" World Bank Africa Digital Infrastructure Moonshot Project

By Academician Dato Ir. Lee Yee Cheong, Commissioner, UN Broadband Commission for Sustainable Development/ Hon. Chairman, ISTIC

1.0 The UN Broadband Commission for Sustainable Development
https://www.broadbandcommission.org/

The International Telecommunications Union (ITU) and UNESCO set up the *Broadband Commission for Digital Development* in response to UN Secretary-General Ban Ki-Moon's call to step-up UN efforts to meet the Millennium Development Goals (MDGs).

Following adoption of the UN's Sustainable Development Goals in September 2015, the Commission was re-launched as the Broadband Commission for Sustainable Development to showcase and document the power of ICT and broadband-based technologies for sustainable development.

Broadband Commissioners comprise a select group of top CEOs and industry leaders, senior policy-makers and government representatives, international agencies, academia and organizations concerned with development who offer diverse perspectives on why broadband matters to drive its deployment around the world and shape the global agenda.

Commission Co-Chairs are HE Paul Kagame of Republic of Rwanda and Carlos Slim of Mexico with ITU Director General Houlin Zhao and UNESCO Director General Audrey Azoulay as Co-Vice Chair.

As ISTIC Governing Board Chair, I was appointed as a Commissioner on nomination by UNESCO Director General Irina Bokova in 2015.

2.0   Broadband Commission Reports

The Broadband Commission Devotes Its Resources on Digital Technologies for the Achievement of the UN SDGs

Report: Working Group on Digital Health
Report: Working Group on Epidemic Preparedness
Report: Working Group on Digital Entrepreneurship
Report: The State of Broadband 2018
Report: Working Group on Broadband for most Vulnerable Countries
Report: Working Group on Education
Report: Working Group on Technologies in Space and the Upper-Atmosphere
Report: Working Group on the Digitalization Scorecard
Report: Working Group on Digital Gender Divide

Broadband Commission Working Groups 2019
- **Protection of Children Against On-Line Abuse**

The problem of child on-line protection is engaging the urgent attention of many stakeholders including Government, policy makers, NGOs, social media and educators.

- **Misinformation and Fake News**

This is the hottest topic in the UN with the UN Sec-Gen deeply concerned about the adverse impacts of the use of such methods by leaders of powerful nations that might lead to wars, conflicts and racial and religious hatred.

In both Working Groups, I advocate the importance of IBSE Education of Children and Youth as the Essential Way to fight against on-line abuses. Children and Youth are most adept in the use of smart phone and laptop. If properly educated, they will educate their elders and their communities in the application of digital technologies against on-line abuses,

3.0 World Bank Africa Digital Infrastructure Moonshot Project

The most important Working Group in 2019 is the Working Group on the World Bank Africa Digital Infrastructure Moonshot Project

After Kristalina Georgieva, World Bank CEO joined the Broadband Commission as a Commissioner in September 2018, she proposed the formation of the Africa Digital Infrastructure Moonshot Working Group for Broadband Commission experts to input their expertise in the most up-to-date broadband and allied digital technologies to assure the success of the Project.
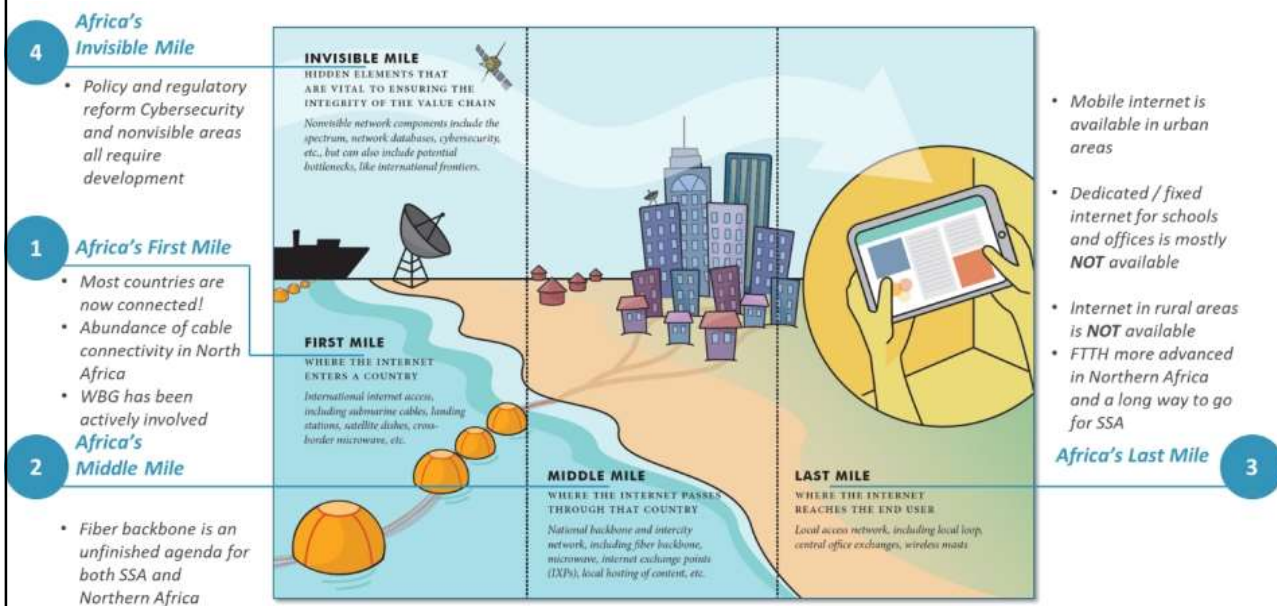
She terms it a moonshot so that it will have global impact as per the US Moonshot Project in landing humans on the Moon 50 years ago.

