ENGINEERS BOARD OF KENYA

DIGITALIZING THE REGULATORY SYSTEM IN BUILDING SECTOR

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PRESENTED BY:

Eng. Margaret Ogai, CE
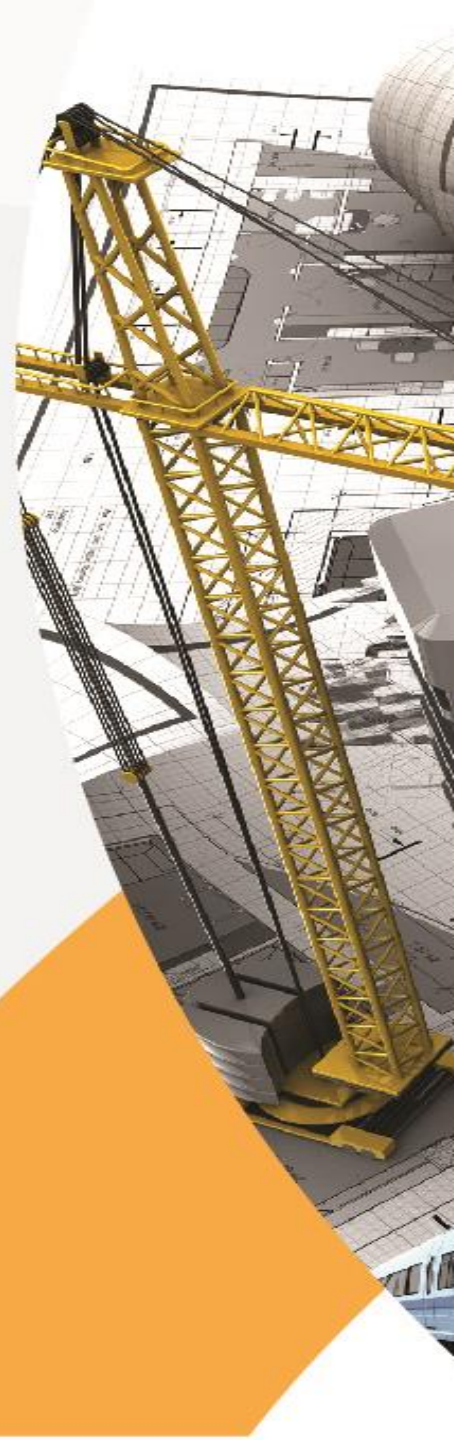**Registrar/CEO**

OUTLINE OF THE PRESENTATION

1. Overview of the Board

2. Digitalization

3. Digitalization Of Engineering Services

4. Digitalizing the Regulatory System, EBK

5. Digitalizing the Regulatory System in Building Sector

6. Benefits.

7. Digitalization: Key concerns and Considerations

OVERVIEW OF THE BOARD

ESTABLISHMENT & MANDATE OF THE BOARD

Engineers Board of Kenya is established under Section 3 (1) of the Engineers Act 2011.

The overall *mandate* of the Board is as follows under Section 6 of the Act:

- Registration of engineers and engineering consulting firms

- Regulation Of Engineering Professional Services

- Setting Engineering Standards

- Oversees the Development and General Practice of Engineering

ESTABLISHMENT OF THE BOARD

Before 1969	• British standards
1969	• Enactment of Engineers Registration Act (1969)
1992	• Amendment to include Technician Engineers and Graduate Technician Engineers
2011	• Engineers Act No. 43 of 2011 approved in Parliament
2012	• Assented: 27th January 2012 • Engineers Act 2011 operationalized
2019	• Engineers Rules 2019

ENGINEERS REGISTERED BY THE BOARD

The Board has registered persons in the following categories:

