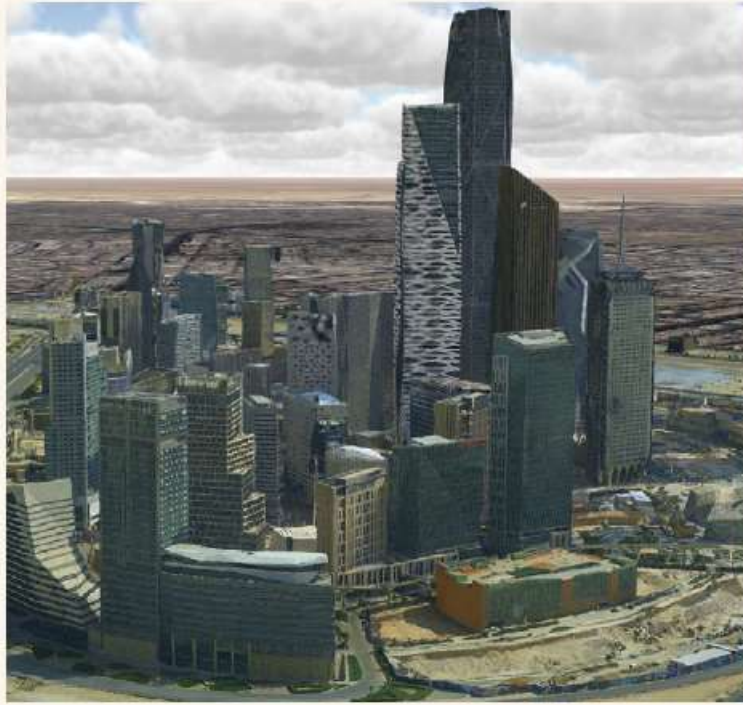




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# STRATEGIC ROLE OF GEOSA IN SUSTAINABLE INFRASTRUCTURE DEVELOPMENT IN THE KINGDOM OF SAUDI ARABIA