World Bank Africa Digital Infrastructure Moonshot Project

"Digital Infrastructure Moonshot for Africa" is to ensure that everyone in the continent is digitally enabled by 2030. The World Bank estimates it will need US $ 100.0 billion. World Bank itself has committed US $ 24.0 billion.

The digital transformation of Africa would foster economic growth and reduce poverty. It has the potential to create more jobs, encourage entrepreneurship among the youth, increase farmers' productivity, bring more women into the labor force, and create markets.

Reaching the Project targets would raise growth per capita by 1.5 percentage points per year and reduce the poverty headcount by 0.7 percentage point per year.

Broadband Penetration in Africa, 2018 (Global Average 50 %)

Regional Average ~31% (2018 E)*

OpenStreetMap

Sources: estimates based on GSMA, UN, Xalam Analytics data; penetration based on unique users and target population aged 10 or above.

Broadband Penetration in Africa, 2018

While the regional average broadband penetration is 31 percent today (including 3G and 4G connections), of the 916 million total population (who are aged 10 and older) from 54 countries in the region, only seven percent have access to 4G broadband connections.
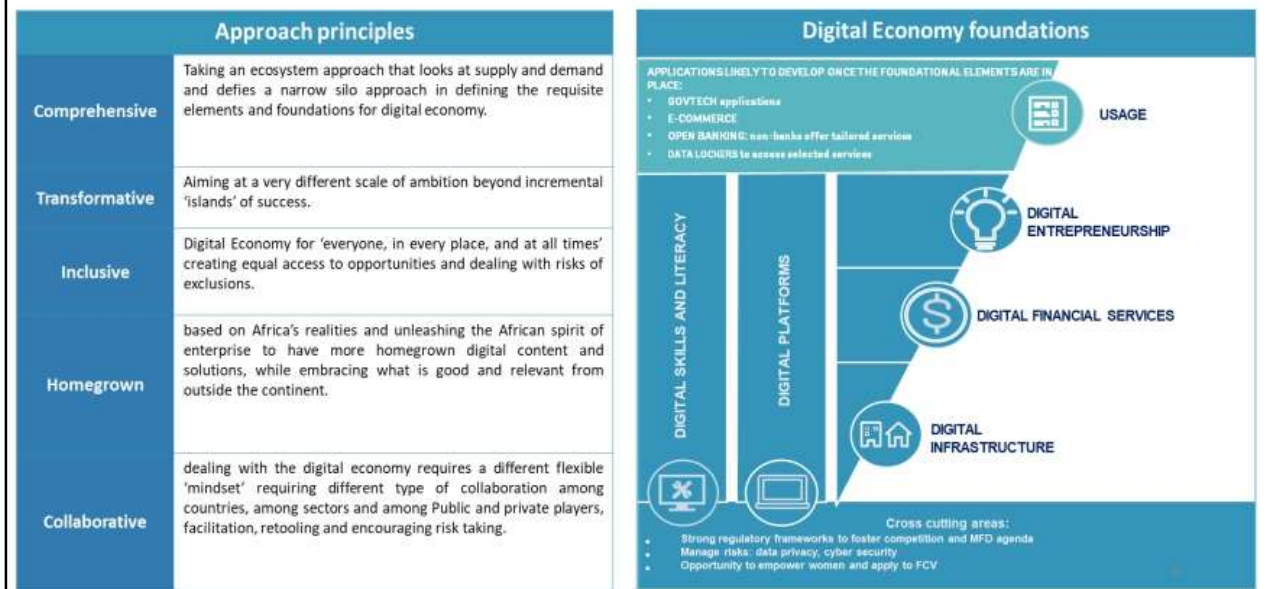
Achieving the goal of universal access and affordable broadband in the LDCs by the target date of 2030 is a considerable challenge.