- Graduate Engineers – 19, 637

- Professional Engineers – 2,419

- Consulting Engineers - 483

- Consulting Firms - 248
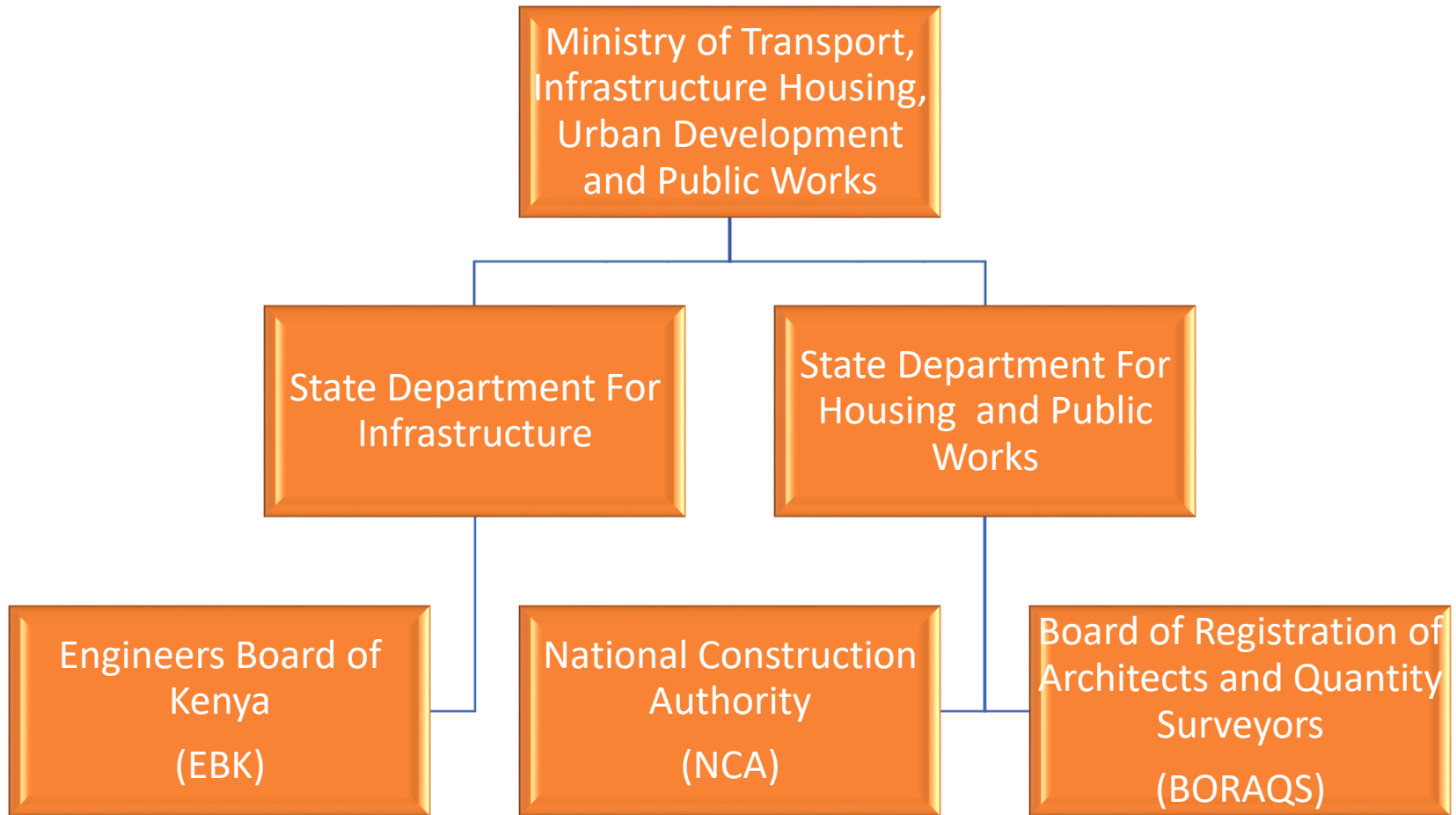
ENGINEERING SECTORS

The critical sectors and key agencies that offer professional engineering services

- Road sector agencies (KeNHA, KURA, KeRRA, KRB);