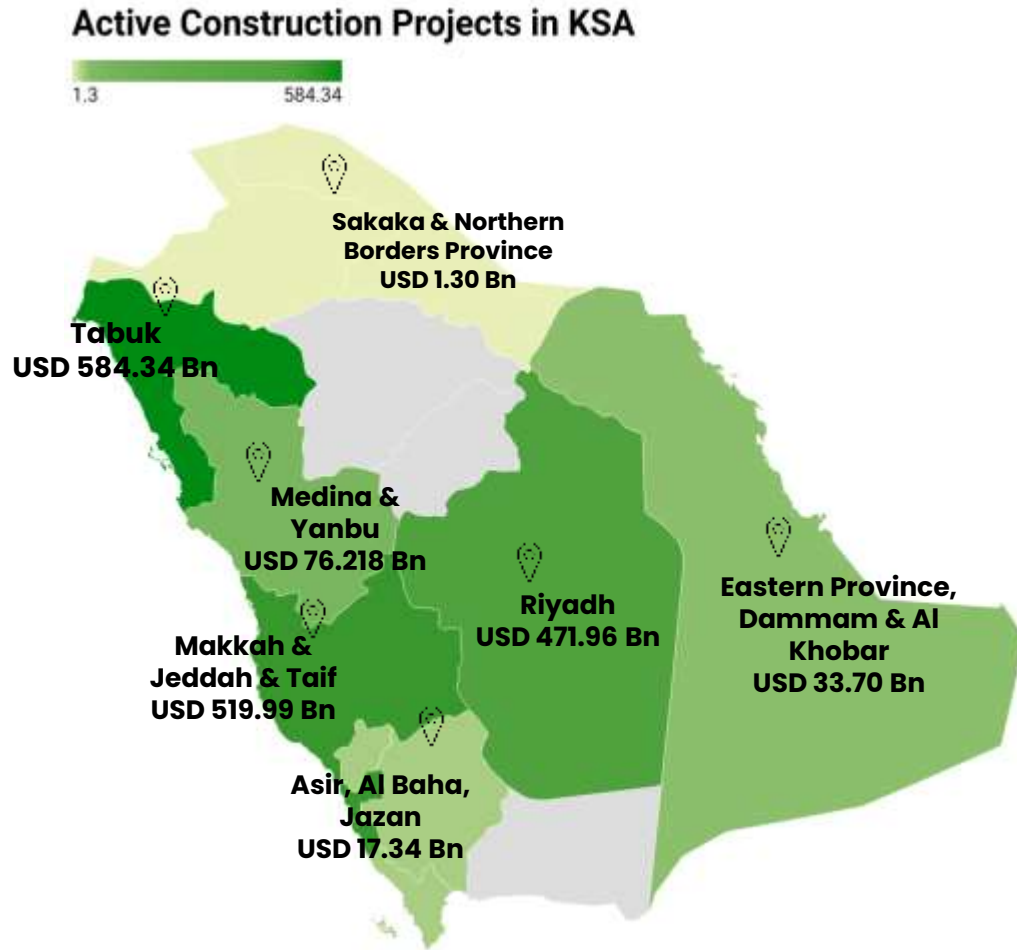
By :Fatma Fahad

# Overview

- **Over \$1 trillion** worth of projects have been launched in the Kingdom of Saudi Arabia since the initiation of the Vision 2030 strategy, aiming to reposition the kingdom as a global economic leader.
- **\$1.25 trillion** is the cumulative value of real estate and infrastructure projects since the Kingdom of Saudi Arabia rolled out its National Transformation Plan in 2016.
- **Over 555,000 homes, 275,000 hotel rooms, more than 4.3 million square meters of retail space, and over 6.1 million square meters** of new office space by the year 2030 are envisioned under the expansive transformation blueprint established by the Kingdom.
- **NEOM, the USD 500 billion giga-project** supported with funding from the PIF as well as local and international investors, stands as the most significant, featuring innovative cities such as Oxagon, Trojena, and The Line.
- **USD 20 billion Diriyah Gate project** in Riyadh is expected to contribute 20,000 homes to the nation's housing market by 2027.



# KSA Infrastructure Scenario



## Active Construction Projects

Over **255** active construction projects worth **USD 1.7 Trillion**

# Transformative Landmark Projects: Pioneering Infrastructure Development in the Kingdom



**The Line**, which made international headlines when it was announced in 2021 for its sheer ambitiousness, is 170km-long, 500-metre-tall dual tower project that is part of the futuristic Neom development.

# Transformative Landmark Projects: Pioneering Infrastructure Development in the Kingdom



A rendering of the Prince Mohammed bin Salman Stadium, which will be built in Qiddiya and feature a retractable roof.

# Transformative Landmark Projects: Pioneering Infrastructure Development in the Kingdom



Amaala will have more than 25 hotels, luxury residences and 200 fine-dining outlets when completed in 2027.

# Transformative Landmark Projects: Pioneering Infrastructure Development in the Kingdom



Marafiy canal will include water taxis and offer a direct canal link to King Abdulaziz International Airport.



