRENs based on NREN-run applications made available via a worldwide application market.,It is also seeking consensus on interoperability of real-time applications and work towards the adoption of standards such as those proposed by the Global CEO Forum; and of course, MAGIC is fostering collaborative work of Global Science Communities. We want to invite all the attendees of UbuntuNet-Connect to connect with MAGIC and get its benefits.

By fostering and easing collaboration and mobility, MAGIC is fostering intra-regional and global collaboration, helping to reduce the technological gap, and as a consequence, in the long term, to reduce the brain drain. In addition to the mentioned benefits, MAGIC also provides training and that is something we will highlight during the presentation.

MAGIC will boost the number of Identity Federations developed in each region as well as the number of countries with eduroam implemented, and will establish a set of agreements for Africa, Asia, Europe, Latin America and The Caribbean, aiming at consolidating and completing the building blocks of middleware necessary for the establishment of a marketplace of services and real-time applications for international and inter-continental research groups which facilitates mobility and the work of global science communities. We will use this presentation to socialize this information and start building MAGIC success in Africa.
Maria concluded her speech by saying: "MAGIC collaboration is globally connecting researchers and academics, and eAGE it is an outstanding scenario to promote the project benefits within one of our project regions".


**Johnathon Chapman, "Services @ Internet2", Chief Information Officer, Georgetown University, Qatar**

Internet2 was founded in October 1996 by 34 university researchers to serve the needs of the research and higher education community in the United States. By 1999 its first backbone network was operational.

For the following 10 years Internet2 was primarily a provider of high speed network connectivity facilitating research while also providing an innovation platform for internet protocols. The ubiquitous nature of computing in research and education has necessitated a change in what we define as supporting our community. Rather than only the network, Internet2 now brokers cloud-based services, software licenses, and other services critical to the delivery of a modern education.

In this presentation Johnathon highlighted some of those services and how the Internet2 philosophy is blossoming into the global NREN community.


**Sanggyun Kim, "TEIN based Various Application activities in Asia", Executive Principal Researcher,TEIN*Cooperation Center, South Korea**

TEIN (Trans Eurasia Information Network) is connecting inter-national research and education networks in Asia, and more than 20 countries are connected.

Based on this infrastructure, various activities are under-going and newly introduced, including HEP, Climate, Medicine, SDN, agriculture related and so on. Especially, LHCOne and telemedicine fields are leading bandwidth consumption and community expansion. An now, we are facing completion of TEIN Project phase 4 in 2016.

Sanggyun described the progress on various activities' promotion and development based on TEIN in Asia and future opportunities.

## 6.5 Announcement: "Development of eduroam and eduGAIN in ASREN region"


**Brook Schofield, Project Development Officer, GÉANT, Netherlands**

**Yousef Torman, co-Managing Director, ASREN, Jordan**

Brook and Yousef presented the recent updates on the developments on the deployments of eduroam and eduGAIN in the Arab Region and reconfirmed the support of MAGIC Project to provide help, training, know-how and technical support to the region to further develop and deploy these services which will better serve the research and education communities in the region.

Brook announced the current status as the following:

- 1st eduGAIN Member: Oman Knowledge Identity Federation
- 1st production federation and eduroam Deployment: Morocco (recognized roaming operator) and eduIDM
- Commitment to Federated Services: Algeria and Lebanon
- eduroam (Production): Morocco, Saudi Arabia, Qatar and UAE.
- eduroam (Pilot): Algeria, Jordan, Lebanon, Oman, Egypt and Tunisia

At the end, Brook along with Yousef thanked all for their efforts, and appreciation sheilds were handed to Oman, Morocco, Algeria and Lebanon.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## 6.6 Session (4): "Communities of eScience – I"

Habib Youssef, General Director, CCK, Tunisia (Chair)

**Ricardo D. Torres, "Developing a standards based education research eco-system", President and CEO, National Student Clearing House, USA**

Ricardo gave an overview of the development of the National Student Clearinghouse's standards based data, outcome collection system and reporting systems. He also discussed the establishment of the Research Center and how the center strategically approached development its' research brand in the education research space, enabling a more broadened and informed public policy discussion.


**Esther Wilikinson, "Supporting the 'E' in NREN - Transnational Education", Head of International , JISC, UK**

Transnational Education (TNE), referring to the provision of education qualifications from institutions in one country to students in another, is an area of significant and growing interest to the global education sector and plays an essential role in the delivery of international strategies in educational institutions. With stretching targets being set to deliver education as an export, the provision of high quality TNE is critical to governments and education institutions across the globe.

Jisc's mission is to enable people in higher education, further education and skills in the UK to perform at the forefront of international practice by exploiting fully the possibilities of modern digital empowerment, content and connectivity. A significant part of this is responding to our customer's needs; in the past two years there has been a sea change for demand from us to support international collaboration and delivery. Universities are fast waking up to the need to work in collaboration for such endeavours, to share experiences and best practice to enable them to deliver their international strategies in partnership across the globe; Jisc has played a key role in facilitating and delivering such communication, understanding technology requirements both now and in the future. We have worked with overseas peers, Governments and commercial providers, the British Council and UK Government and a wide ranging international audience to deliver technological solutions.

In response to this growing demand from the global education community, Jisc is developing the support we offer for the sectors' both established, and developing, TNE activities. We seek to address requirements for cost-effective, appropriate and reliable connectivity services overseas; we have already enhanced our portfolio to enable overseas campuses to be connected to home institutions in the UK. We have worked in China, Malaysia and many other overseas locations in developing our knowledge and expertise; our next focus will be centred on the Middle East and North Africa region, collaborating with research and education networks and network providers

to address the demands of the region. This integrates with our UK-based operations, including the Janet network and Jisc's range of services, to support TNE delivery on a global basis.

Esther concluded by asserting on the Digital technology as an essential to promote inclusiveness and a high-quality student experience, in addition to ensuring the institutions secure access to resources and integrity of student and corporate data. Additional challenges, such as the licensing and access to both digital resources and software are challenges that consistently rear their head. Future developments such as new digital platforms and developments in learning analytics will be vital for future international collaboration.