- Transport sector agencies (KPA, KRC, KAA, KCAA)

- Energy sector agencies (KENGEN, KETRACO, KPLC, GDC)

- Communication sector agencies (CA, KBC)

- Agricultural sector agencies

- Water sector agencies

- Industrial sector agencies

- Manufacturing sector

- Health sector

- Education sector

- Construction sector

- Telecommunication sector

BUILT ENVIRONMENT REGULATORY FRAMEWORK

Ministry of Transport, Infrastructure Housing, Urban Development and Public Works

State Department For Infrastructure

State Department For Housing and Public Works

Engineers Board of Kenya

(EBK)

National Construction Authority

(NCA)

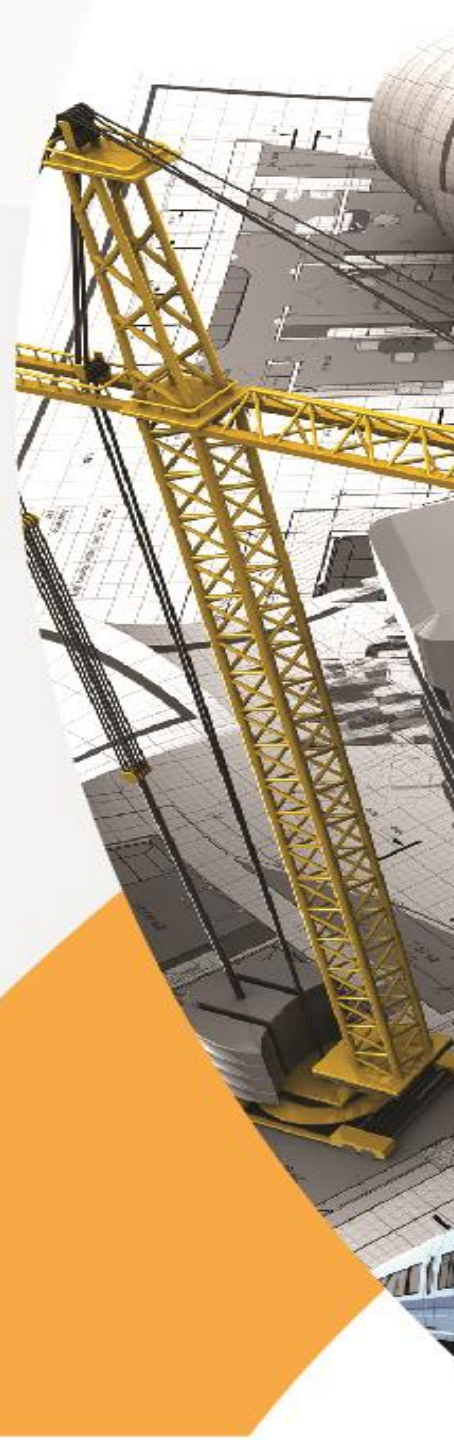Board of Registration of Architects and Quantity Surveyors

(BORAQS)

STRATEGIC INTENT OF THE BOARD

The strategic intent of the Board over the next five years is to:

i)   Increase the registration numbers of engineers from 2,500 to 10,000;

ii)   Strengthen compliance to the Engineers Act 2011 to 100% by developing and enforcing engineering standards in national and county governments;

iii)   Development of the capacity of the general practice of engineering; and

iv)   Develop and sustain the Engineers Board of Kenya.