Broadband Infrastructure Value Chains

Source: World Bank 2016

Five Pillars of the Africa Digital Infrastructure Initiative

	Approach principles
Comprehensive	Taking an ecosystem approach that looks at supply and demand and defies a narrow silo approach in defining the requisite elements and foundations for digital economy.
Transformative	Aiming at a very different scale of ambition beyond incremental 'islands' of success.
Inclusive	Digital Economy for 'everyone, in every place, and at all times' creating equal access to opportunities and dealing with risks of exclusions.
Homegrown	based on Africa's realities and unleashing the African spirit of enterprise to have more homegrown digital content and solutions, while embracing what is good and relevant from outside the continent.
Collaborative	dealing with the digital economy requires a different flexible 'mindset' requiring different type of collaboration among countries, among sectors and among Public and private players, facilitation, retooling and encouraging risk taking.

Digital Economy foundations

APPLICATIONS LIKELY TO DEVELOP ONCE THE FOUNDATIONAL ELEMENTS ARE IN PLACE:
- GOVTECH applications
- E-COMMERCE
- OPEN BANKING: non-banks offer tailored services
- DATA LOCKERS to access selected services

USAGE

DIGITAL ENTREPRENEURSHIP

DIGITAL FINANCIAL SERVICES

DIGITAL INFRASTRUCTURE

DIGITAL SKILLS AND LITERACY

DIGITAL PLATFORMS

Cross cutting areas:
- Strong regulatory frameworks to foster competition and MFD agenda
- Manage risks: data privacy, cyber security
- Opportunity to empower women and apply to FCV

Roadmap for Universal Access to Affordable and Good Quality Broadband

1 Ensure that the commercial broadband market is open, welcoming, and structurally prepared for competitive private investment.

2 Reduce non-economic costs and risks of market entry and investment.

3 Provide public/donor funding support for larger, high-cost infrastructure investments to reduce risk and increase commercial viability.

4 Expand the market through government procurement and implementation of broadband based digital services, networks, and facilities.

5 Provide direct funding support for extending affordable broadband access to commercially challenging rural and remote areas and low-income users under a Mobilizing Finance for Development approach.

6 Increase ICT market commercial attractiveness through demand stimulation and affordability initiatives.

7 Promote long-term sustainability by ensuring that appropriate technical skills to operate and maintain digital infrastructure are increasingly available on the continent.

Four Elements for Boosting Broadband Networks Infrastructure in Africa

Achieve digital inclusion	• Gender responsive approaches to digital development are critical and must include time bound gender targets to achieve this goal
Secure affordable and good quality Internet access for all	• 1 GB for less than 2% of monthly income as well as a minimum speed, data allowance and type of device that guarantee quality of service and experience
Develop and implement enabling policy and regulatory environments	• Implement a policy framework that supports and incentivizes investments and business models to connect all, specially women, rural and poor populations
Improve digital skills to support digital citizenship for all	• Ensure that all citizens have basic digital skills, including the ability to use the Internet safely, with privacy, while protecting their personal data

4.0 Improve Digital Skills and Local Content

To reap the benefits of a fully digitalized society, people must become digitally literate and the content online must be relevant for all.

Digital infrastructure investment ought to be complemented by investments in developing digital citizens equipped with digital skills that prepare them as workers, producers, creators, innovators, as well as in producing the local content to support such needs.