**Farida Fassi, "e-Science for High Energy Physics: LHC Big Data challenges", Research Assistant Professor, Mohammed V University; Morocco**

ATLAS is a particle physics experiment at the LHC at CERN that is recording and simulating several 10's of PetaBytes of data per year. ATLAS is a large international collaboration, made up of 3000 physicists from thousands of Research Institutes and Universities all over the world. This complexity requires a very cooperative distributed computing and data analysis model so that the ATLAS Computing Model was designed around the concepts of Grid Computing. Large data volumes from the detectors and simulations require a large number of CPUs and storage space for data processing. To cope with this challenge a global network known as the Worldwide LHC Computing Grid (WLCG) was built. This is the most sophisticated data taking and analysis system ever built. The Higgs boson discovery acknowledged by the 2013 Nobel Prize in physics is a major success for the experiments at the Large Hadron Collider (LHC). ATLAS accumulated more than 140 PB of data between 2009 and 2014. To analyse these data ATLAS developed, deployed and now operates a mature and stable distributed analysis (DA) service on the WLCG.

The service is actively used: more than half a million user jobs run daily on DA resources, submitted by more than 1500 ATLAS physicists. A significant reliability of the DA system during the first run and the following shutdown period has been reached due to the continuous automatic validation of the grid sites against a set of standard tests, and a dedicated team of expert shifters who provide user support and communicate user problems to the sites in a more efficient way. In 2015 the LHC physics will be pursued through step-wise increases in instantaneous luminosity exceeding 2·1034 cm-2 s-1 and center of mass energies of 13 TeV, and will be able to explore a large amount of particle physics fields.

Farida gave an overview about the state of the distributed analysis tools and services, emphasising on the DA infrastructure changes to cope with the second LHC run challenges to improve the analysis workflows, including the ATLAS Distributed Analysis support facility (DAST).


**Hisham Darwish, "The Most Innovative eLearning Platform", Regional Director, LENA, Naseej, Lebanon**

The D2L Brightspace platform empowers organizations to make the powerful shift from managing learning to improving learning. It is the first step on the path to educational transformation; offering the tools and capabilities that make up online and blended learning solutions for K–12, higher education, and enterprise clients. A key area of differentiation between traditional LMS software and the Brightspace platform is its robust analytics offerings.

**Lina M. Idrissi, "A Unified Terminology for the Arab World: Half a century of lexicographical work within BCA – ALECSO", Expert, BCA ALECSO, Morocco**

After the independence of Morocco, there was an urgent need to arabize education, administration and media. This is the main reason behind the establishment of the Bureau of Coordination of Arabization in 1961. One of the Bureau's projects is the creation of unified Arabic terminology covering various knowledge fields for the Arab World.

Within the framework of a cooperation between ALECSO and BMZ, a new terminological project has seen light, known as ARABTERM. In addition to the glossaries in German, English and French, ARABTERM offers the translation of the terms, along with an illustrated definition in Arabic. This dictionary is freely available for teachers, students, translators, technicians and engineers via the following link: www.arabterm.org.

## 6.7 Session (5): "Communities of eScience - II"

Aouaouche El-Maouhab, Director, ARN, Algeria (Chair)

**Guido Zebisch, "Updates on the facilitation of Knowledge Transfer: ALECSO´s Quatrilingual Arabic Technical Online Dictionary", Project Director, ARABTERM Project - Deutsche GIZ GmbH, Morocco**

Guido briefly introduced the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) as Germany´s international cooperation agency prevalent in most Arab countries since the late 1960ies and 1970ies. The main aim of international cooperation is to support partner governments and consult on how they can improve services and quality, in diverse sectors, for their own citizens. The GIZ mainly works with governmental, but also with non-governmental actors. Ever since its beginning, the GIZ has been actively involved with education, and it is the "E" in ASREN, standing for education, that Guido´s proposal was based on. In the beginning of ARABTERM, there was the 2003 Arab Human Development Report issued by the

Arab Regional Office of the United Nations´ Development Program UNDP. According to numerous findings, an educational crisis of 30 or more years to come was predicted – and this largely ahead of time of the current phase of the arabellions and the issuant crises in some countries. The report highlights, by giving precise analytical and statistical data, numerous examples of shortcomings with regard to education at large, e.g. the lack of sufficient translated material and an insufficient translation and editing industry: the use of teaching material in European languages within vocational training courses ensues in a linguistically often non-congruent, jargon-like and situational mediation where spoken Arabic is used as the real language of a speech act, which is interspersed with technical concepts either not translated (i.e. in the original French or English), or transliterated (yet not transporting the concept) or spontaneously translated. This and other findings, by the way, is the subject of numerous linguistic analysis and research. With regard to terminology and scientific concepts, however, absolute precision is needed. Therefore, the project ARABTERM was designed to support the UNDP in this regard and to attempt to close the gap of failed knowledge transfer in scientific and technical domains due to terminological shortcomings.

After commencement in Germany uni-laterally, the project found a true and worthy partner in the Arab League´s Education, Culture & Sciences Organization ALECSO and ALECSO's Moroccan division, the Arabization Coordination Bureau (BCA). While all terminology projects (like UN-Term, IATE, NATO-Term asf.) have undergone similar "childhood diseases", ARABTERM has now gained solid standing. Its terminology data bases have been established, ICT tools have been introduced at every work level, work flows have been shortened and ameliorated, partnerships with Arabic linguistic academies and other official partners were endorsed.

The ARABTERM terminology bank of the ALECSO is now ready for large-term exchange with other terminology systems in order to ensure its mission: to provide, in a quick and user-friendly way, terminology in technical domains in Arabic, where hitherto hardly any terminology was found. It is estimated that the database´s scope will be enlarged from at current 25.000 entries (expressed in 100.000 terms in the four languages German, English, French, and most importantly Arabic) to roughly 350.000 terms. Steady updates and revisions are needed in any data bank. The aim of this intervention is to raise consciousness of the NREN that the "E" as in education as in ASREN must also include terminology. Terminology is not to be understood as a negligible side aspect of any scientific research or technical work, but as a constant challenge requiring all-time nurturing and care and update.

With this in mind, Guido called upon the entirety of all Arab States´ NRENs to really cooperate on terminology in the Arabic language and to pro-actively engage with the ALECSO´s BCA and ARABTERM in order to deliver to the Arab public the scientific concepts that they deserve in their Arabic native language in order to secure to better ground educational efforts. In organizations like NATO, for instance, once terminology is defined and approved by the North Atlantic Council, its use becomes mandatory throughout the organization and its structures. A similar aim would be desirable for Arabic concepts across the linguistically divided and diglossia-marked Arab region.