DIGITALIZATION

DIGITAL TRANSFORMATION

the world's largest taxi company owns no taxis

Netflix - major movie houses have no cinemas

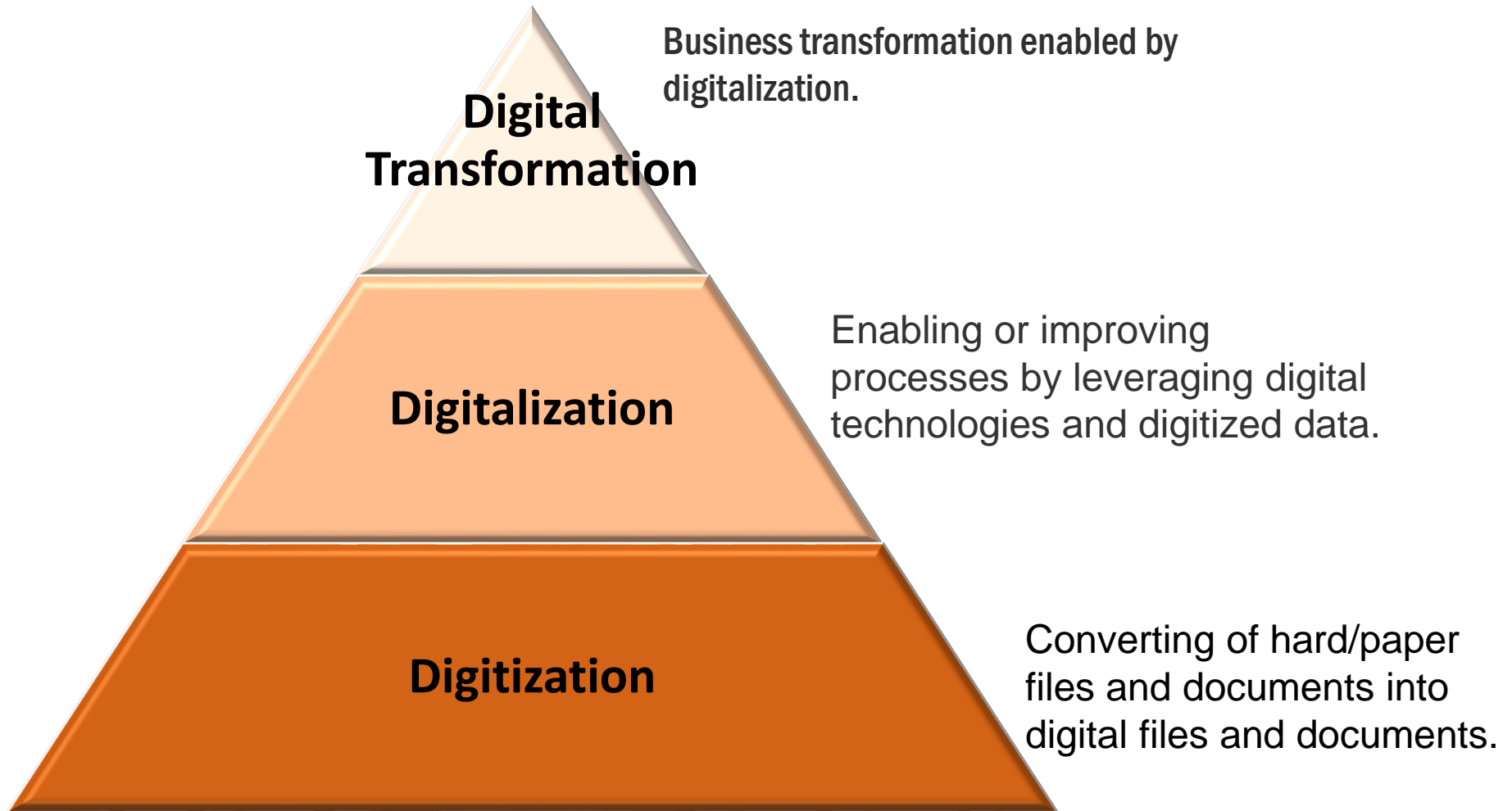the world's largest accommodation provider owns no property

the most popular media owner on the planet creates no content

the world's most valuable retailer has no stock inventory

DIGITAL TRANSFORMATION PYRAMID

Digital Transformation

Business transformation enabled by digitalization.

Digitalization

Enabling or improving processes by leveraging digital technologies and digitized data.

Digitization

Converting of hard/paper files and documents into digital files and documents.

