



هيئة الاتصالات وتقنية المعلومات  
Communications and Information Technology Commission  
الدراسات ومراقبة التقنية Studies and Technology Watch



# ICT Regulator's Role in Smart Cities



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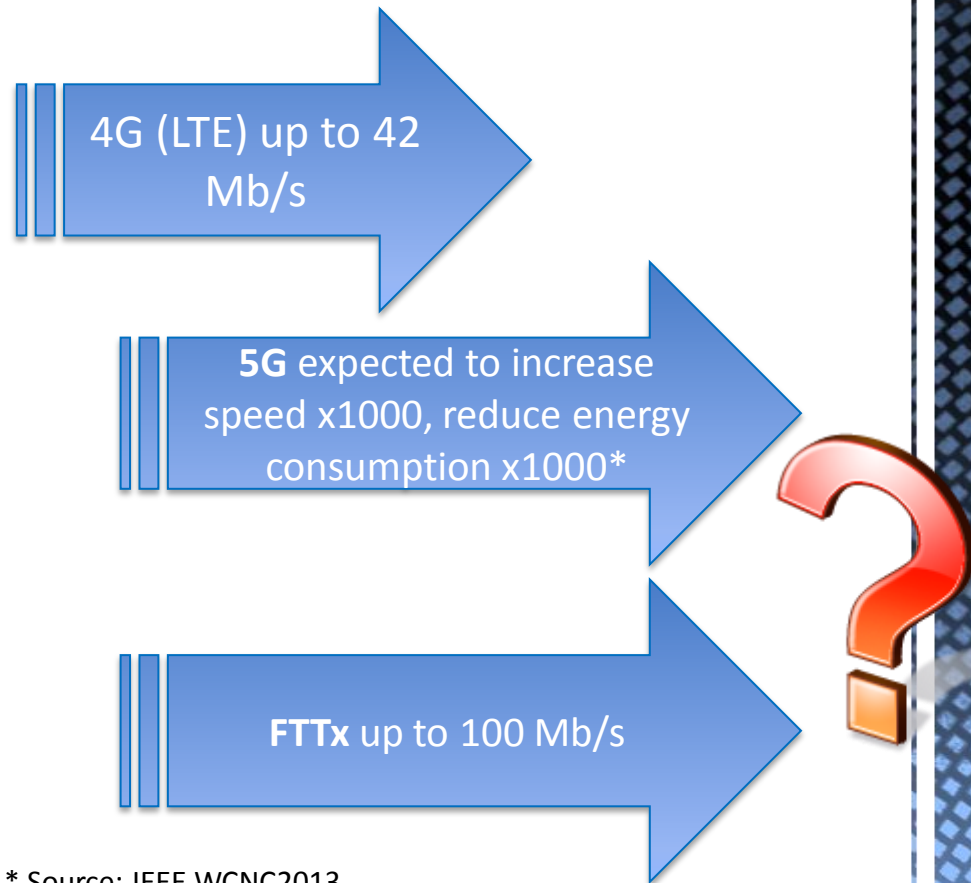
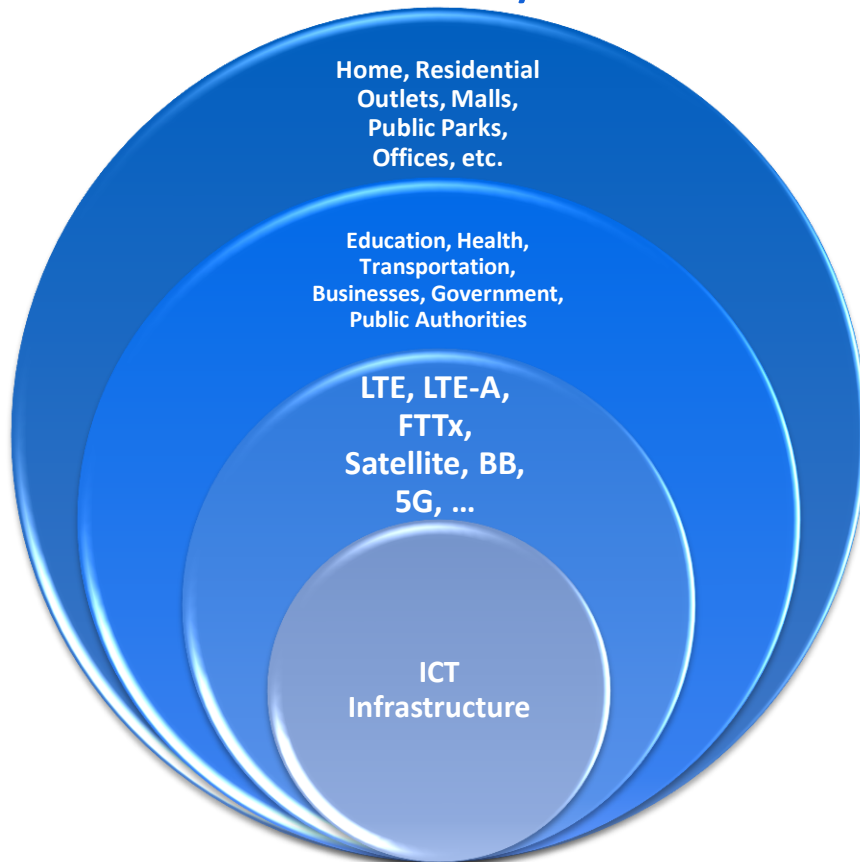
8<sup>th</sup> ITU Symposium on ICTs, the Environment and Climate Change  
Turin, Italy, 9 May 2013

