DIGITAL INSIGHTS
2021

Quarter 3

NEW THIS QUARTER:

- Connectivity drive accelerates with opening of mobile networks and fiber connections for shared services

- Exclusive insights on CITC's Open Access broadband initiative from Zain's CEO, Eng. Sultan bin Abdulaziz Al-Deghaither

- Details on CITC's connectivity-boosting measures, including spectrum auctions, new regulations and public consultations

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EXECUTIVE SUMMARY

◆ CITC commenced phase two of its Open Access initiative, which allows providers of fiber connections to homes (FTTH) or business premises to open their networks to all users. While phase one targeted retail consumers, the second phase extends the initiative to the business sector.

◆ CITC's local roaming service was launched in Asir, before being extended to most of the country. The service allows customers to change networks and access telecom and digital services in areas not covered by their providers. Full implementation will bring 21,000 villages into the scheme.

◆ Saudi Arabia's average mobile internet download speed reached a record high of 149.06 Mbps, a 103% rise on the previous year. The fixed internet download speed also set a new high, with a 42.5% gain to break the 100 Mbps barrier (100.29 Mbps).

◆ Average 5G download speed is around 2.5 times faster than the 4G equivalent, while the number of governates with 5G coverage has risen to 76, up from 44 in Q3 2020.

◆ Machine to Machine (M2M) services showed strong growth, with M2M subscriptions rising by 125% year-on-year on the back of improving connections and increasing uptake of Internet of Things (IoT) technologies.

◆ CITC's third quarterly 'Game Mode' report reveals a high performing gaming segment, with an average latency of just 19ms for fixed internet and 26ms for 5G.

◆ As part of its drive to expand the Kingdom's ICT ecosystem, CITC established a regulatory fast-track mechanism for cloud computing services, as well as launching public consultations on a spectrum auction and new regulations for digital content platforms.

◆ Saudi Arabia promulgated its Personal Data Protection Law (PDPL), establishing a clear framework for the collection and processing of personal information that brings benefits to investors and consumers.

◆ CITC partnered with the General Authority for Small and Medium Enterprises ('Monsha'at') to encourage the development of delivery applications, adding momentum to one of the most dynamic of areas of the digital landscape.

TOP FIVE DIGITAL POINTS IN Q3 2021

149.06	**47.72**	**100.3**	**7th**	**5.1**
Mbps	million	Mbps	globally	million
average mobile internet download speed, a 103% year-on-year increase	mobile telecom subscriptions with a penetration rate of 136.3%	average high-speed fixed internet download speed, a 42.5% year-on-year increase	for fastest mobile internet speed	machine to machine (M2M) subscriptions , a 125% year-on-year increase

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SPECIAL QUARTERLY FEATURE: OPEN ACCESS

CITC launches second phase of Open Access initiative

Following the success of the open access project for residential users, in September 2021 CITC extended the concept to the business sector.

Commercial agreements for phase two signed with

In 2020, the Kingdom became one of the first countries in the world to allow the sharing of all FTTH networks. The move was part of a wider effort to roll out FTTH ultra-fast broadband, in line with Vision 2030's National Transformation Program.

Why open access?

The open access model ensures efficient investment in the sector, reducing overlaps and unnecessary infrastructure.

Boosts consumer choice and market competition

Improves quality

Options diversification

Supports investment

What is Open Access?

All operators deploying fiber connections to homes (FTTH) or business premises open their networks to all users, meaning that consumers can choose the most appropriate fiber-optic service provider regardless of who owns the infrastructure

Source: FSDP, Vision 2030

Eng. Sultan bin Abdulaziz Al-Deghaither
Zain's CEO

How will the Open Access project change the provision of internet in Saudi Arabia?

Open Access fiber will completely transform the Kingdom's Fiber-to-the-Home (FTTH) market, fostering the creation of new products and services. The strength of the concept rests in its efficiency and fairness. In the open access regulatory model, the roles and requirements of Access Providers (owners of the FTTH infrastructure) and Access Seekers (incumbent and emerging service providers) are clearly established. A fair cost structure, meanwhile, ensures that Access Seekers can offer competitive packages to consumers. Such a clear and equitable framework encourages investment and innovation – customers will have access to a variety of options, including constant, fast, and reliable connectivity, even outside the coverage area of their primary service provider. All this will accelerate the digital transformation in the Kingdom, contributing to the goals of Vision 2030.

With Open Access leading to a more competitive market, what kind of responses are we likely to see from telecommunication firms?

We expect to see a host of different market trends. Open Access to reliable networks means that service providers can concentrate on the competitive value of their core business. Notably, incumbent owner-operators will be able to shift from costly and time-consuming CAPEX investment models to an OPEX-oriented approach. The lower risk involved in shared networks will maximize return on investment, spurring further market activity. This will result in competition and innovation, with users benefiting from more product and price options as companies compete to attract new subscribers. Things are moving quickly – we will see these trends emerge in the short term.