DIGITALIZATION

Digitalization is one of the defining features of the 21st century. Digitalization is technology-driven and affects societies and economies in many ways:

- Through automation of tasks to streamline various paperwork and procedures making the workflow more efficient.

- Ability to make informed data-driven decisions.
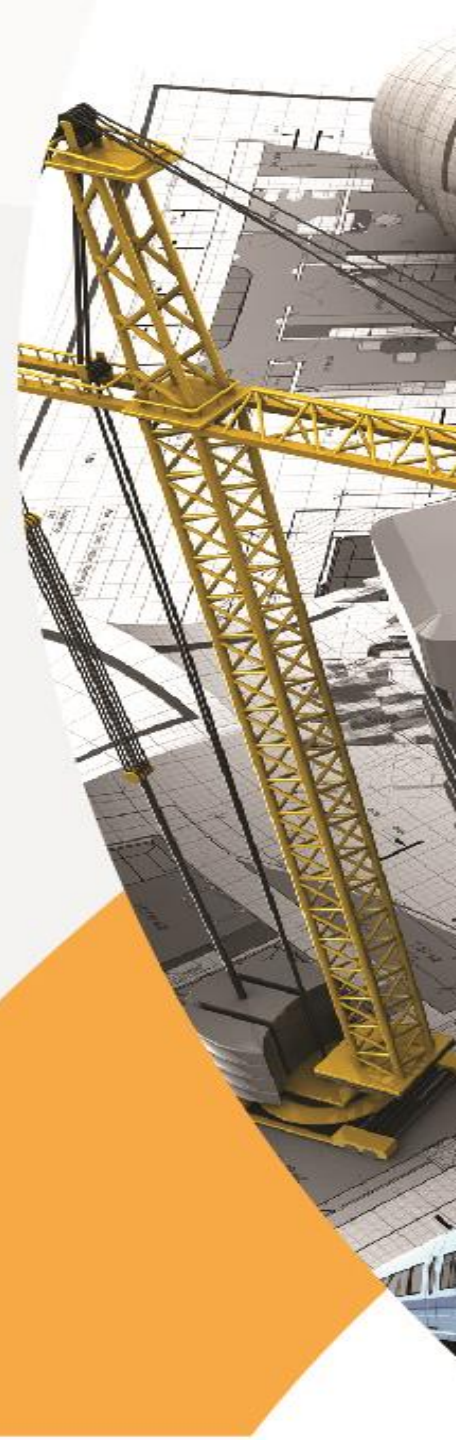
- The emergence of new business models.

Rapid technological changes, demographics, and customer expectations are changing the way we work, live and play.

- Smart technologies – smart housing, transport, manufacturing, farming, connected smart cities.

- Climate change – food security (vertical farms, water harvesting)

- COVID and other pandemics – virtual meetings, work from home.

- Services– fintech, health tech, edu tech, Mobility as a Service,

- These will fundamentally change the practice of architecture, engineering and construction.

Reference: YouTube > National Geographic - City of the Future : Singapore

DIGITALIZATION OF ENGINEERING SERVICES

DIGITALIZATION OF ENGINEERING SERVICES

Emergent digital technologies are defining the engineering practice in developing countries:

DRONES

DIGITALIZATION OF ENGINEERING SERVICES

- Building Information Modelling (BIM) — Technological tool in the construction industry that governs the way construction projects are designed, planned and executed.

- Manufacturing execution systems (MES) — Computerized systems used in manufacturing to track and document the transformation of raw materials to finished goods.

