

# ADEA

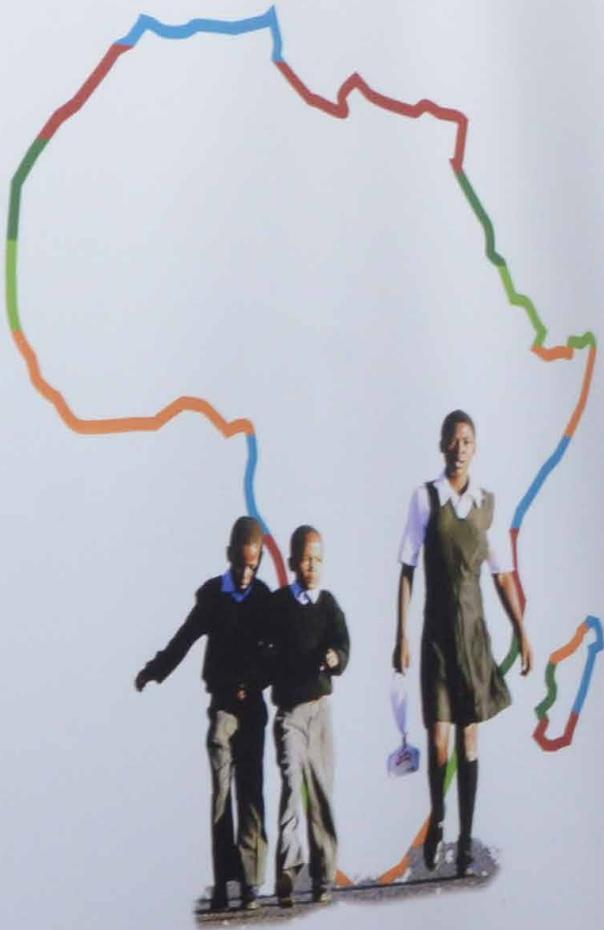
Dialogue on education for  
leadership and change

Africa  
**ICT in Education**  
Forum  
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## 2<sup>nd</sup> African Ministerial Forum on ICT Integration in Education and Training

7, 8 and 9 June 2016

Heden Golf Hotel, Abidjan, Côte d'Ivoire



Ministry of  
National  
Education,  
Côte d'Ivoire



Association for the  
Development of  
Education in  
Africa

gesci  
Founded by UN ICT Task Force



AFRICAN DEVELOPMENT BANK GROUP



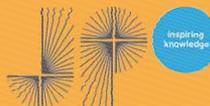
United Nations  
Educational, Scientific and  
Cultural Organization

ORGANISATION  
INTERNATIONALE DE  
la francophonie



Microsoft

Qelasy



African Virtual University  
Université Virtuelle Africaine  
Universidade Virtual Africana

This document is a report of the 2<sup>nd</sup> African Ministerial Forum on ICT Integration in Education and Training. The Forum was held in Abidjan from 7<sup>th</sup> to 9<sup>th</sup> June 2016. This report was prepared by Claude LISHOU, the Forum's general rapporteur. Concept Note and program prepared by Tarek Chehidi.



Association for the  
Development of  
Education in  
Africa



# AGENDA

	Day before the Forum Tuesday 7 June	Day 1 Wednesday 8 June	Day 2 Thursday 9 June
<b>Morning</b> (09h00 – 12h30)		<b>Session 1 – Panel of experts :</b> <ul style="list-style-type: none"> <li>ICT in national education and training policies and strategies – Lessons learned</li> </ul>	<b>Session 4 – Panel of Experts :</b> <ul style="list-style-type: none"> <li>Application of ICT in teaching/learning of science, technology, engineering and mathematics (STEM)</li> <li>Launching of African Leaders’ Network for Sustainable Development</li> </ul>
		<b>Session 2 – Round Table of Experts :</b> <ul style="list-style-type: none"> <li>Empowering Marginalized Populations through ICT-based Educational Initiatives</li> </ul>	<b>Session 5 – Ministerial Round Table :</b> <ul style="list-style-type: none"> <li>Incorporating ICT in Education, Shared Leadership and Policy Coherence</li> </ul>
<b>Lunch Break</b>			Meeting of the 2017 ADEA Triennale Partners
<b>Afternoon</b> (14h30 – 18h30)	Meeting of the team of rapporteurs	<ul style="list-style-type: none"> <li>Official Opening of the Forum</li> <li>Visit to the Innovation and Partnership Fairground</li> </ul>	<b>Session 6 – Ministerial Round Table :</b> <ul style="list-style-type: none"> <li>ICT and Education in Areas and Regions Facing Crisis and Conflicts</li> </ul>
	Meeting of facilitators	<ul style="list-style-type: none"> <li>Round Table of co-organisers</li> </ul>	
	Meeting of GESCI’s partners	<b>Session 3 – Ministerial Round Table:</b> <ul style="list-style-type: none"> <li>ICT and Development of Technical and Vocational Skills (DCTP) For Youth Employment and Entrepreneurship: Promising Models</li> </ul>	<b>Session 7 – Ministerial Round Table :</b> <ul style="list-style-type: none"> <li>Inclusive Knowledge Societies and the Role of Education and ICT</li> </ul>

**Under the auspices of the Government of Côte d’Ivoire**

**Organisers :** Ministry of Education of Côte d’Ivoire, ADEA, GESCI, AfDB, INTEL, UNESCO, OIF and Microsoft.

**Guest of Honour :** Republic of Senegal – Ministry of Higher Education and Research



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2<sup>nd</sup> African Ministerial Forum on  
**ICT Integration in Education and Training**  
 7<sup>th</sup> - 9<sup>th</sup> June 2016 | Heden Golf Hotel, Abidjan

Organized by:  Sponsors: 