# Agenda

- ❖ ICT and Smart Cities
- ❖ Smart City Priorities
- ❖ Responsibilities and Tasks Regarding Smart Cities
- ❖ About CITC
- ❖ CITC Activities and Initiatives
- ❖ Sample Profiles of Smart Cities and Buildings in Saudi Arabia
- ❖ Related Events
- ❖ Conclusion

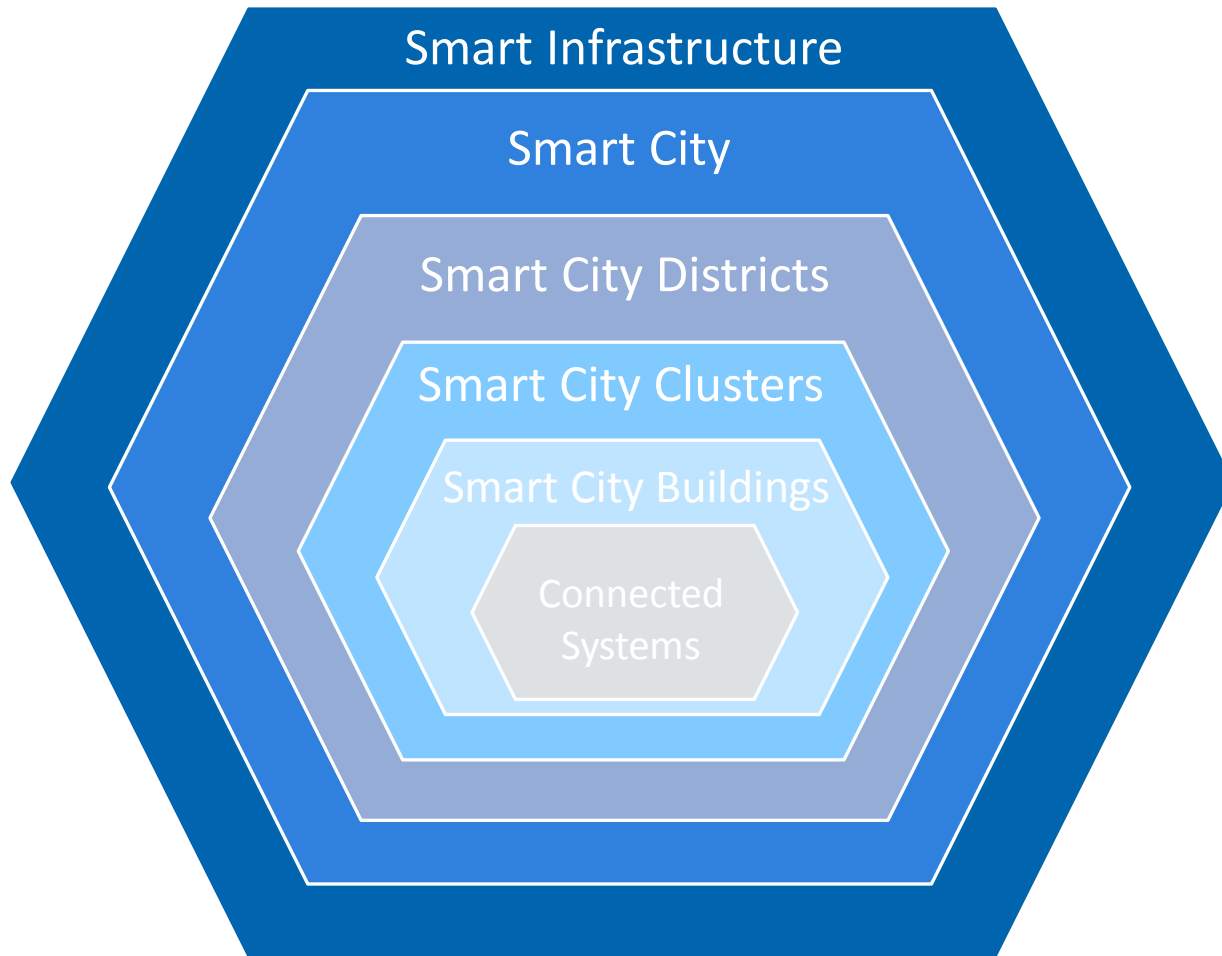
# ICT and Smart Cities

Leveraging the benefits of ICT infrastructure allows many services and applications to be delivered and offered to all parts of the community.