- Use of smart sensors, drones and use of Geographic information systems in construction facilitating real-time monitoring and easier information exchanges.
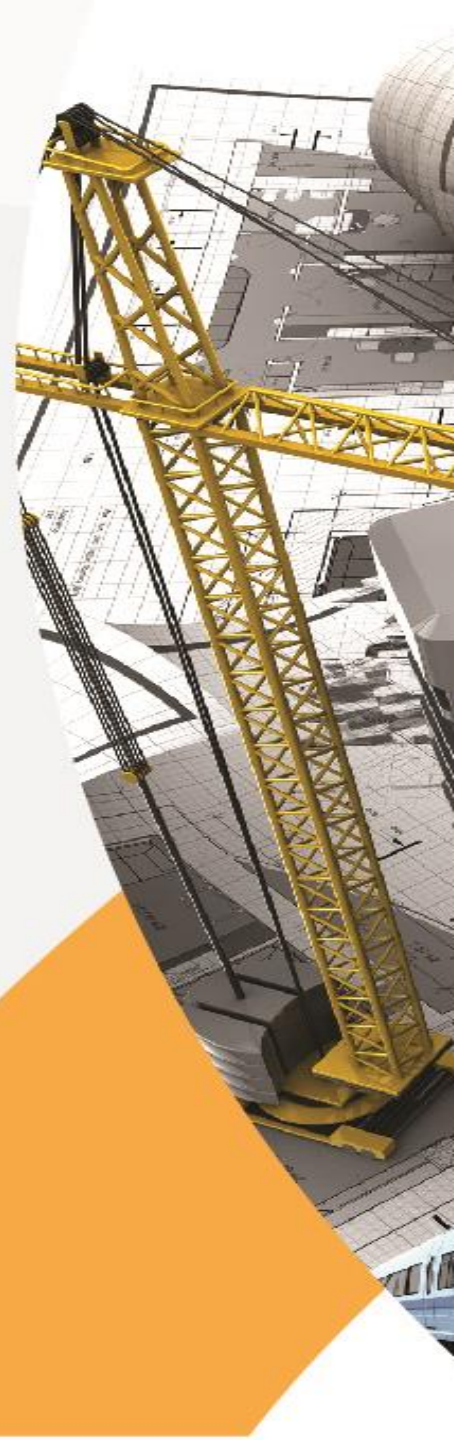
DIGITALIZATION OF ENGINEERING SERVICES

- Use of software in engineering services for designing and supervision.

Digitalization of Engineering services in Kenya has not yet been fully embraced. There is a need to develop policies and standards to digitize Engineering Services.

DIGITALIZING THE REGULATORY SYSTEM,EBK.

DIGITALIZED SERVICES

Registration System (Under Development)

- Registration of engineers and engineering consulting firms.

EMS(Capacity Building Management)

- For Engineers to upload Professional Development Units (PDUs)

Online Application of Engineers ID

GEIP Recruitment Portal

- Online recruitment of Graduate Engineers to the Graduate Engineer Internship Programme.
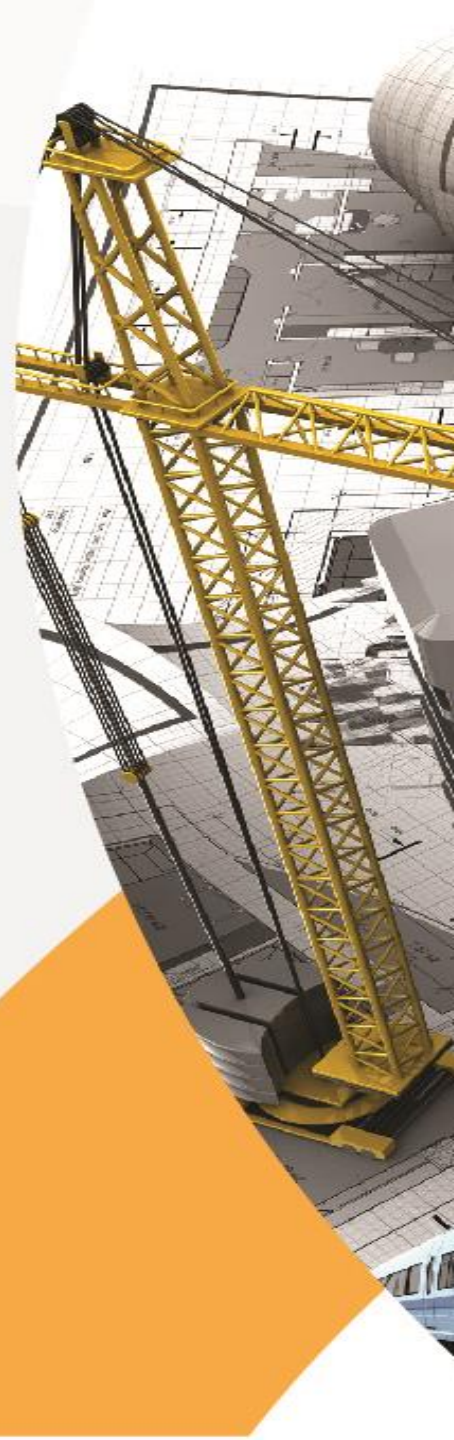
GEIPMIS