A steering committee, where ASREN is invited to take part, is to align needs in terminology in order to streamline efforts and bring about accelerated effects with regard to direly needed technical terminology in Arabic in various sectors.

**Fahd Batayneh, "Greasing the Wheels of the Internet Economy", Manager, Global Stakeholder Engagement, Middle East, ICANN, Jordan**

Digitally driven economic growth continues to be one of the few bright spots in a sluggish global economy. Reducing or eliminating numerous factors that inhibit online interactions and exchange could cause this growth to be even faster and could have an even bigger impact. To better understand these sources of "e-friction" and how they constrain economic activity, ICANN commissioned the Boston Consulting Group (BCG) to prepare an independent report on the impact of a unified Internet on the global economy. This session will shed light on the findings of this interesting report.

Fahd telked about the Digital Economy, and shared the findings of a report commissioned by ICANN and conducted by the Boston Consulting Group (BCG). The report seeks to find new avenues for improving the overall global economy, and the Digital Economy is considered one of those bright spots for such an improvement. And in order for the digital economy to flourish and progress, a unified Internet is required for e-commerce and e-transactions to progress. The presentation also zoomed-in on Morocco which scored in the bottom rankings, he adeed that this should not be looked upon negatively, but rather must be seen as an opportunity to improve the overall economy via improving the digital economy.

Those interested in the full report, the Country-by-Country Analysis, and the Country Clusters Analysis can read them online at the mentioned links.
***https://www.icann.org/en/news/presentations/bcg-internet-economy-27jan14-en.pdf***
***https://www.icann.org/en/news/presentations/bcg-internet-economy-country-24feb14-en.pdf***
***https://www.icann.org/en/system/files/files/bcg-wheels-grease-friction-16apr15-en.pdf***

**Hassan Sefrioui, "Medical diagnostics in Morocco, MAScIR experience", Director Medical Biotechnology Center, MAScIR, Morocco**

Although significant progress has been made in the field of medical diagnostics in Morocco, the systemic importation of all the locally available diagnostic kits by the health professionals remains a problem that slows this progress. The situation is similar in the Arab world.

Using its innovative R&D platform and expert scientists, the Moroccan Foundation For Advanced Science Innovation & research (MAScIR), created by the Moroccan government, has worked since 2010 on the development of Morocco first medical diagnostic kits. Presently, 2 kits targeting leukemia and breast cancer have been developed, patented, published and validated at the international level. The local industrialisation and commercialisation of these innovative and cost effective kits will be done by a Moroccan pharmaceutical partner in 2016.

**Rainer Herpers, "Open source software in science and technology", Bonn-Rhien-Sieg University of Applied Science, Germany**

Rainer started his speech by giving a brief about OSSCOM Project, which is an EU Tempus Funded Project on Open Source Software Curricula Enhancement, that aims at supporting PC institutions to strongly link with enterprises, with a goal to build large-scale OSS resources, knowledge, and expertise through a network of OSS communities.

He asserted that governments can play an important role in widening the use of OSS as an alternative solution to proprietary software, and encouraging ICT suppliers and integrators to evaluate open source options when designing solutions and services. The software market is a rapidly developing environment and any service implementation may become obsolete in few years. Therefore, OSS option has proven to be useful to limit costs and expenditures for continuous updates and upgrades and deliver significant short and long term cost savings across Government IT.

The enormous wide spread and adoption of the Internet played a vital role in connecting people together and created a platform for collaboration and innovation. People from different backgrounds and knowledge upbringings can collaboratively work together toward accomplishing monumental projects and tasks. Open Source Software development is one of these positive outcomes that have been flourishing over the past two decades and have been producing plethora of free software for people to use and benefit from.

In order to encourage the open software adoption in society, several governments in different countries have implemented many open software solutions into their organizations. Thus leading others by example and sending a very clear message to other organizations and companies that we should all use and encourage open software development and adoption in various fields and majors.

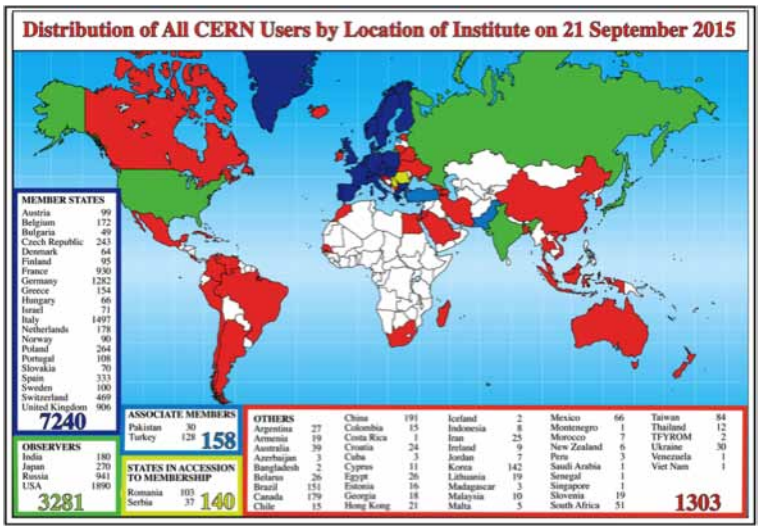
Rainer concluded his speech by encouraging people to promote a new culture of sharing, "invest in new openness", he asserted that all people are targeted and should be involved.

**Patrick Fassnacht, "Update on CERN Activities in the Arab Region", CERN, Switzerland**

Patrick introduced CERN which was founded in 1954 with 12 European States. He added that today, CERN has 21 Member States, with more than 12000 users from all over the world as demonstrated in the figure.
He pointed out the mission of CERN which are to push back the frontiers of knowledge eg. the secrets of the Big Bang, to develop new technologies for accelerators and detectors, to train scientists and engineers of tomorrow, and to unite people from different countries and cultures.