**ICT in Education Forum**   [www.africaICTedu.org](http://www.africaICTedu.org)





## ACRONYMS

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<b>AAU</b>	Association of African Universities
<b>ADEA</b>	Association for the Development of Education in Africa
<b>AfDB</b>	African Development Bank
<b>AUC</b>	African Union Commission
<b>AUF</b>	French-speaking Universities Agency
<b>AVU</b>	African Virtual University
<b>CLOM</b>	Open and Massive Online Courses
<b>CLOT</b>	Universal Access Online Courses
<b>GeSCI</b>	Global e-Schools and Communities Initiative
<b>GSM</b>	Global System for Mobile Communications
<b>IIEP</b>	International Institute for Educational Planning
<b>ICT</b>	Information and Communication Technology
<b>ICTE</b>	Information and Communication Technology for Education
<b>IFIC</b>	French-speaking Institute for Knowledge and Distance Education Engineering
<b>IICBA</b>	International Institute of UNESCO for Capacity Building in Africa
<b>INTEL</b>	Integrated Electronics
<b>MDGs</b>	Millennium Development Goals
<b>MOOC</b>	Massive Open Online Course
<b>MS</b>	Microsoft
<b>NREN</b>	National Research and Education Networks
<b>OER</b>	Open Education Resources
<b>OIF</b>	International Organisation of the Francophonie
<b>RELPE</b>	Latin American Networks of Education Portals
<b>SDGs</b>	Sustainable Development Goals
<b>SMS</b>	Short Message Service
<b>STEM</b>	Science, Technology, Engineering and Mathematics
<b>TELUQ</b>	University of Quebec Distance Education
<b>TVET</b>	Technical and Vocational Education and Training
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organisation
<b>USAID</b>	United States Agency for International Development
<b>WACREN</b>	West and Central African Research and Education Network
<b>WW</b>	Education Worldwide Education



# 1. INTRODUCTION

The Government of Côte d'Ivoire, through the Ministry of Education, hosted the 2nd African Ministerial Forum on the theme of ICT Integration in Education and Training from June 7 to 9, 2016 in Abidjan. The Forum was jointly organized by the Association for the Development of Education in Africa (ADEA), the Global E-Schools and Communities Initiative (GESCI), the African Development Bank Group (AfDB), Intel, the United Nations Educational, Scientific and Cultural Organisation (UNESCO), the International Organization of the Francophonie (OIF) and Microsoft.

The Ministerial Forum established by ADEA, AfDB, UNESCO and their partners presented a regional political mechanism for dialogue. The purpose was to assist member states to capitalize on the possibilities of ICT to achieve national and continental goals for inclusive, quality and equitable education provision and lifelong learning for all.

The first ministerial Forum was inaugurated from December 9 to 11, 2013 in Tunis. The second Forum brought together policy makers, experts, academia, research institutes, development partners and ICT sector representatives from the private sector and civil society organizations by providing a platform for high-level regional dialogue and knowledge sharing on ways for effectively and efficiently integrating ICT in education and training systems in relation to :

- Providing universal access to quality education and relevant opportunities for lifelong learning to all Africans
- Equipping learners with skills to enable them to become full stakeholders in knowledge society development
- Promoting through education a digital literacy and creativity culture to enable Africa to strengthen its ICT industrial innovative capacities

The Forum also aimed at providing a framework for developing partnerships and projects which would attract the support of actors and stakeholders concerned with ICT integration as a means for transforming education provision. Two years have transpired since the first Forum. In that period, the Millennium Development Goals (MDGs) have been succeeded by several post 2015 agendas for development. The African Union Commission (AUC) has announced its vision for the continent (Agenda 2063) which was followed by the preparation of a strategy for Science, Technology and Innovation for Africa (STISA 2024), a continental strategy for Technical and Vocational Education and

Training (TVET) and a Continental Education Strategy for Africa (CESA 2016-2025). The latter has been adopted by the Assembly of Heads of State and Government at the African Union Summit held in January 2016, as the framework for the transformation of Africa's education and training systems. At an international level, the global community approved a new and ambitious development programme in September 2015, commonly referred to as the Sustainable Development Agenda 2030. All the above-mentioned development agendas highlight the key role of ICT as critical for the achievement of development goals in general, and in improving the quality, access and equity of education and training system provision in particular.

A recently published World Bank report entitled *World Development Report 2016 : Digital Divides* highlights development disparities underscored to a large extent by the function of technology: where digital divides are deepening between Africa and the rest of the world and within Africa itself (among generations, between rural areas and urban centres and between social groups). This is to say that notwithstanding a continental dynamic growth and enthusiasm for technology (with some 600 million mobile phone users – more in US or EU), a lot still remains to be done if Africa is to effectively use ICT to achieve education policy goals, and thereafter, social and economic development goals.

The World Bank digital divide analysis has particular application in education and training sectors saturated with ICT pilot and small project interventions. From among these, very few turn into large-scale national initiatives which can contribute to the attainment of educational goals and to the democratization of internet and technology access beyond educational circles. The variety of ICT education projects, designed and developed more often by development cooperation partners who fail to consult each another, coupled with the lack of large-scale national initiatives, contribute to the following limitations :

# 1. INTRODUCTION

- African governments and Ministries of Education and Training still require technical assistance to develop and implement ICT within the context of national education and training policies and strategies
- The main actors and stakeholders at national level continue to work in silos, which impede the emergence of the necessary infrastructures and ecosystems for effective and systemic ICT integration
- In the design of ICT integration programmes, too often the emphasis has been at national system deployment levels, with few initiatives engaging school and teacher level design and direction of ideas for integration
- There is a lack of coordination and alignment between ICT in education strategies and national development policies
- There is a deficit in models defining clear parameters for ICT integration in education and the way such models can be assessed and measured in order to inform effective planning and implementation
- There is a deficiency in ownership of ICT in education projects at central government and local levels

It is within this context and as a follow-up to the first Forum held in Tunis in 2013, that the government of Côte d'Ivoire, through its Ministry of National Education, hosted the 2<sup>nd</sup> African Ministerial Forum on ICT Integration in Education and Training on 8 and 9 June 2016 in Abidjan, where the Forum was co-organised by ADEA, Gesci, AfDB, Intel, UNESCO, OIF and Microsoft.