At Zain KSA, we announced our contribution to Open Access back in July 2020, offering Zain Fiber packages to all the Kingdom's regions and cities. We were also the first provider in the Kingdom to launch fiber optic packages reaching 500 Mbps.

Open Access initiatives in other markets have been used to attract international investment. How can Open Access create a more attractive investment environment for international companies?

Our government has prioritized creating an innovative, dynamic and open ICT sector in efforts to raise the Kingdom's attractiveness as an investment destination. Within this, the Open Access model has emerged as an important driver of growth, encouraging investment by bringing higher return to shareholders and better efficiency and commercialization prospects to operators.

That said, the single greatest pull-factor for foreign investors is the neutrality built into the Open Access concept: networks owned and operated by independent wholesalers provide a fair and equal service to all commercial players in the market.

What benefits will Open Access bring to consumers, and how will they affect the roll out of FTTH?

The network sharing model will provide unlimited and high-speed internet to users through high value offerings. The added speed, reliability, and agility will redefine the user experience, enhancing productivity and improving quality of life. Broadband networks enhance the efficiency and breadth of existing services in crucial economic sectors, such as industry, health, and education, as well as providing additional capacity for future applications. Open Access agreements will further drive Saudi Arabia's FTTH penetration, which at around 41.8% in 2020, is already comfortably above Europe's average rate of 13.1%.

In short, broadband networks will be the main enabler of the ongoing digital transformation. At the level of FTTH, the Open Access business model will speed up the service rollout with higher quality and lower costs, encouraging users to take up new technologies that are faster, more reliable, and more affordable.

As advancements in spectrum allocation and infrastructure deployment continue, how is Saudi Arabia's telecommunications market set to develop in the medium to long term?

Over the past few years, the Ministry of Communications and Information Technology, as well as CITC, have focused on allocating frequency spectrum for mobile services, encouraging investment in wireless infrastructure to support the latest technologies in the Kingdom, such as 5G, Wi-Fi 6e, virtual and augmented reality (VR / AR) and IoT. This strategy has accelerated the nationwide digital transformation and contributed to the Kingdom's position among the 10 fastest countries globally for mobile internet speed and its second-place ranking in the G20 for spectrum allocation in 2021. The strategy also underpinned innovation across a range of sectors, such as manufacturing, Fintech, and digital entertainment, and led to service automation in multiple industries. Today, the Saudi ICT sector is better positioned than ever to accelerate the country's shift to a digital economy, supporting the goal of becoming a world-leading smart hub.

TELECOM MARKET TRENDS

Mobile

Internet speed and global ranking

Saudi Arabia's average mobile internet download speed reached a record high in Q3 2021 at 149.06 Mbps, a 1.36% quarter-on-quarter rise and a 103% rise on the previous year.

149.06

Mbps average mobile download speed

103%

year-on-year increase in average mobile internet download speed

1.36%

quarter-on-quarter increase in average mobile internet down-load speed

7th

globally for fastest mobile internet speed

Average quarterly mobile internet download speed (Mbps)

55.71	60.47	73.42	97.54	119.52	147.06	149.06
Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021

Saudi Arabia's global quarterly mobile speed ranking

Q3 2021	7
Q2 2021	7
Q1 2021	5
Q4 2020	7
Q3 2020	7
Q2 2020	10
Q1 2020	12

Subscriptions

The Kingdom's population is one of the most connected in the region. A mobile penetration rate in excess of 100% continues to grow, with mobile telecom subscriptions posting an annualized increase of 5.5% in Q3 2021.

47.72
million mobile telecom subscriptions

136.3%
penetration rate for mobile telecom services

5.5%
rise in subscriptions from Q3 2020 to Q3 2021

Mobile telecom subscriptions (million)

Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021
45.24	46.35	48.11	47.16	47.72

Mobile telecom subscriptions population penetration (%)

Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021
132.2%	135.5%	137.4%	134.7%	136.3%

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5G

Internet speed and coverage

The Kingdom's rapidly expanding 5G coverage is opening new possibilities for consumers and businesses, from faster movie downloads to clearer, low-latency communications for IoT. The average download speed using 5G was around 2.5 times faster than the standard mobile internet download speed in Q3 2021.

367.7 Mbps

average 5G internet download speed

76 cities

in the Kingdom have access to 5G services, up from 44 in Q3 of 2020

Average 5G internet download speed (Mbps)

Q4 2020	Q1 2021	Q2 2021	Q3 2021
315.55	322.42	370.12	367.73

Number of governates covered by 5G services

Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021
35	44	51	53	60	76

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HIGH-SPEED FIXED INTERNET

Internet speeds

Saudi Arabia's investment in fixed internet, including the rollout of an advanced fiber connection, continues to drive increases in average speeds.