# Digital Technologies Advancing Resilient and Sustainable Infrastructure Development in Kingdom of Saudi Arabia



**Building Information Modelling**



**Digital Twins**



**Artificial Intelligence (AI)**



**Internet of Things (IoT)**



**Immersive Visualization (AR/VR)**



**3D Printing**



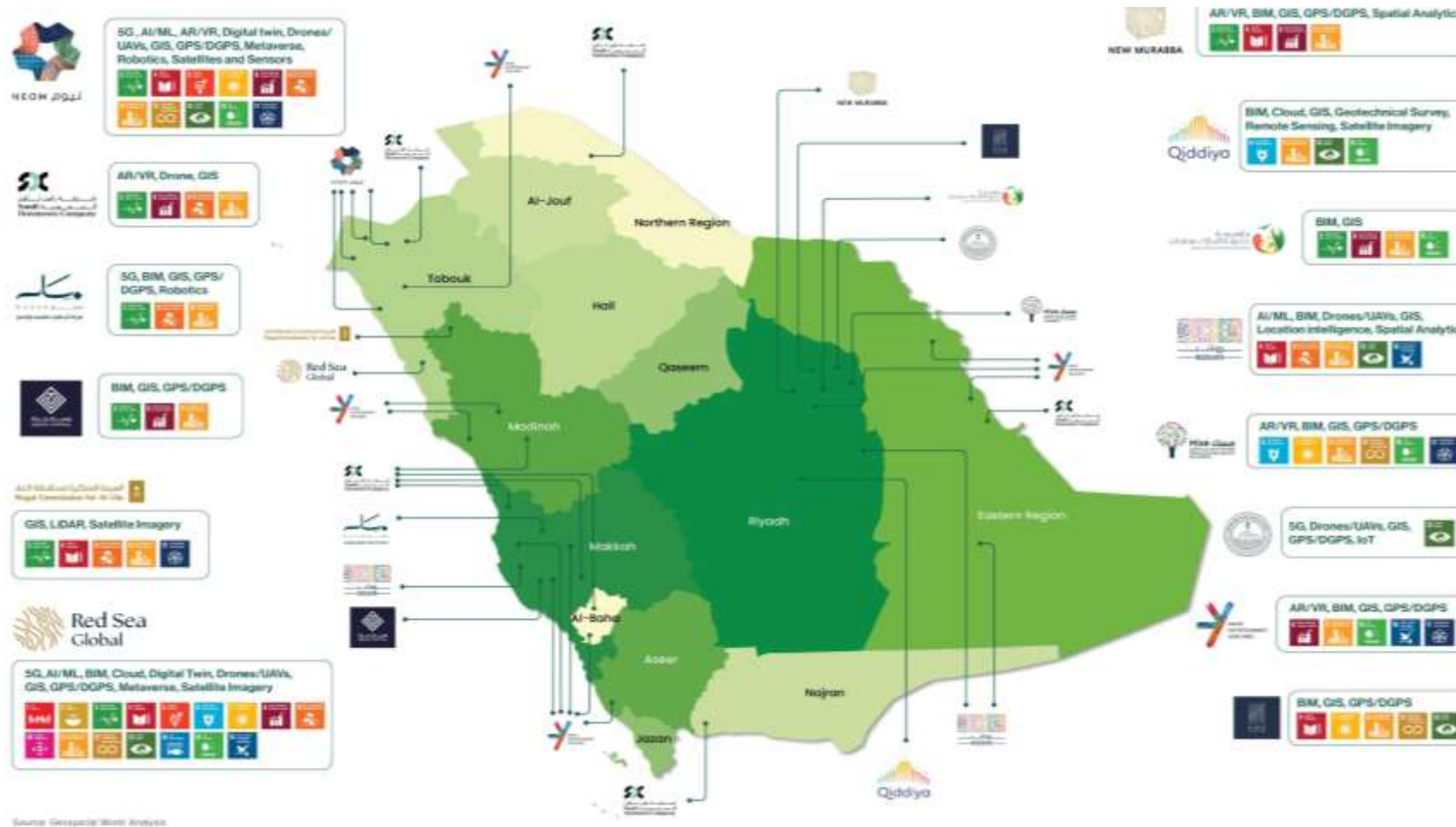
**Robotics**



**Metaverse**

**Geospatial Infrastructure empowering Digital Technologies  
(Data and Technologies)**

# Advanced Digital Technologies Use in Kingdom's Giga Projects



Source: Geospatial World Analysis

# GEOSA'S Products and Services Advancing KSA'S Infrastructure Development

## Infrastructure Sub-Segments

**Buildings-** Infrastructure with a roof that is constructed in a shape permanent or temporary on the surface of the earth, for commercial, personal, or agricultural uses, or social and economic activities, etc.

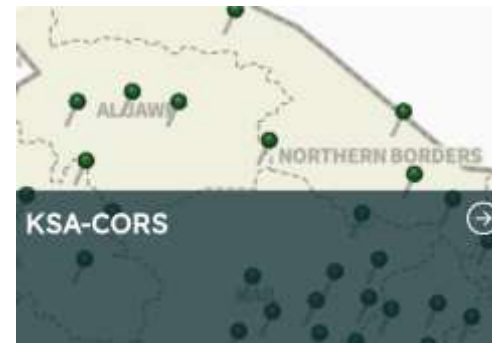
**Utilities-** Infrastructure services for communications, water, and electricity.

**Transport-** Road, rail, air, and maritime transportation networks and related infrastructure, including connections between the different networks.