## 2. PARTICIPATION IN THE FORUM

The Forum brought together 155 participants from 37 countries made up of stakeholders representing education and ICT sectors (see participant list in the Annex). Apart from the co-organisers, the participants included :

- Ministers of Education, ICT, Higher Education and Scientific Research
- Policy makers and senior technical executives in the Ministries of Education, TVET, Higher Education and Scientific Research and ICT
- Education and training-related practitioners, skills and technology development experts (technical institutes, universities, research institutes)
- Participants from the public and private sectors in areas such as education, training and technology
- Regional and international experts involved in the development and implementation of education and training policies and in the integration of ICT in education and training systems (Development Cooperation Agencies, Regional Economic Communities)
- The African Diaspora which has distinguished itself in the area of integrating ICT into education and training
- International, regional and national media
- Civil society organizations (CSOs) and interest groups
- Youth organizations



## 3. FORUM PROCESS

### 3.1. INAUGURAL SESSION

- **Welcoming statements**

Mrs. Oley Dibba-Wadda, Executive Secretary, ADEA and Mr. Jerome Morrissey, Director General, GESCI

- **Official opening of the Forum by the Government of Côte d'Ivoire :**

His Excellency Mr. Robert Beugré Mambé, Governor of Abidjan, Côte d'Ivoire

His Excellency Mr. Bruno Nabagné Koné, Minister of Digital Economy and Posts, Government Spokesperson, Côte d'Ivoire

His Excellency Mrs. Kandia Kamissoko Camara, Minister of Education, Côte d'Ivoire

His Excellency Mr. Daniel Kablan Duncan, Prime Minister, Minister of Finance, Budget and Economy, Côte d'Ivoire

In their respective statements, Mrs. Oley Dibba-Wadda, Executive Secretary of ADEA, His Excellency Mr. Bruno Koné, Minister of Digital Economy and Posts, Her Excellency Mrs. Kandia Camara, Minister of Education of Côte d'Ivoire and Mr. John Galvin, Director in charge of Education at Intel Education, each affirmed their commitment and support for the integration of ICT in education and training in Africa.

In parallel with the opening ceremony, Her Excellency the Minister of Education, Mrs. Kandia Camara, on behalf of her Ministry, signed memoranda of understanding with Intel, Microsoft and GESCI.

In his speech, the Ivorian Prime Minister, His Excellency Mr. Daniel Kablan Duncan, commended the Association for the Development of Education in Africa (ADEA) for the technical support provided for the organization of the Forum dialogue and consultations on the issue of incorporating ICT into education in Africa.

On behalf of the President of the Republic, His Excellency Mr. Alassane Ouattara, the Ivorian Prime Minister welcomed the African Ministers, the experts and the various delegations that had come to participate in the Forum.

The Ivorian Prime Minister cited the WB (2016) report in his observation of the yawning digital divide between the African continent and the rest of the world. The Prime Minister commented that “there is the need to endow upcoming generations with the means to create value from ICT..., the means to make them part and parcel of the comity of nations”.

Finally, the Ivorian Prime Minister, His Excellency Mr. Daniel Kablan Duncan officially opened the second edition of African Ministerial Forum on the theme: **“Promoting Inclusive Knowledge Societies for the Implementation of Agenda 2063 for Africa and the SDGs”**.





## Keynote Address

Mr. John Galvin, Vice-President in charge of Education, Intel

The power of ICT to transform education in Africa and achieve the SDGs, Mr Thierry N'Doufou, CEO, Qelasy

Transformation Today to Achieve the Goals of Tomorrow, Mr. Warren La Fleur, Officer in charge of Education, Central, West and East Africa, Microsoft



This was followed by a closed session of a round table of co-organisers

Facilitator: Mrs. Oley Dibba-Wadda, Executive Secretary of ADEA

- Mr. Jerome Morrissey, Director General, GESCI
- Mr. John Galvin, Vice-Chair of Education, Intel
- Dr. David Atchoarena, Director of Policy and Lifelong Learning Systems, UNESCO Headquarters
- Dr. Sunita Pitamber, Director of the Department of OSHD, AfDB
- Mr. Simon Ouattara, Director General, Microsoft West and Central Africa



## 3.2. THEMATIC SESSIONS

In alignment with the guidelines and goals set by the organisers, the Forum was conducted in seven thematic sessions where each was organized in presentation and discussion formats. The focus was to generate ideas and concrete approaches for opening pathways towards transformative shift in education and training systems in Africa with appropriate and effective integration of ICT.

The session themes were designed to explore a systems perspective of ICT integration in education and training related to :

- policy and strategy for ICT deployment that is inclusive and empowering
- technology use to support critical skills development in STEM and TVET
- leadership roles and policy coherence
- technology integration that is responsive to the multi-faceted demands of national and regional transformation development agendas towards inclusive knowledge societies

### Session 1

<b>Type of session</b>	Panel of experts
<b>Theme</b>	<b>ICT in National Education and Training Policies – Lessons learned</b>
<b>Relevance</b>	The session highlighted African government recognition of the importance of ICT use to improve educational access and quality. However regional reports and forums indicated low ICT application in relation to teaching and learning (the African Development Bank Group and the World Bank Group, eTransformAfrica: ICT for Education in Africa). For the most part, the use of ICT in education and training is focused on administering and managing systems

Seven presentations were made followed by discussion:

<b>Côte d'Ivoire's ICT strategy in the area of education</b>	Mr. Aboubacar Coulibaly, Director of Information and Communication Technology at the Ministry of Education, Côte d'Ivoire
<b>Initiative 1-1 of Kenya</b>	Mr. John Temba, Head of ICT Department for Education, Ministry of Education, Kenya
<b>Niger's ICT Project - Highlighting Policy and Strategy: Cost Sharing</b>	Dr. Erwan Le Quentrec, Department of Sociology and Economics on Usages of Orange Labs (SENSE)
<b>PPP for the Implementation of ICT Policies and Strategies in Education</b>	Mr. Moïse Kouakou, Marketing, Sales and Business Development Officer, Qelasy
<b>Digital Technology and Education in a Transformed Country: The Case of Portugal</b>	Mr. João Pedro Lopes, Director of Institutional Affairs, JP Sa Couto



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**National Research and Education Networks (NRENS) and their key role in ICT at the national level concerning education policies in Africa**

Mrs. Nodumo Dhlamini, Director of ICT Services and Knowledge Management, Association of African Universities (AAU)

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**Training my Generation- Gabon 5000**

Mr. Laurent Ndaywel Mbosele, Project Manager, UNESCO

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Dr. Mpine Makoe, Director of the Institute for Open and Distance Learning of the University of South Africa (UNISA), moderated the session and highlighted the critical role of policies in providing a clear vision, guideline and roadmap for economic development and sustainable goals. Dr. Mpine described two types of policies: strategic policies (vision as to where we are going and what we hope to achieve by 2030) and operational policies (how to get there). After the presentation and plenary sessions, the moderator summarized the challenges, the success factors and key recommendations which emerged from the session on ICT policy and strategy in education.