100.29 Mbps
average high- speed fixed inter-net download speed

40.7%
increase in average high-speed fixed internet from Q3 2020 to Q3 2021

Average high-speed fixed internet download speed (Mbps)

61.39   64.89   71.28   77.73   82.33   91.56   100.29

Q1 2020   Q2 2020   Q3 2020   Q4 2020   Q1 2021   Q2 2021   Q3 2021

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Subscriptions

Demand for fixed line internet services remains strong. Subscriptions stood at 2.2m in Q3 2021, a rise of 1% from Q3 2020 that brought the household penetration rate to 35.8%.

2.2 million
high-speed fixed internet subscriptions

35.8%
household penetration of high-speed fixed internet subscriptions

1.2%
increase in high-speed fixed internet subscriptions from Q3 2020 to Q3 2021

High-speed fixed internet subscriptions (million)

Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021
2.09	2.13	2.17	2.19	2.22	2.2	2.2

High-speed fixed internet subscriptions household penetration (%)

Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021
33.8%	34.6%	35.3%	35.6%	36.2%	35.9%	35.8%

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Fiber

service provider speeds

The highest average fiber internet speed recorded in Q3 was 154.44 Mbps.

zain	salam	stc	Mobily	GO
154.4	**100.02**	**91.48**	**86.72**	**38.98**
Mbps	Mbps	Mbps	Mbps	Mbps

M2M services

Subscriptions

Wider bandwidth, improved latency and the increasing adoption of Internet of Things (IoT) technologies are supporting a rapid growth in machine-to-machine (M2M) communication services.

5.1 million

M2M services subscriptions

125%

year-on-year increase in M2M services subscriptions

M2M services subscriptions (million)

Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021
1.12	1.39	2.25	3.29	4.56	4.81	5.1

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CORPORATE QUARTERLY UPDATES

Service providers show fast gaming response times Kingdom-wide.

The third quarterly 'Game Mode' report by CITC evaluates Saudi Arabia's telecom service providers based on their video gaming performance.

GAME MODE

Average response times

19ms
Fixed line

34ms
Mobile

26ms
5G

The Game Mode reports provide useful insights on:

- Saudi gaming market
- Popular games in the gamers' community
- Guidelines for gamers to improve the overall quality of internet connection and speed

What were the results of the second quarterly Game Mode report?

	stc	Mobily	zain	salam	go
Fixed	3 (21ms)	2 (11ms)	4 (28ms)	1 (10ms)	5 (29ms)
Mobile	3 (36ms)	1 (31ms)	2 (32ms)	--	--
5G	3 (28ms)	1 (23ms)	2 (24ms)	--	--

Breaking down the results by game, STC leads with the smallest average latency in seven of the most popular games in Saudi Arabia, followed by Mobily (2) and Zain (1).

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Average response time results for the games

FORTNITE

Latency (Ping)

	First Place 1	Second Place 2	Third Place 3	Fourth Place 4	Saudi Arabia's Latency
	stc	zain	salam	Mobily	
	10 ms	13 ms	20 ms	24 ms	19 ms

FORTNITE

FIFA

Latency (Ping)

	First Place 1	Second Place 2	Third Place 3	Saudi Arabia's Latency
	stc	zain	salam / Mobily	
	11 ms	13 ms	23 ms	21 ms

EA SPORTS FIFA 21

APEX LEGENDS

Latency (Ping)

	First Place 1	Second Place 2	Third Place 3	Fourth Place 4	Saudi Arabia's Latency
	stc	zain	Mobily	salam	
	11 ms	13 ms	24 ms	27 ms	22 ms

APEX LEGENDS

LEAGUE OF LEGENDS

Latency (Ping)

	First Place 1	Second Place 2	Third Place 3	Fourth Place 4	Saudi Arabia's Latency
	Mobily	zain	stc	salam	
	77 ms	83 ms	85 ms	89 ms	85 ms

LEAGUE OF LEGENDS

DOTA 2

Latency (Ping)

	First Place 1	Second Place 2	Third Place 3	Fourth Place 4	Saudi Arabia's Latency
	stc	zain	salam	Mobily	
	18 ms	20 ms	25 ms	30 ms	23 ms

DOTA 2

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Average response time results for the games

PUBG

Latency (Ping)

	1 First Place	2 Second Place	3 Third Place	4 Fourth Place	Saudi Arabia's Latency
	zain	Mobily	stc	salam	
	78 ms	79 ms	82 ms	86 ms	82 ms

WORLD OF WARCRAFT

Latency (Ping)

	1 First Place	2 Second Place	3 Third Place	Saudi Arabia's Latency
	stc Mobily	zain	salam	
	82 ms	83 ms	88 ms	83 ms

AMONG US

Latency (Ping)