**Patrick summarized the cooperation between CERN and MENA region as the folllowing:**

- Governmental Co-operation Agreements: Algeria, Egypt, Iran, Jordan (SESAME), Morocco, Saudi Arabia, Tunisia, U.A.E. Next: Lebanon
- Other scientific contacts: Bahrain, Kuwait, Lebanon, Oman, Palestine, Qatar
- Teachers Programme: Lebanon, Qatar, Saudi Arabia and UAE.
- Summer Student Programme: Bahrain, Egypt, Iran, Lebanon, Oman, Palestine, Qatar, Saudi Arabia, UAE




Patrick asserted that CERN is open to collaboration with qualified and interested scientists from any country. CERN provides access to training programs to help capacity-building in Physics, engineering, information technology, summer students, and high-school teachers.

He concluded his speech by expressing his enthusiasm to expanded collaboration with MENA.

## 6.8 Session (6): "Technology Evolution"

Sami Salih, CEO, SudREN, Sudan (Chair)

**Dale Smith, "Global R&E Network Ecosystem: What is ASREN's role?", International Network Coordinator, NSRC/University of Oregon, USA**

Dale provided an overview of the structure of the global research and education network fabric that serves the educational and research needs of the majority of the world. Very few areas remain un-served, but those areas do include a number of countries in Africa and the Middle East. This infrastructure is a layered hierarchy consisting of intercontinental connections, regional networks, national networks, and campus networks. He emphasized the foundational nature of the campus networks and encouraged ASREN members to think about the campus networks as they are working on developing national networking infrastructure.

He touched on the ASREN role as an emerging regional network that could resolve some of the ad-hoc connectivity issues that currently exist within the ASREN region. He emphasized the potential future importance of regional exchange points such as the AGE-OX open exchange in Fujairah and possibility of additional exchange points in the region.

He finally touched on the USA investments to support research and education networking globally. He encouraged the ASREN community to work together to leverage the European Union AfricaConnect2 funding to catalyze the development of ASREN as a operating regional network.


**Radwan Moussalli, "Succeeding in an Increasingly Competitive Global, Knowledge-Based Economy", Senior Vice President, Middle East, Central Asia and Africa, TATA Communications, UAE**

According to the United Nations, one in five people living in the Middle East and North Africa region is between the ages of 15 and 24. This is the demographic group referred to as "youth". These young people could become the backbone of strong economies and a vibrant future if they had the right education, skills, and job opportunities. Yet, young people entering the labor force over the past few decades have faced tougher and tougher job markets. So many have experienced persistent unemployment that today, MENA's unemployment has become a youth phenomenon.

With this in mind, investing in our youth and providing them with opportunities and a high quality education has to be one of our collective highest priorities. Arab Universities that are equipped with the latest online collaboration and advanced telecommunications tools like Telepresence make teaching by the foremost experts in their domain easily accessible to all parts of the Arab World and multi-university collaboration on advanced research an affordable reality.
Advanced research in disciplines such as high energy physics, astronomy, genomics or weather modeling require access to extremely expensive instrumentation. One example is the multibillion CERN particle accelerator on the Swiss-French border near Geneva to which the Tata Institute for Fundamental Research in Mumbai now connects with a one gigabit connection, providing Indian scientists with real-time access to the test results of the Large Hadron Collider.

Another example that comes to mind is VLBI (Very Large Baseline Interferometry) where radio telescopes on different continents connect to each other at very high speeds and survey in real time the same objects in the confines of the universe as if they were all one huge telescope. Remote access to massive distributed computing power and advanced visualization needed for disciplines such as genomics, weather and climate change modeling or economic forecasting will be available to smaller and more remote institutions.

The content of most of the world's libraries and universities will be at the fingertips. In the 9$^{th}$ century, Muhammad Ibn Musa Al Khawarizmi developed the foundation for modern algebra at the House of Wisdom (Bait al-Hikma) in Baghdad. At the time, most of the well known scholars from the known world would sojourn to Baghdad to share information and ideas in the House of Wisdom. Many of the most learned scholars spent time there and contributed to the Golden Age of Arab Science.

Today, more than a millennium later, we have the opportunity, or more appropriately, the obligation, to create a new Bait al-Hikma which extends to the far reaches of the Arab World. e-AGE is part of this vision and is essential to lift the quality of higher education to the highest standards and foster future prosperity. The new House of Wisdom will also give our best and brightest youth the chance to achieve excellence on par with the best in the world and restore Arab science to its past glory.

At the end of the day, it is a team effort and we all need to work hand in hand to achieve this goal. Tata Communications has been a trusted partner to the R&E community for over 15 years. One of our first R&E projects in the Middle East and North Africa region was connecting Sultan Qabous University in Oman to the international R&E Community. In September 1999, we connected 2XSTM1 for the Qatar Foundation to Internet2 in New York and Los Angeles. We continue to work with the R&E communities like Dante, Geant and Internet 2 to enable R&E them with superior connectivity for their important missions. We are also the first provider of 100GB on our network to the international R&E community.

Radwan concluded his speech confirming the continued commitment from TATA Communications to the future of our Arab youth and to the R&E community mission to help build the infrastructure and ICT tools to ensure that our youth of today become our leaders of tomorrow.


**Yves Poppe, "ASREN members high speed access to petaflop level supercomputing", Supercomputing Communications, A*STAR CRC, Singapore**

Yves began his speech by thanking ASREN's organizers to have given him the opportunity to present and participate the e-AGE 2015 and to interact with key players and influencers of the NREN and R&E scene. He expressed his pleasure to share the experience gained so far in setting up the Singapore petaflop level super computer (NSCC) and the national and international high speed NREN connectivity associated with this key strategic initiative.

Super computing is now considered essential to the wealth and security of nations as the richest countries invest billions of dollars to be the first to reach the exascale level in the early 2020's. As a smaller country, Singapore has developed infiniCortex, an approach to allow a multitude of geographically dispersed supercomputers to function in a concurrent way and lead to a distributed exascale based on a collective undertaking. As part of the effort to reach this goal, A*STAR has
explored and tested with great success a totally innovative means of data transmission based on long distance infiniBand to provide an effective throughput booster, this with spectacular results. Given the sometimes exorbitant costs of transmission facilities in some countries of the ASREN community, use of infiniBand on some major arteries could lower the cost/byte transmitted by an order of magnitude for file transfers and streaming as compared to TCP/IP or TCP.

Yves challenged ASREN members to try it out for themselves, either nationally or between institutions of several NREN's that have collaborative data and compute intensive or streaming projects of common interest. He also encouraged each of the ASREN members to complete a survey of their major national computing and storage resources and identify the needs of their researchers and the extend of their collaboration needs. He added "ASREN could collate these needs and help to identify a small number of promising projects to help kick start the process on an international level".