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**Challenges**

- Most countries have ICT policies and some have strategies that enable them to use ICT in an integrated manner
  - However, there is lack of awareness raising and policy ownership between the various levels of education systems in relation to: national institutional vision and implementation (macro level), dissemination to partners and institutional providers of teacher education, training programmes and content development (meso level), school vision and implementation (micro level)
  - Infrastructural challenges in national network energy and connectivity coverage inhibiting equitable access to technological solutions
  - Technology integration creating new cognitive, digital, and information divides as a result of access constraints
  - Lack of ICT skills in education and governance systems from national to classroom levels in relation to: essential leadership skills for technology use to strengthen management and information systems in respect of ICT data management; teachers' skills for the pedagogical integration of ICT; student ICT skills to access and use information, to solve problems and to innovate products and processes that will help them to adapt, participate in and contribute to knowledge-based economies
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### Success factors

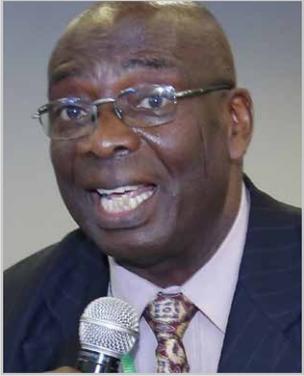
- ICT Master Plan and Strategy: Developed on the basis of multi-level consultation of stakeholders and partners; coherence across ministerial policies - finance, energy, education (formal and informal, vocational training, youth), research, science, technology and innovation and ICT; clear guidelines, indicators and timelines for impact monitoring and evaluation
- Technology: Integrated end-to-end system models covering technical assistance, e-content development, connectivity solutions, mobile options, contextualized responsive systems adequate to the needs of schools and communities
- Curriculum: Emphasis on e-content, reformed curricula and pedagogical strategies; integration of ICT as a specialist subject area; development of ICT skills for strengthening innovative practice, the quality of teaching and learning and preparing young people with higher order skills to contribute to new knowledge economies
- New employment opportunities in the computer industry: digital books, digital editors, smartphone revolution - with derived employment opportunities related to maintenance (devices and peripherals, school systems)
- Professional Development : Teacher development models for ICT integration from pre-service to in-service
- Cost sharing : Based on new models of public-private partnership. The Portugal Magellan Initiative illustrates a sustainable distributed costs model involving a triad of Government, beneficiaries and telecommunications operator contributions. The model shows sustainable upscaling potential which does not depend exclusively on Government intervention with :
  - Distribution of the model ownership to communities/families
  - Support of beneficiary capacities to contribute with possibilities for credit through micro-finance systems
- Integration of regional policies: Infrastructure development (re-organization of current structures), connectivity (negotiation of reasonable costs for national education and research networks with national and regional service providers – that places emphasis on provision of services and re-investment)



## Recommendations on ICT policies in education

- Provide a clear vision, guidelines and roadmap for economic and sustainable development goals
- Develop strategies defining both visions for ICT integration and operational components for implementation in education planning and action from national to school level
- Integrate robust elements for monitoring and evaluation to measure impact of ICT interventions in the education sector and their potential to speed up inclusive access at all system levels (from pre-school, to primary, secondary, higher education, TVET and in the formal and informal context)
- Harmonize capacities through learning from pilot and national/ regional deployments
- Focus on what is doable and what are the available resources trialled and validated in pilot models
- Ensure that specific contextualized needs are addressed and models are disseminated for access across the entire educational system
- Negotiate models for sustainable interventions - which draw on shared contributions by beneficiary communities and public-private partnerships
- Put an emphasis on policy for building teacher ICT competences as well as student ICT skills







## Session 2

Type of session	Panel of Experts
Theme	<b>Empowering marginalized populations through ICT-based educational initiatives</b>
Relevance	<p>The SDG No. 4 urges governments and the international community to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”. The CESA 2016-2025, an African framework for transforming education and training related to the global goal for quality education provision is underpinned by six principles among which is the realization that “global, inclusive quality education providing good conditions for continuous education is a prerequisite for sustainable development”. These commitments towards inclusive education are not simply the result of an education approach based on human rights, but also motivated by the fact that the countries would not be able to attain sustainable development and prosperity while marginalizing groups that can contribute to their socio-economic development. Countries must harness the totality of their potential to achieve inclusive growth and sustainable development on the basis of innovative teaching models and the appropriate use of technology. The attainment of this very ambitious endeavour can be realized by “reaching out to the marginalized”</p>

### *Eight presentations were made, followed by discussions :*

<b>Initiative of CUA Africa + Education</b>	Mr. François Baudry, General Manager, People TV
<b>A favorable environment for the use of accessible technology to ensure inclusive education and information access in Uganda:</b>	Mr. Jacob du Toit, Communication & Information Adviser, UNESCO Regional Office for East Africa
<b>Integration of ICT at the National Institute of Education and Training of Young Blind People in Senegal</b>	Mrs. N’Gossé Fall, Inspector of Secondary Education, Ministry of Education
<b>Support Project for Education by using Solar-powered Internet at Schoo</b>	Mr. Min Kim, Principal Researcher at the KERIS Centre for Policy Research and International Cooperation, KERIS, Republic of Korea
<b>ICT for Literacy of Marginalized Groups</b>	Mr. Gabriel Cohn Bendit, Vice-President, REPTA
<b>Use of ICT for Literacy and Digital Technology in areas affected by conflicts</b>	Mrs. Sana Ghenima, General Manager, SANABIL MED
<b>Empowering Marginalized Groups Through ICT: The Case of Senegal</b>	Dr. Toumani Doumbouya, Coordinator, RCE, Senegal
<b>The Global Book Fund and Technology Integration</b>	Anthony Bloome, Sr. Education Technology Specialist, USAID

After the presentations and plenary discussions, the facilitator, Professor Hamadou Saliah-Hassane of TÉLUQ provided a summary of the challenges, success factors and key recommendations which emerged from the session on empowering marginalized populations through ICT-based educational initiatives.