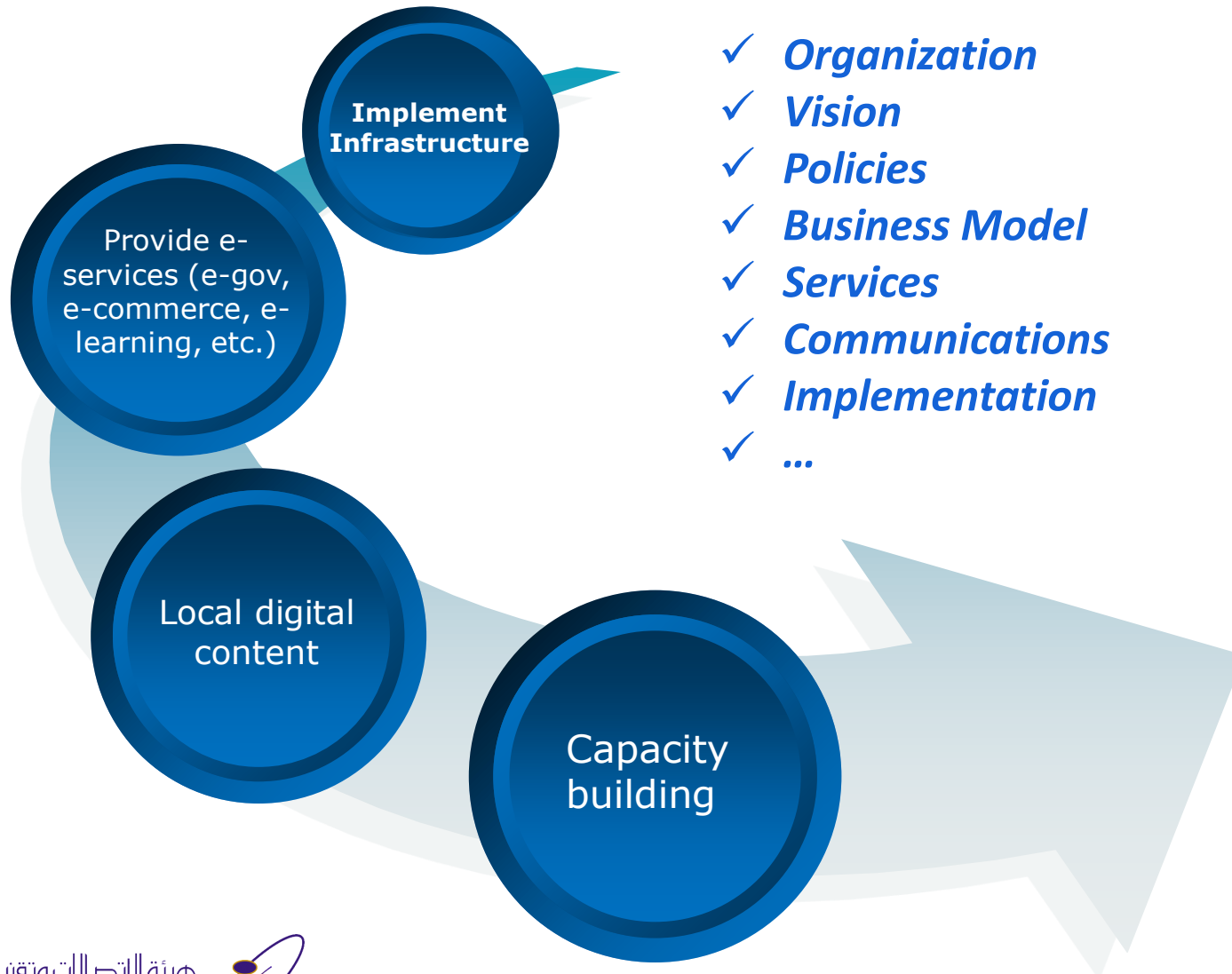


\* Source: IEEE WCNC2013

# ICT and Smart Cities



# Smart City Priorities



- ✓ **Organization**
- ✓ **Vision**
- ✓ **Policies**
- ✓ **Business Model**
- ✓ **Services**
- ✓ **Communications**
- ✓ **Implementation**
- ✓ ...

# Responsibilities and Tasks Regarding Smart Cities

- 🏛️ Develop policies, strategies, regulatory frameworks, guidelines and plans
- 🏛️ Improve efficiency of e-services
- 🏛️ Encourage use of green systems
- 🏛️ Financial support