Given that most of the population still offline are from marginalized groups, including women, the poor, and rural communities, there is a need to invest in developing basic digital skills and supporting a local digital ecosystem to increase relevant local content and knowledge that support development opportunities, including for women and girls.

To reach the 2030 goal for the Africa Digital Infrastructure Moonshot Project, an Investment of US$19.7 billion is needed in Basic Digital Skills and Content Development.

World Economic Forum recommends that the following to close these gaps:
- To increase Internet users, basic digital literacy must be improved by facilitating formal and informal training programs targeting at least one person per family.
- To increase local content, supporting the digital content ecosystem is key. Tech hubs in emerging markets have an impact on fostering local ICT companies.

Once Again, I have advocated the emphasis on broadband, artificial intelligence, robotics, internet of things etc in school curriculum so that children and youth will in turn educate their elders and their communities in the digital literacy and the effective use of broadband infrastructure.

5.0 My Contributions to "Africa Digital Infrastructure Moonshot"

Subject to the Final Agreement of the Working Group, I have added the following to the Final Draft of the Working Group Report:

- Chapter 3 Mission, Vision, and Principles for Digital Transformation in Africa

The inclusion of the recommendations of the World Bank 2019 Report: "Lifelines: The Resilient Infrastructure Opportunity" on Resilient Telecoms Infrastructure in the face of climate induced disasters in Box 3.3. Principles for Natural Disasters and Climate Change in the Telecom Sector

https://openknowledge.worldbank.org/handle/10986/31805
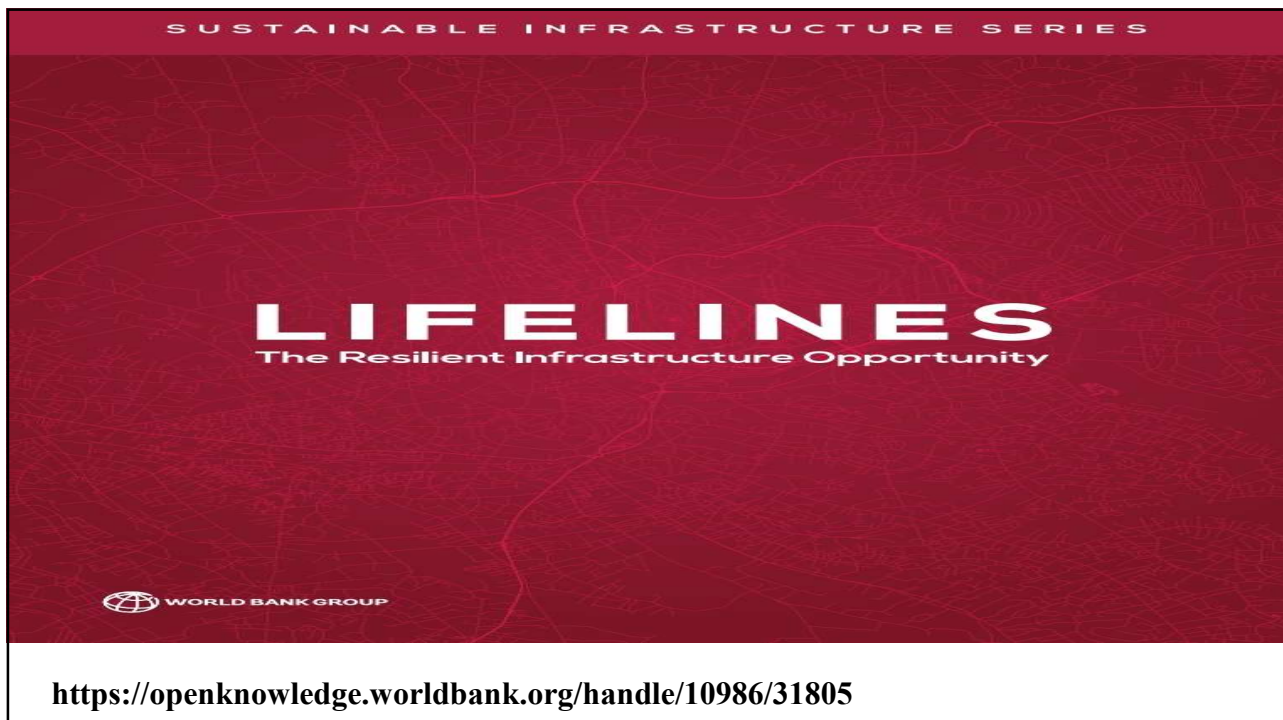
5.0 My Contributions to "Africa Digital Infrastructure Moonshot"