## Challenges

- How to use ICT for marginalized populations/people with disabilities
- Integrating an inclusive approach to information access for people with disabilities
- How to develop adapted digital spaces training
- Improving ICT Education Policies for Inclusive provision
- Developing ICT Infrastructure, in particular Internet Access
- Developing Learning Tools in Local Languages
- Moving from the Pilot Project Phase to Upscaling and Re-using Existing Devices
- Thinking About Mobile Classroom Concepts
- Challenges faced in Maintaining ICT Equipment
- Collaboration with Research Centres to find adaptive solutions for the needs of marginalized populations/people with disabilities

## Success factors

- Harnessing opportunities to use solar energy in rural areas
- Geographical accessibility of ICT Infrastructure
- Adaptation of ICT tools and content in the local languages
- Governance of projects by establishing steering and monitoring committees
- Availability of an efficient and inclusive ecosystem: starting from policy, organizing the system, infrastructure and human resources
- Involvement of marginalized populations in defining user needs as a means of creating a conducive environment for inclusive use of technology

## Recommendations

- Viewing the issues of equity in the area of ICT: accessibility and availability of suitable learning equipment and content, especially for marginalized populations
- Scaling-up pilot projects with the aim of institutionalizing them
- Re-thinking the maintenance and re-use of ICT equipment
- Creating an efficient and inclusive ecosystem
- Promoting partnership with the private sector for the establishment of suitable project procedures





### Session 3

Type of session

Ministerial Round Table

Theme

**ICT and Development of Technical and Vocational Skills Development (TVSD) for Youth Employment and Entrepreneurship: Promising Models**

Relevance

According to the background note of the African Development Bank Group on demographic developments in Africa, the African population aged between 15 and 39 years will reach 637 million by 2030. The harnessing of this rapid increase in the youth population to promote growth on the continent or as a source of instability will depend, among others, on the relevant learning opportunities provided by African education systems to the youth. Africa cannot afford not to derive benefits from its demographic strength since government experts and development partners must propose innovative models to equip the African youth with skills for employment and entrepreneurship. The CESA 2016-2025 calls for the development and implementation of innovative strategies to broaden TVET opportunities both at secondary and tertiary levels and strengthen the linkages between the labour market and the education and training systems.

- His Excellency Mr. Daouada Mamadou Marthe, Minister of Primary Education, Literacy, Promotion of National Languages and Civic Education, Niger
- His Excellency Prof. Mary Teuw Niane, Minister of Higher Education and Research, Senegal
- His Excellency Mr. Abdoulaye Yero Baldé, Minister of Higher Education and Scientific Research, Guinea
- His Excellency Prof. Narciso Damásio dos Santos Benedito, Secretary of State for Education, Angola
- Mr. Jerome Morrissey, Director General, GESCI
- Mr. David Maccaron, Director of Education EMEA, Intel

The facilitator, Mrs. Satu Jarvinen, Director of Educational Services engaged the panel with some relevant comments and questions. She described the problems concerning the upsurge of youth unemployment and development of the needed related skills. She explained how in Finland, 50% of the youth go into TVET. Mrs. Satu put three questions on the table for discussion, namely: At what stage do we find ourselves in terms of challenges? Are we too confident with the power of ICT? What are we doing to find new innovative solutions in the area of integrating ICT?



**Challenges**

- Youth unemployment is a global challenge
- The rate of youth unemployment is very high in Africa
- People are engaged in the ICT sector and informal learning

**Learning**

- The existing structures have not been able to provide progressive solutions to meet the needs of developing skills to tackle the issue
- Good models have already been developed and the countries want to share best practices
- However, new innovative approaches that completely use digital technology (e.g. automation) should be developed

**Recommendations**

- Additional political will to undertake reforms that promote ICT
- ICT Integration models in educational systems should allow for more efficiency and equity and guarantee access without setting aside the quality factor. The models and experiences of Kenya and Portugal serve as examples
- The most important factor now is to examine integrating ICT and financing opportunities with the support of key institutions such as the African Development Bank Group
- Supporting teacher educators to integrate ICT into training
- Establishing mechanisms for the registration of more girls into the ICT industry and providing positive models to attract and retain girls in the sector and engage them in practical experiences
- Necessity to develop or adapt the frameworks for skills development and capacity building of 21st century learners outside the schools
- Recruit and train more ICT teachers?



## Session 4

<b>Type of session</b>	Panel of Experts
<b>Theme</b>	<b>Application of ICT in teaching/learning of science, technology, engineering and mathematics (STEM)</b>
<b>Relevance</b>	Promotion of teaching/learning of STEM is a key factor for the future of Africa's social development and economic growth. The continent needs STEM skills to think and drive its growth, by incorporating the gender dimension. "If Africans hope to solve the problems and move ahead in their social and economic development in their own countries – instead of leaving them in the hands of international humanitarian organizations – all African learners would need to acquire high level STEM skills" (World Economic Forum -WEF, 2015). African Union's STISA-2024 places science, technology and innovation at the centre of development and socio-economic growth in Africa.

Seven presentations were made followed by discussions:

<b>African digital schools' Initiative: STEM, ICT and the Teaching Profession</b>	Mrs. Mary Hooker, Principal Education Specialist , GESCI
<b>ICT and Open and Distance Learning (AOD) for capacity building of teachers in STEM in Africa</b>	Dr. Temechegn Engida, Programme Officer, UNESCO-IICBA
<b>ICT Applications and STEM Secondary Education in Mauritius</b>	Mr. Ricaud Auckbur, Director of Tertiary Education & E-Education, Ministry of Education and Human Resources, Tertiary Education and Scientific Research, Mauritius
<b>ICT and Girls in STEM Education</b>	Mrs. Martha Muhwezi, Principal Programme Coordination Officer, FAWE
<b>ICT and STEM in Secondary Education in Morocco</b>	Mr. Aziz El Hajir, Ministry of Education, Morocco
<b>Enhanced Access to Resources under STEM: The Experience of the African Virtual University</b>	Dr. Bakary Diallo, President, African Virtual University
<b>Technological Education in Côte d'Ivoire: Situational Analysis</b>	Dr. Koné Tiemoman, Director of Information and Technology Science, Ministry of Higher Education and Research, Côte d'Ivoire

After the presentations and plenary discussions, the facilitator, Dr. Alexa Joyce, International Director of Public Sector Educational Enterprises Development at Microsoft provided a summary of challenges, success factors and key recommendations which emerged from the session on ICT applications in teaching/learning of STEM.