	1 First Place	2 Second Place	3 Third Place	Saudi Arabia's Latency
	Mobily	zain	salam stc	
	77 ms	78 ms	84 ms	82 ms

VALORANT

Latency (Ping)

	1 First Place	2 Second Place	3 Third Place	4 Fourth Place	Saudi Arabia's Latency
	stc	Mobily	zain	salam	
	11 ms	26 ms	32 ms	37 ms	26 ms

OVERWATCH

Latency (Ping)

	1 First Place	2 Second Place	3 Third Place	4 Fourth Place	Saudi Arabia's Latency
	stc	zain	Mobily	salam	
	11 ms	14 ms	23 ms	28 ms	22 ms

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NEWS AND INITIATIVES

Plans to auction more commercial spectrum

Following on from the publication of its three-year spectrum strategy in March 2021, in October CITC published a public consultation for a spectrum auction of 2100 MHz for non-terrestrial networks.

The consultation was the latest in a series of opinion-gathering exercises, in which CITC has sought feedback from domestic and international parties on innovative models of spectrum usage. These include spectrum wholesaling, joint ventures with utility and industrial entities, and 'light licensing' – which uses geo-location and signal sensing mechanism to allow systems to share spectrum.

CITC's consultations and forthcoming spectrum auctions are key to the national digital transformation of the Kingdom, allowing for greater usage of the latest non-terrestrial technologies.

5G

Mobile satellite services (MSS)

Internet on airplane (A2G)

Internet of things via satellite (MSS–IoT)

Local roaming rollout gathers speed

In August, CITC launched its local roaming service, which aims to improve connectivity in the Kingdom's villages and remote areas. Local roaming allows customers to change networks without incurring additional fees, making it easier for users to access telecom and digital services in areas where their provider does not cover.

The service, initially rolled out in the Asir region, has been extended over most of the country, including Riyadh, Qassim, Eastern Province, Northern Borders, Jouf, Madinah, Hail and Tabouk, Makkah and Al-Baha.

sign commercial agreement to provide service

21,000

villages to be covered in final implementation

Voice

internet and text messaging without additional charges

By introducing local roaming, CITC aims to boost competitiveness, improve service quality and user experience, and support the Kingdom's digital transformation.

CITC and Monsha'at to support SME development

CITC signed a cooperation agreement with the General Authority for Small and Medium Enterprises ('Monsha'at') in September, with the aim of encouraging the development of delivery applications.

The two organizations will help SMEs with delivery app concepts gain access to CITC's new experimental regulatory environment for delivery applications (Sandbox).

COOPERATION

with finance companies to provide funding solutions

ACCESS

to Thakaa center (specialized Internet of Things data analysis)

CITC's agreement with Monsha'at will drive innovation and localization in the sector, while ensuring that the Kingdom keeps pace with the fast-emerging digital economy.

REGULATORY UPDATES

Spectrum usage: CITC launches public consultation on 'light licensing' regulations

In August, CITC published a consultation document outlining its plans to improve access to more than 13 GHz of spectrum through light licensing regimes that cater to specific usage categories.

Light licensing is a form of spectrum sharing that takes numerous forms, including geo-location tech to limit span and the waiver of individual frequency planning or coordination. The aim of CITC's consultation process is to determine the most suitable light licensing model for the Kingdom.

Improve access to spectrum

Promote competition

Enable innovation

Nation's first Personal Data Protection Law announced

Saudi Arabia promulgated its Personal Data Protection Law (PDPL) in September, closing a legislative gap and establishing a clear framework for the collection and processing of personal information.

The law, which will come into effect in March 2022, addresses important areas such as data subject rights, controller registration and obligations, marketing, purpose limitation, and consent and non-consent based processing.

Implementation to be supervised by Saudi Data & Artificial Intelligence Authority

Transitional period of at least 18 months

The introduction of the PDPL will prevent the abuse of personal data, in line with the Vision 2030 goals to develop digital infrastructure and support innovation in a digital economy.

Licenses

NEW MEASURES TO BOOST CLOUD COMPUTING

In September, CITC announced the launch of a 'Qualifying Category' track for cloud computing service providers, allowing successful applicants to start providing cloud services immediately, providing that they meet qualifying criteria within one year.

The move follows an announcement by German software corporation SAP that it will invest $76m to create a public cloud hub in Saudi Arabia. The undertaking will include four key pillars:

Public cloud data center

Open platform for local developers

Co-Innovation center to support startups

Localization of SAP solutions

Increasing the competitiveness and boosting investment in the cloud computing space is a CITC priority. The authority invests local and international entities interested in the Kingdom's cloud services market to visit its website to view the conditions for joining and registering for the new Qualifying Category track.