- Graduate Trainees prepare and upload reports for monitoring by the Board

DIGITALIZATION GAPS AND PROSPECTS AT THE BOARD

- Self-service portal for Engineers; Engineers will be able to download Engineering Certificates and Licenses.

- Creation of real-time updates of registered Engineers in the system with access to the public.

- Development of a digital platform to exchange information seamlessly with the County Government, NCA, BORAQS, Registrar of companies and Consulting Firms.

- Upgrade to cloud-based platforms.

- ERP and E-Board.

- ICT Master Plan to integrate all the systems to speak to each other.

DIGITALIZING THE REGULATORY SYSTEM IN BUILDING SECTOR.

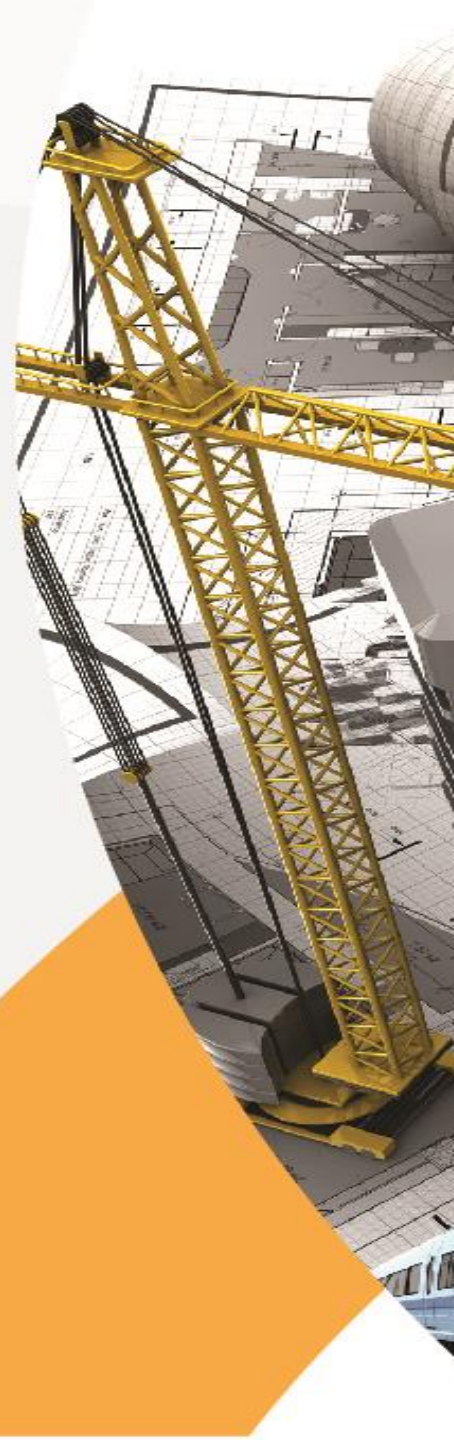# DIGITALIZING THE REGULATORY SYSTEM WITH PARTNER GOVERNMENT AGENCIES.

Establish a single-window automated system (one-stop-shop concept) with Partner Government Agencies.

Collaborate with Partner Government Agencies to incorporate regulatory requirements in their automated systems. e.g. Kiambu County Projects Registration Portal.