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**Challenges**

- ICT to achieve the goals of STEM learning
- STEM equity in terms of skills and performance
- How to build capacity
- How Africa could follow the technological evolution
- Taking the gender dimension into consideration: ensuring that girls get involved in STEM
- Access to the content for distance training
- How to solve the problem of mass enrolment

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**Success factors**

- Change in paradigm
- Teacher Training
- Development of Distance Education
- Project Management, Planning and Evaluation
- Partnership
- Awareness raising and encouragement among girls
- Conducive environment
- Need for institutionalization through specific budgetary allocation
- Establishment of appropriate infrastructure

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**Recommendations**

- Support for teachers
  - Integrating ICT from the beginning of the career path
  - Inclusion of Gender Dimension in the Thematic Area
  - Need to have a paradigm shift in the promotion of STEM
  - STEM Development Policy
  - Organisation of Competitions to get Girls Involved in STEM
  - Awareness raising among partners on the Gender Issue
  - Integration of ICT in the curricula
  - Importance of Cooperation with the Ministries to harmonize training policies
  - Improving the digital environment and developing distance practical work
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## Session 5

**Type of session** Ministerial Round Table

**Theme** **Integration of ICT, shared leadership and policy coherence**

**Relevance** The existence of such a large number of pilot programmes and a very limited number of ICT-based large-scale initiatives in the education and training systems in Africa can be explained by: a) the lack of linkage between ICT in educational policy with other policy sectors (i.e. STI and ICT); b) the lack of alignment in national social and economic development policies, thus making it difficult to mobilize the entire government and the stakeholders as well as the necessary resources; and c) the lack of the necessary shared leadership for step by step linkage with the visions and ambitions to the top and bottom, and also analysis of the real issues and finding of actual solutions which will translate the ambitions into achievable policies/strategies and effective programmes.

- His Excellency Mr. Bruno Nabagné Koné, Minister of Digital Economy and Posts, Côte d'Ivoire
- His Excellency Mr. Paul Koffi Koffi, Minister of Technical Education and Vocational Training, Côte d'Ivoire
- His Excellency Mr. Jean Martin Coulibaly, Minister of Education and Literacy, Burkina Faso
- Dr. Michael Chilala, Director General, Examinations Council, Zambia
- Dr. Fencheng Miao, Officer in charge of ICT Education, UNESCO
- Dr. Alexa Joyce, International Director of Public Sector Education Development Enterprises, Microsoft
- Mr. Thierry N'doufou, Director General, Quelasy

**After the presentations and plenary discussions, the facilitator Dr. Patti Swarts, Director of Programmes, GESCI gave a summary of the challenges, success factors and key recommendations which emerged from the session on integration of ICT in education, shared leadership and policy coherence.**

**Challenges**

- Providing adequate financial resources
- Solving the issue of access to technology
- Establishing coherence in ICT integration
- Ensuring shared leadership together with policy coherence

**Success factors**

- Establish a national framework to drive actions
- Have in place a sectoral and comprehensive approach
- Ensure capacity building at all levels
- Ensure regular monitoring/evaluation



**Recommendations**

- Ensure the involvement of all stakeholders and adopt a cross-cutting sectoral approach
- Strengthen management capacity of administrative setups and teachers
- Ensure coordination of efforts by all possible actions
- Put in place all incentive mechanisms to improve educational contents
- Promote the establishment of sustainable and long-term projects and scaling up
- Put in place a strong policy framework which guides actions to be taken

**Session 6****Type of session** Ministerial Round Table**Theme** **ICT and education in areas and regions affected by crises and conflicts****Relevance**

Education is recognized as a universal right for all, an essential element of economic and social development of nations. Conflicts and crises hamper progress towards achieving the SDGs education. In areas and regions affected by crises and conflicts, the effects on the education system undermine the achievement of these goals. How to mitigate the impact of crises and identify the ways and means of ensuring access to education for children and young people in crisis situations, as part of the 2030 Education Agenda. While highlighting the main challenges and lessons learnt, discussions and proposals should guarantee access to safe and quality education for every child living in a crisis situation. How to harness the potential of ICT in regions or areas affected by crises and conflicts to achieve the goals of an inclusive, quality and equitable education.

- Her Excellency Mrs. Nialé Kaba, Minister for Planning and Development, Côte d'Ivoire
- Her Excellency Prof. Ramata Ly-Bakayoko, Minister of Higher Education and Scientific Research, Côte d'Ivoire
- His Excellency Mr. Mallam Adamu ADAMU, Minister of Education, Nigeria
- His Excellency Dr. Saku Dukuly, Deputy Minister of Science, Technology, Vocational and Specialized Education, Liberia
- Her Excellency Mrs. Ester Anna – Liisa Shiwoom wenyo Nghipondoka, Deputy Minister of Education, Arts and Culture, Namibia
- Dr. Mario Franco, President, Fondation Millennium@EDU
- Dr. Mona Laroussi, Managing Director, IFIC - AUF

**After plenary presentations and discussions, Mr. Mohamed Touré, Resident Representative, UNHCR Abidjan summarized the key challenges, success factors and recommendations that emerged from this session on ICT and education in areas and regions beset with crises and conflicts.**

### Challenges

- Management and access to education during crisis
- How to get the best out of ICT to provide education during crisis
- Role of Governments in maintaining education during conflicts
- How to deal with the rehabilitation and reconstruction of Infrastructure during crisis
- Addressing electricity and connectivity challenges in conflict areas
- Provision of training programmes for refugees
- How to ensure the continuity of teaching in the event of strikes
- Quality of training in conflict-stricken areas

### Success factors

- Provision of ICT infrastructure
- Distance education
- Promoting peace through ICT
- Restoring education through ICT
- Continuing education
- Availability and access to energy

### Recommendations

- Consider education as a universal right even in the event of a conflict
- Strengthen partnership with humanitarian agencies
- Improve connectivity and availability of energy sources
- Adopt specific measures for refugees
- Reallocate resources to ensure more fairness
- Prioritize countries facing conflicts
- Establish specific infrastructure for access in areas affected by conflicts





## Session 7

**Type of session** Ministerial Round Table

**Theme** **Inclusive knowledge-based societies and the role of education and ICT**

**Relevance** The building of inclusive knowledge-based societies in Africa paves the way for growth and the achievement of sustainable development goals. It is common knowledge that the process of building a knowledge society is based on two (2) pillars (i.e. education and STI) and a catalyst factor (ICT). It is therefore essential that leaders, policy-makers and public administrators have a critical understanding of the concept of knowledge society. The concept should basically depend on the relevance and efficiency of the impact of education policies and how ICT is used to eventually achieve sustainable development and promote development and expression of cultural and linguistic diversity for all.