- **Chapter 6   Digital Skills and Local Content in Support of a Digitalized Society**

By adding to the Paragraph "*Digital skills and content development programs should incorporate public- and private-led interventions, as well as those targeted at women and girls and rural communities (see box 6.2 and box 6.3). Indeed, the DE4A Initiative has its own pillars on digital skills and digital entrepreneurship, which will complement the suggested strategy in this document for broadband networks infrastructure.*" , the sentences in the next slide

5.0 My Contributions to "Africa Digital Infrastructure Moonshot"

Proactive engagement of UNESCO affiliated international non-governmental professional organisations in science, engineering and technology should be utilised to the full. Such organisations like the World Federation of Engineering Organisations WFEO of 30 million professional engineers worldwide, the InterAcademy Partnership of some 130 national academy of science, engineering and medicine and the International Science Council of international scientific unions and scientists in natural and social sciences are committed to helping humankind achieve the SDGs through science, engineering and technology. Their membership embraces important sectors of society like government, academia and industry, Their regional networks in Africa can be the civil society vanguard for the Africa Digital Infrastructure Moonshot.

5.0 My Contributions to "Africa Digital Infrastructure Moonshot"

- By adding Box 6.4 WomEng

Naadiya Moosajee, Co-Founder   Hema Vallabh, Co Founder

WomEng was established in South Africa in 2006 by Co-founders Naadiya Moosajee and Hema Vallabh. Naadiya is on the World Economic Forum Global Future Council on Gender Education & the Future of Work whilst Hema holds a seat on the World Federation of Engineering Organisations (WFEO) Women in Engineering Standing Technical Committee.

WomEng was founded with the objective of encouraging girls to consider STEM (Science, Technology, Engineering, Mathematics) as a career by creating STEM awareness for girls and developing, mentoring and supporting them through their engineering journey. The model for extending the reach of STEM awareness to 1 million girls is based on an exponential train-the-trainer scaling model, working with individuals and/or organisations passionate about STEM, who can sign up for a #1MillionGirlsInSTEM toolkit to become an official WomEng Activator. The reach is tracked on a live Google Map showcasing the number of countries, cities and girls reached.

The #1MillionGirlsInSTEM campaign is a key component of WomEng's efforts to meet the Sustainable Development Goals by investing in girls' education and creating gender equity for the entire engineering sector.

WomEng has gained international recognition by winning awards and honours, such as:

- Special Mention and Award by the Government of China and UNESCO at the BRICS Summit, China, 2017;
- **"Fortune" Most Powerful Women Awardee 2017;**
- Global finalist for the 2015 Qatar WISE Award for Innovation in Education;
- **Finalist for Airbus Diversity Award in 2015;**
- Best Practice in TVET awarded by the African Union in 2015
- **Top NGO in South Africa awarded by Top Women Magazine in 2014.**

— https://www.womeng.org

5.0 My Contributions to "Africa Digital Infrastructure Moonshot"

In APPENDIX B Additional Case Studies for Practical Understanding of Universal, Affordable, and Good Quality Broadband, I added Box on ISTIC and the Double Hundred Universities Cooperation Project

The International Science Technology and Innovation Centre for South-South Cooperation (ISTIC), which operates under the auspices of UNESCO, is an international platform for cooperation among developing countries to increase the capacity for the management of science, technology, and innovation in developing countries. ISTIC has many programs promoting south-south cooperation, prioritizing initiatives with African countries.

5.0 My Contributions to "Africa Digital Infrastructure Moonshot"

Box on ISTIC and the Double Hundred Universities Cooperation Project (Continued)

One example is the Double Hundred Universities Cooperation Project, started in 2017, a mentorship initiative that matches one hundred technical universities in China with one hundred technical universities from countries with relations with China, many of which are from African countries. Faculties and students involved in the project focus on emerging technological issues, such as big data, artificial intelligence, and the Internet of Things (IoT). The project will enhance digital skills, nurture digital entrepreneurs, encourage digital startups, and also train personnel in proper maintenance and operation of digital infrastructure and the application of digital technologies with support from digital technology corporations.

THANK YOU