Establish Engineers Projects Registration Portal to track Engineering Services.

BENEFITS OF DIGITALIZATION

BENEFITS OF COLLABORATIVE DIGITAL FRAMEWORKS.

- Proper coordination and harmonization of respective roles.

- Promote professionalism and standards to enhance safety in the built environment in Kenya;

- Enhance compliance to the existing regulations, standards and statutes compromising the quality of construction and collapse/failure of built infrastructure;

- Enhance working together to address the challenges facing the industry and for a seamless flow of information;

- Mitigate infiltration of the industry by unqualified persons (quacks) and the use of forged certificates and licenses;

BENEFITS OF DIGITALIZATION

Operational Efficiency
- ✓ Reduced delays
- ✓ Moving to paperless projects
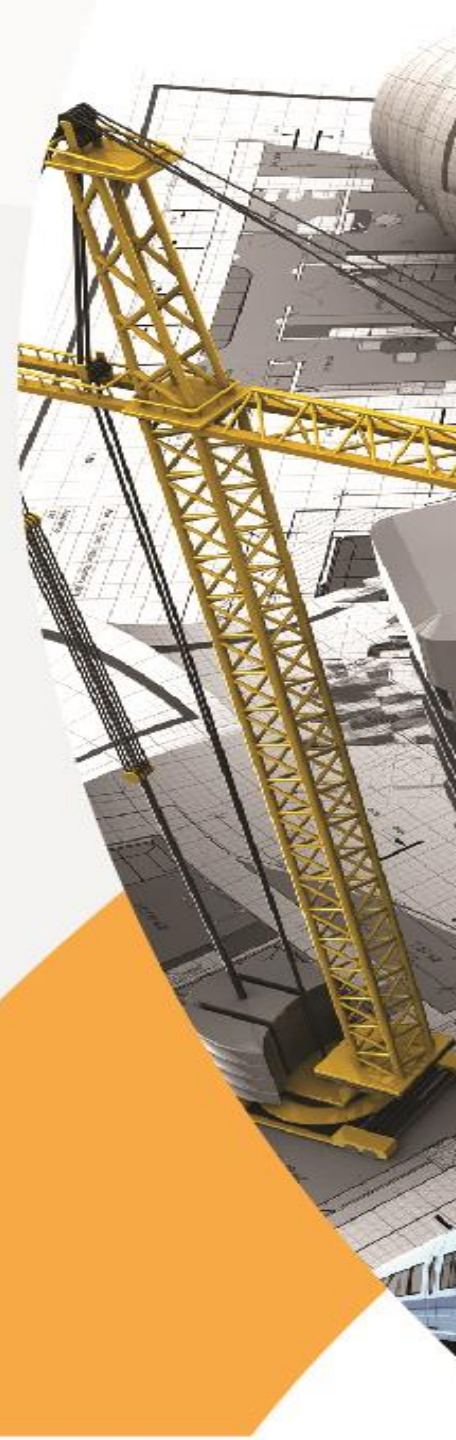- ✓ Cost saving (materials, time and manpower)
- ✓ Remote access

Transparency
- ✓ Accuracy and integrity of information
- ✓ Prompt provision of information
- ✓ Database logs (audit trails)

Service Quality
- ✓ Improved service delivery
- ✓ Improved customer experience

DIGITALIZATION: KEY CONCERNS AND CONSIDERATIONS

KEY CONCERNS AND CONSIDERATIONS

- Funding

- Policies to drive digitization in built environment

- Coordination, collaboration and partnerships

- Culture Change and Leadership.

- Lack of skills set.

- Cyber Security.

- Privacy and Data Protection.

- System Failures

"IT IS NOT THE STRONGEST OF THE SPECIES THAT SURVIVES, NOR THE MOST INTELLIGENT THAT SURVIVES. IT IS THE ONE THAT IS THE MOST ADAPTABLE TO CHANGE."

- CHARLES DARWIN (1809-1882) -

THANK YOU