He concluded "To have a report on the findings in Beirut in December next year would be a

success, to hear about the successful outcome of at least one trial in the region would be a major step forward".

**Trad Hughes, "Technology as a Tool in Higher Education", Client Partner, Ellucian, UAE**

Trad gave an overview about Ellucian, which is a global provider of Higher Education Technology solutions that focus on improving student outcomes, ensuring on time graduation, and increasing retention rates. In the mean time serves clients in over 40 countries, with 2400 customers across the globe. He reviewed it's large portfolio of products and student information systems with particular focus on how Moroccan institutions of higher education can utilize them.

## 6.9 Session (7): " Scientific Contribution – 1"

Walid Karam, Advisor to the Minister, Ministry of Telecommunications (CHAIR)

**Alai Bitar, "Climate Change The Palestinian Case", Assistant Director, Al Quds Open University, Palestine**

In recent years, the Arab countries have witnessed increasingly high temperature and less frequent and more intense rainfall. Water has emerged as one of the most vulnerable resources of the region. Arab countries' warm climate causes drought and decreases available water, which affects agriculture.

In the summer of 2012, the Arab East in general and Palestine in particular witnessed clear extreme changes in temperatures that, sometimes is more than ten degrees from the general annual increases in drought severity and humidity, even in areas distant from the Palestinian coast.

The absence of strategies to take advantage of renewable energy sources in order to preserve the Palestinian environment. These could mitigate the negative effects on climate in the region and reduce Palestinian dependency on non-renewable energy sources like fossil fuel, the supply of which is controlled entirely by the state of Israel.

Now more than ever, civil and official Palestinian institutions have much to do to limit the use of energy from oil that endangers the environment and human health and/or to replace it, where possible, with clean renewable energy. Areas of focus may range from awareness and training to the technical development of industrial, agricultural and service projects that use renewable energy such as solar, wind, biogas, and so on. this may include, solar electrification making the most of natural lighting, and so on.

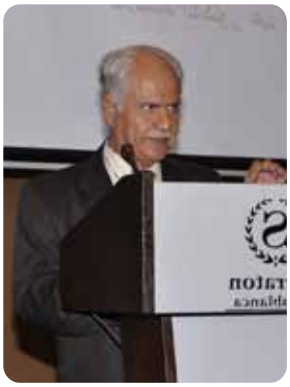
It can be said that both the environmental climatic and national development dimensions require serious work towards freedom from absolute Israeli domination of fuel and electricity as well as the establishment of infrastructure to generate electricity from solar energy and other forms of renewable energy.

This study aims at contributing to this kind of research by outlining trends and indicators related to climatic infrastructure and reality in Palestine. It also discusses existing policies and strategies, and makes further recommendations, to address climate change on the Palestinian. In addition, the study proposes ideas, solutions and practical mechanisms to reduce carbon emissions within local economies and to encourage and promote the use of environmentally- and public health-friendly energy alternatives.

This study is aimed at large segments of society including: environmentalists, experts and environmental specialists, development workers, researchers and students, policy makers, NGOs, grassroots organizations, and the private, public, and government sectors. The aim of this study is to provide readers with the knowledge on trends, policies and applications needed to bring about a qualitative reduction in greenhouse gas emissions and to seriously confront climate change. Ultimately, it hopes to encourage different social, economic, and political strata to actively participate in alternative environmental development that works toward the establishment of environmentally clean communities and economies in palestine, free from pollutants and toxic emissions destructive to our climate, health and existence.

**Also In this paper we are going to discus the following:**

- The trends and Indicators, Record Figures and Climate Changes in Palestine , Environmental disaster, and the Extreme weather conditions threaten Local agriculture the carbon footprint and the needs of promoting the use of renewable energy
- The Policies and strategies :- The Embodiment of green economy in the Palestinian context and the green economy of resistance
- Applications and success stories
- Conclusions and recommendations



**Abdul Aziz M. Abu Naba'a, "Arabian Management Theory For Sustainable Development", International Marketing Professor, University of Amman Arab University, Jordan**

Management plays a great and important role in the advancement of nations in the whole world. Consequently, a number of theories emerged and new ones are still emerging from time to time. The search will go on and on to achieve administrative fulfillment.

The problem of the study is that we have to participate in developing management thought instead of just consuming the western theories which might not be applicable in our environment. The aim of the study then is to develop an Arabic Management Theory from our Arabic and Islamic Heritage that can be workable in our environment.

The new theory is based on three pillars. The first concept is service: which means that manager should respect his employees as he respects his guests in order to win their cooperation and increase their productivity.

The second concept is counseling with his employees before taking any decision, this necessary in directing people and motivating them to work .This is also is important for the manager to make the right and wise decision.

The third pillar is justice. This concept means that the manager should consider fear of GOD before taking any decision, and be fair with all his employees, other wise he may punished and go to hill.

**Talal Margani, "The Use of Alternative Animal Feeds to Enhance Food Security and Environmental Protection in the Sudan; The Case for Prosopis Juliflora", Sudan**

Prosopis juliflora (referred to in this paper as Prosopis or locally known as "Muskit"" is a member of a fast growing, ever green and drought resistant shrub which grows in semi-arid areas all over the world, including Sudan and several arid and semiarid countries in Africa. The seed pods are palatable to local animals, particularly ruminants such as sheep and goat. The leaves are relatively unpalatable – due to both tha tannin content and to their inigestibility. However, in Sudan and elsewhere, Prosopis has also caused considerable problems because of its rapid growth and damage to farmlands, pasture and especially the irrigated agriculture schemes. The chrub is dispersed in anumber of ways, including distribution of seeds from the pods vua tha faeces of goats and sheep. A concerted but unsuccessful attempt at its removal has been made by the government.

There are differing prespective in Sudan among policy makers and academics and such views range from total physical eradication of Prosopis to seeking alternative uses for it.

This paper uses as its point of departure that Prosopis in underutilized resource and that it has great potential as an animal feed resources in the arid lands of Sudan and Africa.

