Participation of Hossam R. Elgamal; CEO of IKEN www.iken.co and Ambassador of ICC Digital Economy Commission to Africa

How can policy frameworks support the implementation of the Industry 4.0 Digital Transformation Cycle? Can you share examples from IKEN's portfolio?

On National level it is important to recognize the correlation between non-organic growth of the economy in the 21st century and the adoption of the fourth industrial revolution solutions as part of the Knowledge economy strategy especially for developing countries.

Digital transformation by adopting the technologies of the Fourth Industrial Revolution into management systems, production, supply chain and decision-making may achieve a potential productivity boost of up to 50%, cost reductions of up to 20%, increased product access to markets up to 25%, improved quality by up to 30%, increased financial collection efficiency by up to 30%, reduced waste of resources by up to 40%, increased competitiveness and the possibility of additional growth of national income up to 1.4% 2.5% annually. (Different references/resources)

Industry 4.0 enables continuous resource productivity and efficiency gains to be delivered across the entire value network.

"As an example, 4.0 IR implementation in Agriculture would help saving water, optimize the use of pesticides, chemicals, fertilizers according to crop, land, and environment resulting in better productivity, sustainable quality, better supply chain management, potential export growth and certainly better return on investment."

TO support the implementation of the 4th industrial revolution Digital Transformation Cycle we need to:

- Assess and share best practice case studies at different countries with measured outcomes and ROI. (Especially countries from Africa and developing countries having I4.0 pilot projects in economic sectors)
- Form Multistakeholder working group on Continental/National level to:
    - Propose policies and standards to stimulate and regulate the use the technologies of the Fourth Industrial Revolution in digital transformation and to measure

results and societal impact, especially in relation with the sustainable development goals of 2030.

- Suggest a regulatory body high level organization and authority framework to promote, stimulate, regulate and measure the implementation of the `Industry 4.0 Digital transformation cycle on national level. (this could be an upgrade of the existing Telecom Regulatory Authorities)
- Develop integrated national/continental plan to build skills and competencies in the areas of:
    - Artificial intelligence and quantitative analysis (there is an existing successful program from the Egyptian Ministry of Communications)
    - Digital Security (Operating Technology Security)
    - Operating Technologies' Sensors design and programming
    - SCADA-Historian-MES (industrial digital execution systems)
    - Augmented reality and 3D Design (as an example there is an existing project of launching 10s of technological universities in Egypt)
    - Block chain Technology
    - 5G Telecommunication Technologies
    - Global standards for the regulation and management of these I4.0 systems
    - Technicians' Transformational Capacity Building programs.

- The I4.0 Regulatory Authority to:
    - Develop a clear and integrated plan from the government for its needs of I4.0 transformational projects within the next 3-5 years to develop the various sectors (industry - agriculture - health - transport - education - trade) so that companies, investments, start-ups and banks are encouraged to create an appropriate and stimulating eco system and prepare to successfully implement these projects with maturing localized capabilities of products and services.
    - Build a national incentive system for the research, development, and innovation in this field considering the expected projects needed to be implemented, the potential manufacturing capacity that can be available and the National expertise at home and abroad within universities and companies.
    - form specialized research teams that work inline with the objectives of the I4.0 national sectorial projects with the aim of creating products and developing Egyptian intellectual property.
    - Develop an awareness plan for the community to understand the benefits from the expected qualitative and quantitative improvement due to the implementation of I4.0 solutions in various sectors, the accurate analysis of big data using artificial intelligence, the linking of different supply chains, and the

achievement of agility, sustainable quality, swifter response, and greater efficiency.

examples from IKEN's portfolio:

- I4.0 Digital Transformation National Capacity Building Initiative:

  Under the auspices of the Egyptian Prime Minister and In collaboration between the Ministry of Military Production in Egypt, General Electric Digital and IKEN, the initiative aims at building the capacity of 1000 Engineers to be certified by GE on the Manufacturing Execution Systems after understanding the pillars of the I4.0 and how to assess and optimize the potential productivity gap within MES and I4.0 tools in their factories.

- I4.0 R&D initiative:
  Funded by the ASRT, a consortium from Public Sector, Academia and private sector is formed to deliver pilot projects using I4.0 Digital Transformation to assess outcomes and build case study and best practice:
  - MES digital transformation project for an existing factory
  - Smart Systems for Water production and distribution network Management
  - More Crop for less Water Smart Irrigation project.
- The full fledge I4.0 Digital transformation of SEMAF as part of its full renovation to the highest standards and to be able to deliver same level of design and production on competitive level with most advanced railway cars manufacturing facilities.
- The cooperation between Education Development Fund, New Technology Universities in Egypt and IKEN to deliver AR/VR advanced Labs to help develop the necessary skills and projects related to simulations, complex maintenance, surgical operations, advanced Engineering R&D.