## Public

- 🏛️ Personal development
- 🏛️ Utilization of available resources and services

## Government and Institutions

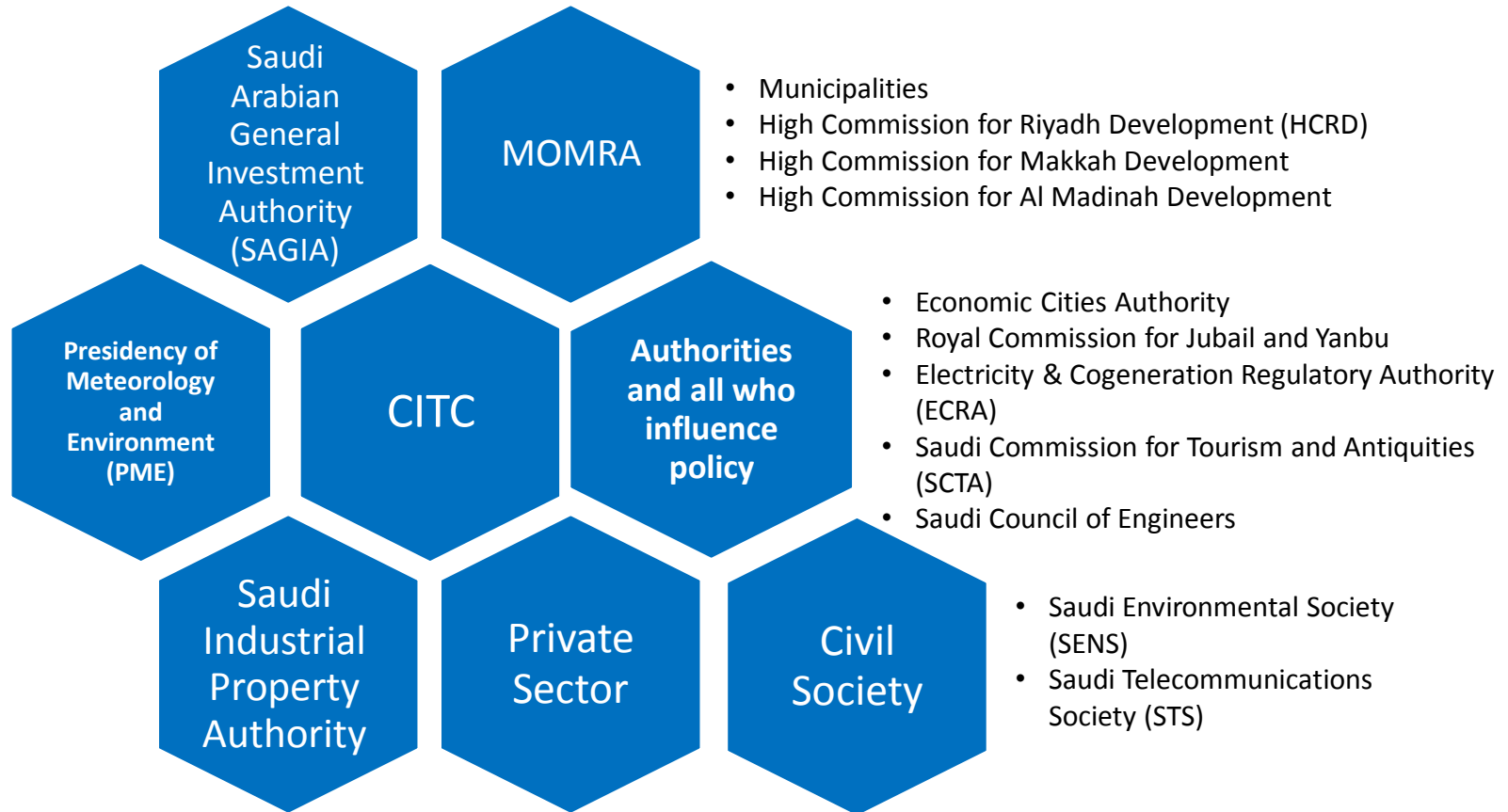


- 🏛️ Attract investment
- 🏛️ Compatibility with state-of-the-art systems
- 🏛️ Encourage initiatives
- 🏛️ Increase ICT awareness and usage to enhance national efficiency and productivity
- 🏛️ Investment in HR

## Private Sector

- 🏛️ Invest in infrastructure and digital content
- 🏛️ Follow up global technology trends and markets
- 🏛️ Use green and smart systems

# Principal Stakeholders in Saudi Arabia



# About CITC

Aims to create a positive environment to encourage investment and promote growth of the ICT market

Regulatory authority for telecommunications and IT in KSA

CITC

Established in 2001 with legal standing and financial and administrative independence

Regulates the telecom and IT sectors to ensure the provision of advanced and reliable services



# About CITC

## Vision

Universally available, high quality and affordable communications and information technology services

## Mission

- 1) Provide a fair, clear and transparent regulatory environment to promote competition and safeguard public interest and stakeholder rights
- 2) Enable universal availability of advanced ICT services at affordable prices and optimize utilization of scarce resources
- 3) Increase ICT awareness and usage to enhance national efficiency and productivity
- 4) Build & maintain a professional and motivated CITC team

# CITC Activities and Initiatives

## CITC Initiatives

CITC IT initiatives include: SMEs; e-commerce; IT industry building; local digital content; annual IT report, ICT awareness programs

## Licenses

CITC has issued 290 licenses in 15 service categories including: Fixed line, mobile, data service provider (DSP), ISP, GMPCS, VSAT, ...

## Broadband Strategy, UA/US

Develop broadband strategy, increase broadband penetration; Universal Service and Universal Access policy; Universal Service Fund (USF)