During 2007, The Pastoral and Environmental Network in the Horn of Africa (PENHA) and the Animal Production Research Centre (APRC) within the Animal Resources Research Corporation within the Ministry of Science and Technology (MOST) have been engaged in some serious research to investigate the potential an more effective use of Prosopis as an animal feed. The results from the four moth study which came to an end in late 2007 have clearly indicated that prosopis has indeed a great potential for use as animals feed in various forms if fed in apperpriate quantities and made more palatable to the animals. Following the outcomes of the research led to a series of pilot training programmes were conducted with pastoral communities in Eastren Sudan and Eritrea.

Tho overall conclusion is that Prosopis can provide a significant input into the feed of small ruminants in the pastoral areas of Sudan as a well as other parts of Africa.


**Antonio Carlos Ruiz Soria, "Creare Mediterraneus Searching the Roots in a digital way", CEO/Economist, Economia Creativa Consultancy, Spain**

Creare Mediterraneus is a project developed by Economia Creativa Consultancy , spin-off from 'Reinventing Costa del Sol Through Creative Tourism' project. It aims to encourage social innovation through exchange of ideas and creative thinking, harnessing new ways of developing the synergies between art, culture, economics and technology in order to find solutions to the challenges that the Mediterranean -and Humanity- is facing: immigration, inequality, global warming, mass tourism, unemployment, lack of perspective for youth, to cite some of them.

The aim is to raise awareness among local entrepreneurs, artists, creative people, humanists (philosophers, anthropologists, historians) and policy makers about the opportunity of creating new ways of working: multifunctional, multi-sectorial, multicultural and multinational mixing creativity, economy, culture, art and technology for their development and the development of the Mediterranean Region in a sustainable and innovative way.
Creare Mediterraneus is an online platform for the Creative Economy in the Mediterranean Region promoting the networking, exchange and dialogue among entrepreneurs, artists, cultural managers, museums and cultural institutions, public authorities and other actors.

We aim to contribute to the international debate for developing an alternative economic system considering creativity, people and the environment at the center of it. The #CulturalEra

## 6.10 Session (8): " Scientific Contribution - 2"

Dahir Hassan, CEO, SomaliREN, Somalia (CHAIR)

**Fatima Jalil, "The Impact of The Implementation of The ERP on End-user Satisfaction Case of Moroccan Companies", PhD Student, INPT, Morocco**

In recent years, the implementation of ERP is as a lever for development and inter-organizational collaboration. The ERP is a powerful tool for integration, sharing of information, and fluidizing of the process within the organizations (El Amrani et al. 2006 ; Kocoglu and Moatti, 2010). If the organization fully integrated remains a "myth" (to use the expression of Segrestin et al. 2004), profits are nevertheless removed from the adoption and use of the ERP.

As to the interest of the information systems for the companies, there is more to discuss our days ; it is of a clearly indisputable for the companies that are now seeking competitive advantages and a means of competitive differentiation, and this, by the access to information in real time and through a single source as well as the implementation of best management practices.

The company must not only equip and computerization but it must opt for the establishment of an IT infrastructure "optimal" who will respond to its present and future needs. OF or the interest of the application integration, and specially of the ERP who come remedy the situations mentioned. This article proposes a model and tests to evaluate the success of a system "Enterprise Resource Planning "(ERP) based on a measure of user satisfaction. Referring to the model DeLone & McLean (1992) [1] and the work of Seddon & Kiew (1994) [2]. The criteria that can influence user satisfaction, to ensure the successful implementation of the ERP system are identified.

The management science literature has often emphasized the importance of meeting individuals in the organization as a key concept of increasing productivity and acceptance of ICT by end users (Delone and Mclean, 1992). This dimension has been used extensively in the literature as the dependent variable the effectiveness of information systems. DeLone & McLean (1992) fall within a number of 33 empirical studies published between 1981 and 1987 who appreciate efficiency, in terms of Satisfaction (Bailey and Pearson, 1983; Ives, Olson & Baroudi, 1983; Doll & Torkzadeh 1988, etc.). User satisfaction with ERP systems is one of the important determinant of the success of these systems. (Somers et al, 2003) Melone (1986) stated that there is no consensus on a conceptual definition of built user satisfaction. Indeed, user satisfaction was associated with many terms such as "felt need", "acceptance of the system," perceived usefulness ""appreciation of the Management Information System", "feeling" (Ives and al1983).

The results of the exploratory study, carried out on 60 users in 40 Moroccan companies, shows that user satisfaction of ERP is explained by the quality of the ERP system, perceived usefulness and quality of information provided by this type of system. The study also found that the quality of change is a predictor of satisfaction measured by user involvement in the implementation of ERP, the quality of communication within such a project and the quality of training given to users.


**AmineArrahmane Achargui, "FLOSS ERP systems Usage in developing countries: case study of a Moroccan SME", Phd Student, CEDOC INPT, Morocco**

Although there is no universal definition for Developing Countries, nor for Small and medium sized enterprises (SME), they represent the majority of the economic sphere worldwide. As large enterprises, profit maximization is SMEs major goal, so here emerges the need for effective information management and efficient decision making through integrating business processes, and this is the role of Enterprise Information Systems (EIS). Enterprise Resource Planning systems are one facet of modern EIS, that were, until recently targeted to Large Enterprises only, due to the expensive costs of a ERP project as well as to organizational issues for the case of SMEs.

My ongoing research paper aims at doing a mix of both theoretical research through a literature review of what has been advanced as academic and professional published works concerning the subjects of Free Libre & Open Source ERP systems, Cloud ERP systems, ERP systems adoption : motives, benefits and barriers; and practical research through observation of 3 Moroccan SMEs

operating in different fields, adopting, implementing and using an Open Source ERP system. On the other hand, a practical research is conducted through observation of a Moroccan SME "Aluminium Manufacturer and retailer", adopting, implementing and using an Open Source ERP system as the main building block of their EIS.

**Chaker El Amrani, "Remote Sensing for Real-time Early Warning of Environmental Disasters and WRF Modeling", Associate Professor, Abdelmalek Essaadi University, Morocco**

The Mediterranean Dialogue Earth Observatory (MDEO) is a NATO Science for Peace sponsored project, deployed at Abdelmalek Essaadi University in Tangier. It provides real-time data from EUMETSAT multiple earth observing satellites and permits early warning for an array of environmental disasters, such as flash inundations, storms, atmospheric pollution, landslides, etc. Raw data are transmitted to the ground station and the acquisition server, then, selected files are pushed to the processing server where they are sorted and analyzed with appropriate programs.