- Her Excellency Mrs. Kandia Kamissoko Camara, Minister of Education, Côte d'Ivoire
- His Excellency Mr. Sidi Tiémoko Touré, Minister for Youth Development, Youth Employment and Civic Service, Côte d'Ivoire
- Her Excellency Prof. Mary Teuw Niane, Minister for Higher Education and Scientific Research, Senegal
- Mr. Lacina Koné, Presidential Adviser on ICT Affairs
- Mrs. Ann Thérèse Ndong-Jatta, Director of UNESCO's Regional Office for Education in Africa
- Mr. Warren La Fleur, Education Lead for West, East & Central Africa, Microsoft
- Mr. Mamadou Ndoye, former Minister of Education, Senegal
- Dr. Mario Franco, President, Millennium@EDU Foundation

**Challenges**

- Advent of inclusive quality education
- Administrative management driven by ICT
- Training of primary school teachers
- Development of ICT contents
- Development of knowledge-based society and economy
- Addressing obsolescence and renewal of ICT equipment
- Success of basic education
- Adapting training to employment
- Support for teachers in rural areas

**Success Factors**

- Creation of digital classrooms
- Distance education for basic school teachers
- Training in ICT
- Access to ICT for all, especially for pupils and teachers
- The existence of platforms linking companies and job seekers

## Recommendations

- Make education free and compulsory
- Promote an inclusive access to information
- Introduce ICT in training and make it a teaching subject
- Use ICT to govern the system and manage staff
- Develop community roots via an Open Digital Space
- Put in place the reforms required for new generations
- Implement the three pillars (Education/STI/Leadership) of the knowledge-based societies
- Invest in research to identify training needs
- Engage all stakeholders in achieving knowledge-based societies





## 4. ICT AND EDUCATION: STRATEGIC ANALYSIS OF PRACTICES RELEVANT TO THE TRANSFORMATION AND SUSTAINABLE DEVELOPMENT IN AFRICA

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From the three-day fruitful presentations and discussions, the following analysis attempts to identify key insights on contextual data and development issues, policy guidelines for action, lessons learnt from experiences, perspectives, messages and recommendations.

**The integration of ICT in education can transform Africa** within the framework accepted by all for Sustainable Development Goal 4, to be extended to related SDGs 5, 7, 8 and 9. But, one must first seek to understand the reasons for mixed achievement of MDGs in order to adjust the implementation and achievement strategy of SDG 4.

The resultant goal could therefore be referred to in the following terms :

Reducing or eliminating poverty, providing everyone the opportunity to be in good health and a guaranteed well-being, providing everyone the opportunity to access quality education and lifelong learning without any discrimination whatsoever while respecting environmental standards and allowing everyone to have a decent job to support growth on the continent.

The presentations and discussions throughout the Forum revealed an urgent need to improve and transform education systems and training in Africa through relevant and effective integration of ICT. The essential requirement was to build a real understanding of the impact of the technological tool in transforming education with a view to going beyond previous programmes, inadequate reforms and a sense of tinkering with educational change.

In his speech, Mr. John Galvin, vice-president of INTEL, spoke about the potential of technology integration in education for human capacity building to adapt and prepare for the future. In future, 8 jobs out of 10 will require technical skills and training for employment opportunities that are yet to see the light of the day. The most important requirements for students, quite apart from getting access to technology, are design skills to be able to take ideas and put them into practice.

Mr. Thierry N'Doufou, CEO Qelasy describes a continent in full transformation with and through the use of technology, which impacts more than 200.000 million dynamic young people between 15 and 24 years. Growth trends in telephony and connectivity are the highest in the world, exporting mobile innovation models in the world, giving hope to this continent which is digitally open and ready for development challenges through the intermediary of education.

Mr. Warren La Fleur of Microsoft highlights the difficulties in the private sector to find adequate human resources in science, technology, engineering and mathematics. As a matter of fact, these difficulties reflect the poor performance and poor educational system results of the continent from basic to higher education.

These are the drivers for the argument of successful industry practices transfer in the digitization of the education sector. Educational transformation goes beyond technology. To achieve an ambitious common vision, the whole system must be changed throughout the territories with regional visions and strategies and prioritization of actions.

### **Achieving sustainable development is really possible only through inter-sectoral efforts**

In view of the key role it plays, education should take into account the interdependence of Ministries responsible for ICT, Higher Education and Scientific Research, Energy and Employment, Technical and Vocational Education, digital economy, national entrepreneurship, craft industry and SMEs and youth development, civic service and youth employment, and help to bring about the change of mentality needed to trigger actions for sustainable development.

Sustainable development will not only be the fruit of technological solutions, policy regulations or financial instruments. Recognizing their important role, SDGs are not solely confined to education and pursuing an independent goal, but they also include targets related to education in other SDGs, such as health, growth and employment, consumption and sustainable production and climate change. To get there, we should examine the cross-cutting linkages between education and other issues related to sustainable development, while emphasizing the transformative power of education and showing the importance of inter-sectoral approaches.

### **Public and Private Partnership (PPP): Investment in Education**

Companies should develop partnerships with civil society organizations, governments and among them to create new solutions to improve learning and data collection for education; help align school curricula with the requirements in the job market; develop technologies for teaching, including technologies for the most marginalized groups; and participate in multi-stakeholder platforms.