## Regulatory Framework

Service-specific & technology neutral regime, unified licensing and resale

## Government Projects

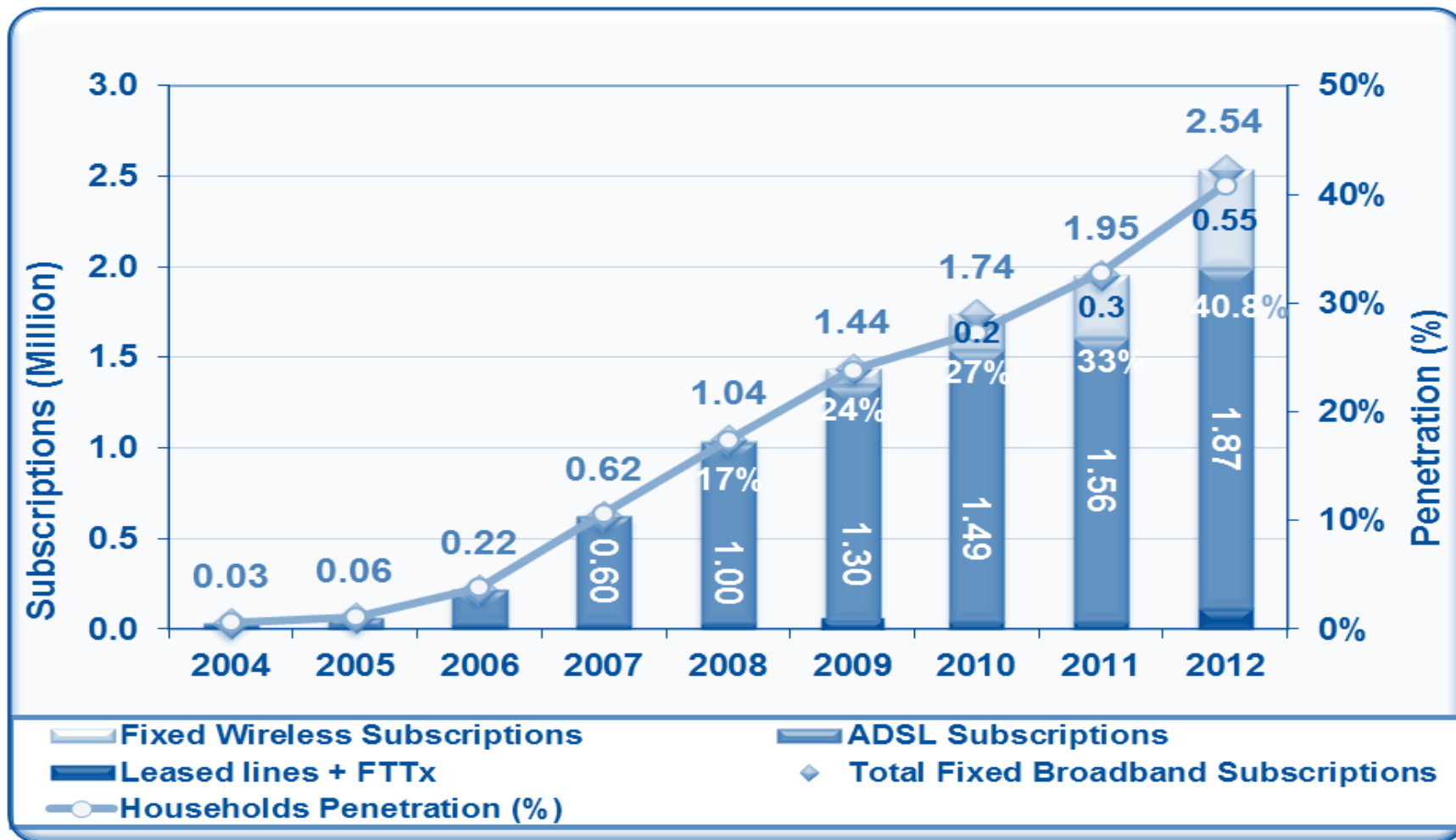
- e-Government program ("Yesser") → 1300 services in 2012
- The NCITP → 98 ICT projects (implemented/underway/planned)

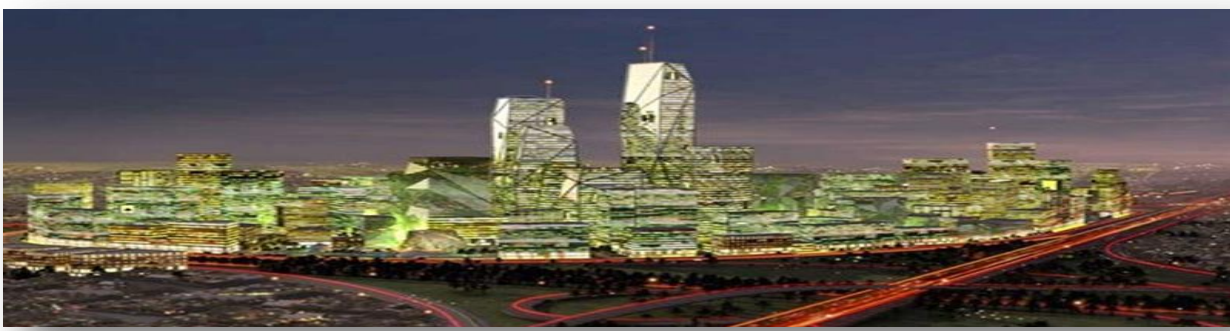
## Wholesale ICT Market

Major foreign investments in the KSA ICT wholesale market



# Fixed Broadband Market Evolution





## Sample Profiles of Smart Cities and Buildings in Saudi Arabia



# New CITC Building

HQ in Riyadh with area of about 88,500 m2.

Smart systems include:

- Building Management System (BMS) to connect and control all sub-systems
- Security systems
- Fire-fighting systems and multi-alarm
- HVAC
- High-speed network using fiber cable (over 3000 points of contact)
- Tier 3 Green Data Center
- Lighting control system
- IPTV system
- Indoor coverage for Wi-Fi and mobile, including LTE, for entire building
- Convention Center with high-tech systems
- Ability to broadcast events, meetings and seminars externally through the Internet
- Water systems
- ...