Numerical Weather Prediction (NWP) models use satellite datasets as initial conditions to run the program, and make predictions. This procedure could help decision makers taking adequate measures to mitigate natural disaster risks. The Weather Research and Forecasting (WRF), is a powerful NWP model that can be adapted to MDEO data sources, in order to simulate real-time environmental behavior, and forecast future scenarios. The WRF is used to study weather, air quality, wildfire, regional climate, etc., but requires the deployment of high performance computing techniques. In this paper, we will present MDEO infrastructure and WRF simulations of some environmental scenarios. We will also show the link between MDEO and WRF, and underline the benefit of real-time EUMETSAT data on the early warning, adaptation and mitigation of environmental disasters.

**Badr Ait Hammou, "Predicting Housing Price in Moroccan Cities Using Web Data", Phd Candidate, Mohammed V University, Morocco**

Web contents represent a rich source of data that contains various valuable information. These contents are usually formatted for human users. Consequently, this rises many challenges and renders the discovery and analysis of useful web contents a difficult task. In fact, the extraction of data from the web necessitate an automatic browsing on the web pages in order to find and collect relevant information. The paper presents an approach based on web scraping technique which aims at looking for certain kinds of information, gathering the contents of ads from web pages, and saving them in a structured form. The extracted information will be used for studying some economic markets in Morocco, in particular the market of the apartments.

In fact, we predict the apartments' prices using time series with Autoregressive Integrated Moving Average (ARIMA) model.

## 7. Closing

At the closing session which concluded both ASREN's e-AGE 2015 and ATOQA's 7th Conferences which was moderated by Yousef Torman, all session chairs of both conferences were invited to summarize the outcome of their sessions and to give comments.

Yousef also thanked all speakers, partners, sponsors, participants, hotel, Program and Organizing Committees. The closing session was concluded by invitation and warm welcome message from the Lebanon delegates to join e-AGE 2016 in Beirut to be hosted by the American University at Beirut.

## 8. Casablanca Declaration

Casablanca --- December 8, 2015 ---- Under the high patronage of his Majesty of King Mohamed IV of Morocco and Chaired by His Excellency Dr. Talal Abu-Ghazaleh (Chairman of ASREN & AROQA), the 5th "International Platform on Integrating Arab e-infrastructure in a Global Environment, e-AGE 2015" and the 7th Annual Conference of AROQA entitled "Impact of Quality and Accreditaiton in Education" concluded with a wide high level participation and delegates from over 40 countries.

The meetings were attended by leaders and experts from Europe including HE Rupert Joy, Head of EU delegation to Morocco and leaders of European Organizations including GÉANT and CERN as well as many Arab universities. The opening session was addressed by the representatives of the League of Arab States, the European partners, and the Moroccan national center for research, science, and technology, and the Minister of Education and Higher Education to Palestine.

In his opening speech, Abu Ghazaleh reminded distinguished delegates from the Arab countries as well as delegates of the league of Arab States agencies that we are now in our 5th year of existence since we were launched as a result of partnership between European agencies and Talal Abu-Ghazaleh organization. He saluted the European Union their generous support financially, technically and humanly. We could not have made it without our great partners north of us linked to us by history, geographically, culturally and morally.

We have accomplished, he said, our first stage objectives and we take pride announcing were we standing today which can be summarized as follows:

- Supporting Arab national research and education networks
- Developing an advanced pan-Arab eInfrastructure and strengthening research connectivity to make it available for use on a regional scale
- Developing regional points of exchange, one of them currently operational in London for peering with GÉANT, and two other being established in Fujuaira, and Alexandria
- Deploying services for science and education at the national and regional levels including science gateway, eduroam, and edugain actvities

Chairman Abu-Ghazaleh proposed that we agree together on a road map for the next stages of this important initiative. As a result of a process of consultation the conference declares that it shall endeavor to achieve the following objectives.

- Developing a master plan for awareness of the importance of research in the Arab world for economic and social development such that we may be able to engage decision makers, researchers and the civil society at large towards making scientific research a priority.
- To develop an action plan explaining the usefulness of the scientific research infrastructure developed by us for all development purposes and engaging research centers at universities and other research institutions to make use of this infrastructure research facility.
- To define the management model for this facility in such a way that it becomes a constructive tool for creativity, especially by our young generations.

- To ensure that the network will be strictly used for productive useful research in the fields of educational economic and social development away from counter productive use and strictly for research objectives.
- Noting that the future wealth creation will be exponentially knowledge based, our guidance should be in the direction of ICT based innovation and creativity.

**Our targets for the next five years should be:**

- Enhancing research in the Arab world to the international levels and
- Bringing our national research and education networks and their international connections up to European levels, working in collaboration with our Arab and European partners, thus enabling every Arab researcher to access the wealth of research available at our European partner's network and be on it to all the wealth of research globally.

In addition, it is our objective that a suitable medium for dialogue is created to facilitate investments needed for regional links and capacity for research and education through preparation and execution of national and regional e-Infrastructure projects. It is important that this dialogue and debate are based on objective grounds motivated by the long-term strategies and interests of our countries in the Arab region.

We deem it inspiring that e-AGE was attended by esteemed speakers, policy makers, experts, and scientists representing all the Arab countries, Europe, the US, Africa, Latin America, Canada, Asia, and international organizations and companies in a larger audience scale, representing over 40 countries. We see this as a manifestation of the sound basis and the respectable sustainability of the dialogue environment towards developing Arab research and education networks.

It is of the utmost importance that we build on the success of e-AGE and take necessary steps towards developing Arab e-Infrastructure and linking to the world research and education communities on a global scale.

It is also of great importance that we make use of the support of the League of Arab States, the European commission, and the international donors to initiate cooperation and develop sustainable projects towards connectivity and ensurance of a sense of self dependence.

This year e-AGE has witnessed the launch of the Africa Connect 2 project with 26 Million Euros of funding as well as the international link of Lebanon and Palestenian for research and education.