### **Africa, a continent in full economic and demographic growth increasingly connected and digitally opened up**

Africa is made up of 54 countries and inhabited by more than 1 billion people and it is characterized by uninterrupted economic growth of more than 5% over the next 10 years, and by more than 200 living languages, by over 200 million people aged between 15 and 24 years.

Many initiatives (e.g. WACREN, Ubuntu ...) are underway to bridge the gap and interconnect the major cities including the hinterlands.

### **Autonomous and robust mobile digital classrooms**

Access to education should be possible everywhere, via mobile classes, self-sufficient in energy, less dependent on telecommunication networks, offering an All-in-One education (digital resources for the teacher, lesson delivery platforms, homework management platform and other tests, digital mobile laboratories for science education, language laboratories, mobile digital libraries). The digital educational content, designed for African schools, must be embedded in tablets which are resistant to adverse weather conditions (rain, dust, heat).

### **Different ways of using technologies but still not fully used in education**

Today, technology is all over Africa and it is used in many areas to improve living conditions. However, technology is mainly used in Africa for communicate, information and entertainment, but it is not yet sufficiently developed for self-training.

## 5. CLOSING SESSION

The Managing Director of GESCI, Mr. Jérôme MORRISSEY underscored “the crucial importance of education and skills development for social cohesion, employment and more generally for the development of knowledge-based societies”. He also added that “countries should give priority to improving their education models, through integration of digital technologies”. He recalled that such an orientation must compete with Sustainable Development Goal (SDG) No. 4 which is to “ensure an inclusive and equitable education and promote lifelong learning opportunities.”



The Executive Secretary of ADEA, Mrs. Oley DIBBAWADDA stated that “the integration of ICT in education is a technical and political issue that will ensure continuing education for both teachers and learners.”



After the Forum, the Minister of Education of Côte d'Ivoire, His Excellency Mrs. Kandia Kamissoko CAMARA, delivered the official closing remarks. She said in particular that: “the Forum showed that Africa has committed itself wholeheartedly to digital technologies. Our countries are aspiring to become emerging countries; they will succeed with a key element, which is quality education that includes ICT.”



## 6. RECOMMENDATIONS

All the recommendations that emerged from the Forum aim at improving ICT integration in education and developing 21<sup>st</sup> century skills required for Africa's development. Participants are convinced of the power of ICT to transform education in Africa and achieve the SDGs. They call on governments and stakeholders in education and training to consider the following recommendations :

### POLCY RECOMMENDATIONS

#### **To engage in shared national and regional policies and actions of transformation programmes on the continent**

Move from policy formulation to action by developing regional and national programmes and strategies as well as accountability mechanisms consistent with Africa's 2063 Agenda and the 2030 Global Agenda.

#### **Strengthen public and private partnerships to accelerate the operationalization of political decisions**

Create an enabling environment for partnerships essential to the relevance and sustainability of ICT integration in the development and accelerated implementation of education and training policies and strategies creating synergies among all stakeholders who play a role in building a digital education-based knowledge society.

### PRACTICAL RECOMMENDATIONS

#### **Consider ICT as a lever for change in formal, informal and non-formal education**

- Integrate digital technology in all vocational and technical skills development programmes
- Accelerate the use of ICT to offer each student an equal opportunity to access quality education
- Design and deliver training courses tailored to the needs of children and young people beset with crises and conflicts and other marginalized groups
- Create multi-functional digital access spaces and make them available to all the driving forces in the country (pupils, students, youth, women and economic actors) to support education, health and a favourable business environment

#### **Develop learner design and problem solving capabilities to fit into the 21<sup>st</sup> century job market**

- Promote the employment and self-employment of the youth through holistic training combining mastery of the latest technologies, support by professionals and an incubation period for the creation of start-up businesses with logistical and financial support
- Put in place sustainable financing strategies through partnership development with foundations, technical and financial partners, telecommunications operators and regulators and various digital solidarity funds

#### **Adapt regional and national qualification frameworks to diversified accreditations and certifications**

- Establish mechanisms for credential recognition and technical and vocational skills certifications outside formal settings so as to promote access to employment as well as youth employability and mobility
- Encourage the creation of training contents drawing on indigenous cultures through provision of incentives

#### **Engage in multi-sectoral, multi-partner, multi-systems networking to achieve priority strategic actions**

- Establish technological alliances to provide the African continent with the latest equipment and operating systems
- Ensure energy supply in schools by setting up mini-networks and systems where there is no conventional energy supply networks
- Create awareness about the importance of economic benefit that the private sector could derive and especially young economic operators to invest in computer equipment assembling companies (e.g. computers, tablets, ...) or energy companies (e.g. solar panels, batteries, inverters, ...) required for the integration of ICT in education.



## 7. CONCLUSION

It is difficult, if not impossible to think about the context of this report concerning the rich ideas which have been developed during the three-day Forum's discussions.

Having been a platform for the sharing of knowledge and experiences, the Forum provided the space for discussions on how to integrate ICT in education as a way of improving quality and the services, and to equip learners with 21<sup>st</sup> century skills that would enable them to become full-fledged actors of knowledge societies and to be part and parcel of its economy.

The panels of experts and the ministerial round tables reflected on the following themes :

- ICT and development of technical and vocational skills for youth employment and entrepreneurship
- ICT in national educational and training policies and strategies
- Empowerment of marginalized populations through ICT education-based initiatives
- ICT in education and learning of science, technology, engineering and mathematics
- ICT in education, shared leadership and policy coherence
- ICT and Education in areas and regions affected by crisis and conflicts
- Inclusive knowledge societies and the role of education and ICT

African countries responded massively to ADEA's call. Many development cooperation partners, research institutions, private sector representatives and actors from civil society organizations and youth participated actively in the Forum.

The Forum was the platform to build partnerships to speed up the use and integration of ICT in education and training and to enrich the ADEA 2017 Triennale. In conclusion, we would like to paraphrase Mrs. Oley Dibba-Wadda, Executive Secretary of ADEA, who, on her assumption of office declared that, it is "time to act" and ADEA must provide leadership to ensure that the education agenda in Africa is consistent with the realities, that is, "*education and training drive the acquisition of critical knowledge and skills for employment, peace and prosperity to allow Africans to become a dynamic and driving force around the world*".

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