# Riyadh Techno Valley

- RTV was established to achieve the vision of Kingdom leadership to enter the "knowledge economy"
- Based on converting technical inventions into innovations and new products for trade and investment.

## Projects:

- King Abdullah Institute for Nanotechnology
- Prince Sultan Advanced Technology Institute
- RTV Main Building (Innovation Tower)
- National Diabetes Center
- SABIC Plastics Applications Development Center
- Researchers Housing Towers
- National Center for e-Learning and Distance Learning



Source: [www.rtv.com.sa](http://www.rtv.com.sa)

# Riyadh Techno Valley

**POLYMER RESEARCH CENTER AND ITS LABS**  
 مركز أبحاث البوليمر ومختبراته  
 100,000 sqm  
 100,000 متر مربع

**ARTS AND BUSINESS CENTER**  
 مركز الفنون والأعمال  
 100,000 sqm  
 100,000 متر مربع

**KING ABDULLAH INSTITUTE FOR NANO TECHNOLOGY**  
 معهد الملك عبد الله للتقنية النانوية  
 100,000 sqm  
 100,000 متر مربع

**RESEARCH CENTER FOR CLIMATE**  
 مركز أبحاث المناخ  
 100,000 sqm  
 100,000 متر مربع

**BANK CENTER FOR PLASTIC APPLICATIONS**  
 مركز أبحاث التطبيقات البلاستيكية  
 100,000 sqm  
 100,000 متر مربع

**RTV CENTER OF RESEARCH AND LABS**  
 مركز أبحاث وتطوير RTV  
 100,000 sqm  
 100,000 متر مربع

**RESEARCH CENTER FOR E-LEARNING**  
 مركز أبحاث التعلم الإلكتروني  
 100,000 sqm  
 100,000 متر مربع

**RESEARCH AND DEVELOPMENT CENTER FOR BACKBONE OF SMART CITY**  
 مركز أبحاث وتطوير مركز العمود الفقري للمدينة الذكية  
 100,000 sqm  
 100,000 متر مربع

**RESEARCH AND DEVELOPMENT CENTER**  
 مركز أبحاث وتطوير  
 100,000 sqm  
 100,000 متر مربع

**RESEARCHER'S HOUSING TOWERS**  
 أبراج سكنية للباحثين  
 100,000 sqm  
 100,000 متر مربع

**RTV - CURRENT PROJECTS**

المشاريع الحالية بوادي الرياض للتقنية

# Comprehensive Strategic Plan for Makkah Holy Places and Mashaar

- Includes 21 plans to ensure the city has world-class facilities and services
- Cost to implement the plans SAR100 billion (\$26.67 B)
- Examples of plans:
  - Implementation plan
  - GIS framework & base
  - Review of previously adopted plans and existing strategies
  - Transportation plan
  - Public utilities and infrastructure plan
  - Makkah environmental plan
  - Expansion of the Holy Sites
  - Urban design and architectural guidelines
  - Community facilities plan
  - Urban development regulations