Furthermore, AROQA has developed quite well to ensure quality in education among its priorities as well as the development of accreditation in coordination with the national quality and accreditation agencies in the Arab countries. It is important that cooperation is enhanced with international quality assurance and accreditation organizations. In specific, AROQA 2015 concluded with the following recommendations:

- There is an urgent need to promote a culture of quality and accreditation to improve the quality of education in the Arab educational institutions.
- A plan of action is needed to spread the culture of quality and awareness of scientific research,

quality and work introductory document to raise awareness on the issue of quality in education.

- Organize training courses for administrators in the Arab educational institutions to raise awareness of the culture of quality and to continue dialogue and cooperation between education institutions and accreditation bodies and organizations in the quality of education in order to consolidate the concepts of quality at the Arab regional level
- There is a need for ongoing dialogue and continuous dissemination of best practices related to quality in education
- Preparation of the Charter of the Arab Organization for Quality Assurance in Education practices and quality assurance.
- Prepare a terminology booklet for accreditation and quality assurance in education.
- Development of criteria and indicators of quality assurance and accreditation of universities following the accrediation approach developed for schools. A letter would then be formulated to all members of AROQA and Arab universities.
- Setup a Higher Education accreditation board
- Launch an Annual Talal Abu-Ghazaleh Excellence Award.

On behalf of the Research Council, the League of Arab States, the shareholders of ASREN, members of AROQA, the partners of EUMEDCONNECT3, AFRICACONNECT2, and MAGIC, and the participating organizations, we thank all those who have contributed to e-AGE and AROQA. We hope that both have successfully served as effective medium in attaining a convincing environment towards achieving our goals in developing stronger research and education communities in the Arab region and beyond.

With all respect and appreciation,

**Dr. Talal Abu-Ghazaleh**
*Chairman of ASREN*

## 9. AROQA 7th Conference

The importance of AROQA annual conferences arise from our sense of responsibility towards the future of education in the Arab world. Such a future requires us to raise the level of awareness among Arab educational institutions on the importance of accreditation and quality assurance, and work together towards building and enhancing the Pan-Arab educational systems and structures. AROQA's 7th Annual Conference entitled "Impact of Quality and Accreditation in Education" served as a platform for the promotion of quality in education. It is brought together academics, policy leaders, representatives of quality assurance and accreditation agencies and quality experts. The objectives were to discuss the impact of accreditation and quality in education, benchmarking concepts, and variety of its patterns and levels, and the accreditation standards.

The Conference held three sessions in addition to the opening and closing sessions, the workshops, and annual general assembly meeting. The themes of the sessions were:

- Development and Improvement of Educational Institutions and the Impact of Accreditation on it
- Challenges of Digital learning and its role in building knowledge societies
- Quality and Accreditation needs and requirements, measurement tools, Indicators

During AROQA 2015, it has been recognized that the Arab region has attained a certain level of development towards developing quality education and it is important for the Arab Organization for Quality Assurance in Education (AROQA) to make use of its current potential in strengthening quality systems and developing accreditation in cooperation with international accreditation agencies.

AROQA has developed quite well to ensure quality in education among its priorities as well as the development of accreditation in coordination with the national quality and accreditation agencies in the Arab countries. It is important that cooperation is enhanced with international quality assurance and accreditation organizations. In specific, AROQA 2015 concluded with the following recommendations:

1. There is an urgent need to promote a culture of quality and accreditation to improve the quality of education in the Arab educational institutions.
2. A plan of action is needed to spread the culture of quality and awareness of scientific research, quality and work introductory document to raise awareness on the issue of quality in education.
3. Organize training courses for administrators in the Arab educational institutions to raise awareness of the culture of quality and to continue dialogue and cooperation between education institutions and accreditation bodies and organizations in the quality of education in order to consolidate the concepts of quality at the Arab regional level
4. There is a need for ongoing dialogue and continuous dissemination of best practices related to quality in education
5. Preparation of the Charter of the Arab Organization for Quality Assurance in Education practices and quality assurance.
6. Prepare a terminology booklet for accreditation and quality assurance in education.
7. Development of criteria and indicators of quality assurance and accreditation of universities following the accreditation approach developed for schools. A letter would then be formulated to all members of AROQA and Arab universities.
8. Setup a Higher Education accreditation board
9. Launch an Annual Talal Abu-Ghazaleh Excellence Award.

## 10. AROQA Workshops

### "Quality Management Systems"

The workshop dealt with a systematic step-by-step approach to preparing quality management system at Universities, with focus on processes, procedure, boundary conditions, obstacles and barriers. Specifically, it introduced QWiki as an example of an interactive handbook implementation. The system presented a process flow of quality management as they are related to documentation for quality systems related to Students, Program, Faculty, and Institution.

### "The Outstanding Leadership Role in the Institutional"

This workshop concentrated on the differences between management and leadership with a special focus on skills related to financial potentials and capabilities of the institution in terms of quality and excellence. This workshop's objectives :

- To recognize the concepts and characteristics of leadership
- How to develop organization's vision
- To be proficient in (master) leadership skills that are important to improve and develop the institution

## 11. e-AGE 2016

It was decided to have the 6th International Platform on Integrating Arab e-Infrastructure in a Global Environment e-AGE 2016 in Lebanon in December 2016.

## 12. ANNEX

### Organizers and Partners

The Platform is organized by Arab States Research and Education Network GmbH, in cooperation with:

- EUMEDCONNECT3 and AfricaConenct2 Projects
- GEANT
- ArabWAYS
- MAGIC Project
- US Internet2 Special Interest Group Middle East (Internet2)
- Talal Abu-Ghazaleh Organization (TAG-Org)
- German Jordanian University (GJU)
- Arab League Educational, Cultural and Scientific (ALECSO)

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At the forefront of CERN research is the largest scientific tool in the world, the Large Hadron Collider. A particle accelerator 27km in circumference, the LHC is buried 100 metres underground. Four huge detectors study the particle collisions generated by the LHC. Two of these - ATLAS and CMS - recently found the Higgs boson, one of the greatest discoveries in physics.

To conduct science at the frontiers of knowledge, CERN develops state-of-the-art technology, which has found applications in fields as diverse as vacuums and medicine. As well as knowledge transfer, CERN educates the scientists of tomorrow through its education and outreach programmes.

Founded in 1954 and based astride the Franco-Swiss border near Geneva, CERN has become a prime example of international collaboration. It has 21 Member States and 2 Associate Member States and involves today more than 10,000 scientists of almost 100 nationalities.

# CERN, Science for Peace

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