## GEOSA's Products and Services



National Geospatial Platform



KSA CORS Network



Available Data Sets  
(Vector, Raster, DEM, DTM, DSM)

# GEOSA'S Products and Services Advancing KSA'S Infrastructure Development



## Applications

- Infrastructure Resilience
- Water Management System
- Mobility/Traffic Management
- Capital Planning System
- Grid/Utility Management
- Smart Parking System
- Automated City Workflows
- Surveillance System
- Emergency Response System
- Intelligent Security
- Waste Management

## BENEFITS

Optimize Planning, Operations and Finance

Enable Carbon-Emission Reductions

Substantial Cost Savings

Improved collaboration across city stakeholders

Improved urban planning and project visualization

Make infrastructure resilient

Improve Sustainability

Improved Productivity Gains

Efficient Resource Management

**Digital Twin of Riyadh on GEOSA's National Geospatial Platform**

GEOSA  
الهيئة العامة للأمن  
المعلومات الجغرافية  
General Authority For Survey  
and Geospatial Information



GWF  
GEOSPATIAL WORLD FORUM

# Best Case Practices

## Diriyah Gate Development Authority (DGDA) and the General Authority for Survey and Geospatial Information (GEOSA) Sign Memorandum of Understanding (MoU) for geospatial information

**Collaboration Objectives:** The MoU aims to enhance collaboration between DGDA and GEOSA in various areas including data and information exchange, geospatial services, surveying & drone projects, knowledge & expertise sharing, technical consultations, and training & development.

### Key Features:

- **Adoption of Official Map:** The MoU includes the adoption of the official map of the Kingdom of Saudi Arabia issued by GEOSA as a foundational map and an accredited official source for the Kingdom's international boundaries, administrative supervisory regions, and geographical sites.
- **Utilization of National Geospatial Reference:** DGDA will utilize the National Geospatial Reference, developed by GEOSA as a unified reference for all geospatial data, further aligning with national standards.
- **Areas of Cooperation:** The MoU encompasses several areas of joint cooperation, including DGDA's access to products and services of the Continuous Operation Reference Station Network and the National Geospatial Platform. Additionally, DGDA will support GEOSA in implementing the National Geospatial Strategy and with data governance, efficient information exchange, and national geospatial security.



# GEOSA and It's partners for advancing Geospatial Information for Infrastructure Development

## Data Sharing and Collaboration for Geodetic Infrastructure

وزارة الشؤون البلدية والقروية والإسكان  
Ministry of Municipal Rural Affairs & Housing



وزارة النقل والخدمات اللوجستية  
Ministry of Transport and Logistic Services



وزارة البيئة والمياه والزراعة  
Ministry of Environment Water & Agriculture



وزارة الاقتصاد والتخطيط  
MINISTRY OF ECONOMY & PLANNING



الهيئة العامة للمقار  
REAL ESTATE GENERAL AUTHORITY



الهيئة الملكية لمدينة الرياض  
ROYAL COMMISSION FOR RYADH CITY



KACST  
مدينة الملك عبدالعزيز  
للعلوم والتقنية



الهيئة الملكية لمدينة مكة المكرمة والمشاعر المقدسة  
ROYAL COMMISSION FOR  
MARRAH CITY AND HOLY SITES



مدن MODON  
الهيئة العامة للتطوير العقاري  
Land Authority for Industrial Districts/Township Zone



معدن MA'ADEN  
معدن



هيئة المدن والمناطق الاقتصادية الخاصة  
Economic Cities and Special Zones Authority



SAR  
الخطوط الحديدية السعودية  
SAUDI ARABIA RAILWAYS



صندوق التنمية العقارية  
REAL ESTATE DEVELOPMENT FUND



أرامكو السعودية  
saudi aramco



TGA  
الهيئة العامة للنقل  
Transport General Authority



هيئة تطوير  
منطقة عسير  
Aser Development Authority



هيئة تطوير المنطقة الشرقية  
Sharqia Development Authority



**DATA SHARING AND COLLABORATION FOR GEODETIC INFRASTRUCTURE**

GEOSA  
الهيئة العامة للمقار  
والخدمات الجيومكانية  
General Authority for Survey  
and Geospatial Information



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*THANK YOU*

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**GEOSA**

الهيئة العامة  
للمعلومات الجغرافية  
والمعلومات المكانية  
General Authority for Survey  
and Geospatial Information



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