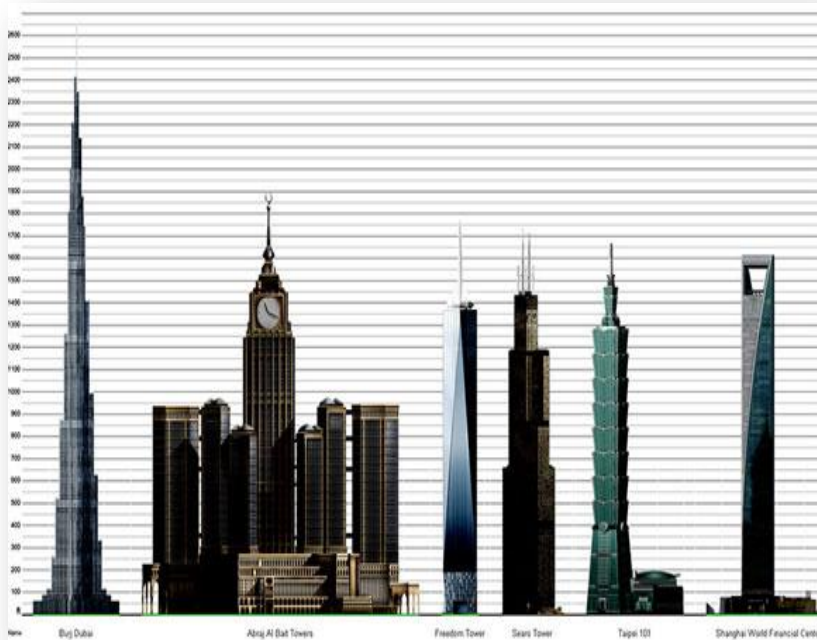


# Holy Mosque, Makkah



# Central Area of the Holy Mosque

- The Abraj Al-Bait Towers in Makkah, Saudi Arabia, is the tallest clock tower, tallest hotel, largest and 2<sup>nd</sup> tallest building in the world
- 43-meter diameter clock built on this 601-meter hotel tower



Source: [www.ctbuh.org](http://www.ctbuh.org)

# Information Technology Communications Complex (ITCC)

- To attract the world's leading ICT companies by offering the world's best ICT services and infrastructure
- ITCC development cost US \$1.65 billion (SAR 6.5 billion)
- ITCC will achieve at least the basic LEED environmental certification through the use of grey water recycling, low energy lighting, low energy air conditioning and most of all – reduction in solar gain



# King Abdullah Financial District (KAFD)

- KAFD now the world's biggest green development – massive real estate project seeking green accreditation
- Expected cost for the project is \$10 billion
- More than 40 towers covering 1.6 km<sup>2</sup>



Source: MEED's Saudi Green Buildings Forum 2011

# Knowledge Economic City (KEC)

- KEC is a modern development with the latest ICT infrastructure based on a Smart City model where residents, workers and visitors can take advantage of the Smart Infrastructure related services to enable lifestyle experience and achieve optimum productivity
- IP-based network improves ability to manage maintenance and energy usage as well as provides a platform to deliver various network-related value added services

## Facts and Numbers

- Total investment in KEC upon completion is SAR 30 billion (\$8 billion)
- 4.8 million square meters of land
- 9 million square meters of built up area
- 120,000 population
- Hotels can accommodate up to 20,000 visitors
- 20,000 employment in various sectors
- 30,000 residential units
- 1200 shopping outlets



Source: [www.madinahkec.com](http://www.madinahkec.com)

# Examples of Economic Cities

The economic cities are an infrastructure priority and are expected to attract \$100B in investment

## King Abdullah Economic City (West)

The city will integrate itself into the Kingdom's ongoing drive to expand the economy and function as a catalyst to attract foreign investment, global trade, commerce and industry

- Investment: SAR 100B (\$26.67B)
- Located in **Rabigh**
- Announced on 20 Dec 2005



## Prince Abdulaziz Bin Mousaed Economic City (North)

Core industries to be agribusiness, building materials and logistics supplemented by light industry, tourism and real estate

- Investment: SAR 30B (\$8B)
- Located in **Hail**
- Announced on 16 June 2006



## Jazan City (South)

Will contain an advanced industrial zone equipped with superior network facilities specifically for heavy industry projects as well as secondary (processing) industries

- Investment: SAR 100B (\$26.67B)
- Located in **Jazan**



Source: SAGIA

# Related Events

## In Saudi Arabia

- Smart Cities Forum, Riyadh, 6 Feb 2007
- Intelligent Cities Conference, Makkah, 19-21 January 2009
- Saudi Green Buildings Forum 2012
- Digital Grids and Smart Cities Summit, Riyadh, 10-13 March 2013

## In the Arab Region

- Middle East Smart Cities Conference, Dubai, 4-5 June 2012
- ICT as an Enabler for Smart Water Management, Egypt, 14 April 2013
- Arab Future Cities Summit 2013 “Smart Solutions for Sustainable Cities”, Doha, 22-23 April 2013
- 2<sup>nd</sup> World Smart Grid Conference Middle East, Abu Dhabi, 22-23 April 2013

# Conclusion

- ❖ Issue yearly progress report about ICT and Smart Cities including practical indicators, developed by ITU-T, to measure improvement and efficiency using ICT in Smart Cities
- ❖ Recommend a strategy for Smart Cities by ITU, to be adopted by Member States
- ❖ Develop technical guidelines and specifications for implementing ICT infrastructure for governmental complexes, districts, compounds, houses, etc.
- ❖ Importance of policies and regulations to encourage investment in Smart Cities.
- ❖ Identify roles and responsibilities of in-country stakeholders regarding Smart Cities.