Iran: Ready for a telecom leapfrog

With growth factors aligned, Iran might be on the verge of a digital transformation

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Arthur D Little

Content

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Executive summary

Globally the telecom industry has undergone rapid change, driven by an increasing share of data and ICT revenues for operators. Even though Iran still lags in fixed and mobile broadband development, there has been rapid growth in recent years. We believe there is a sizable opportunity for both existing service providers and potential new entrants into one of the largest markets in the Middle East. Given the global technological inclusion and improving local conditions, Iran might be on the verge of a dramatic digital transformation with a significant potential upside in the ICT contribution to GDP.

1. Iran in the global telecom industry

Until recently, Iran was largely isolated from the global trends within the telecom industry, but this has started to change. We believe there is a big opportunity for existing service providers and potential new entrants into one of the largest markets in the Middle East.

In developed markets data is king – charging for minutes and text messages is largely a thing of the past, with bundled packages priced on data allowance size. Average data usage per subscriber reaches gigabytes per month, and video takes the lion's share. The rise of OTT services initially brought disruption and a wave of consolidation, including fixed-mobile convergence.

While this is still ongoing, some markets have already turned the corner, with data revenues contributing to overall growth in spite of shrinking voice and text revenues. At the same time, operators have increased their focus on optimization, including virtualization of networks and IT. The Internet of Things (IoT) is shaping up as a huge opportunity, and 5G is around the corner as a major enabler of industry modernization.
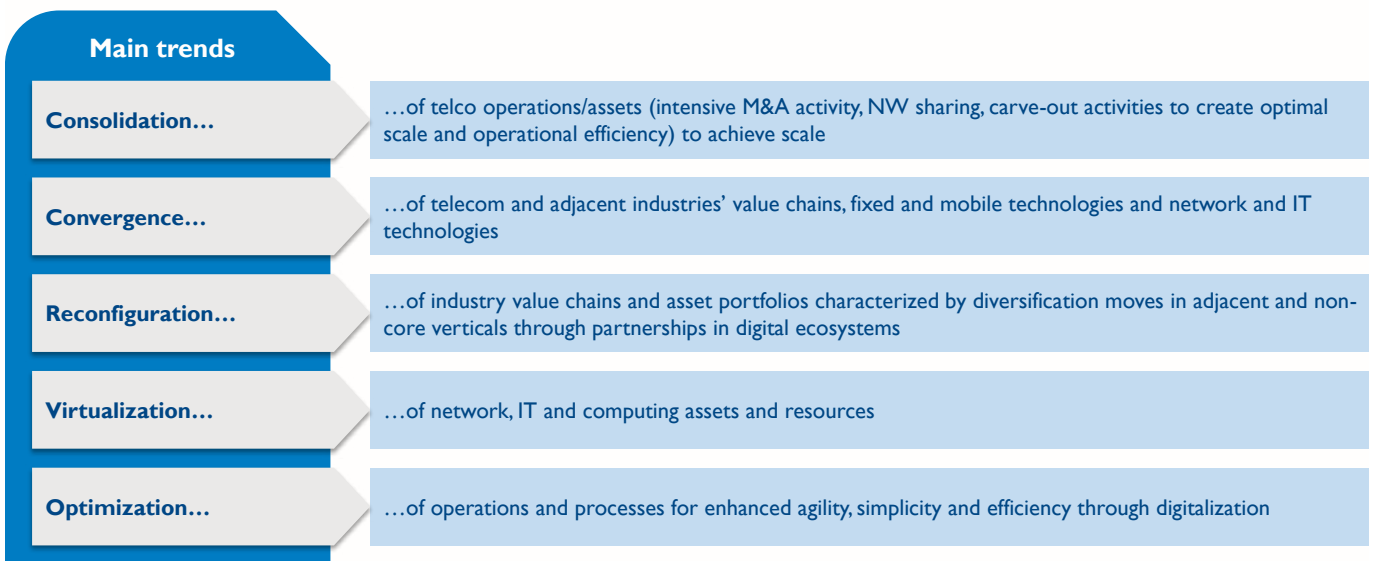
Finally, many telecom providers have become full-blown ICT providers with strong cloud, data center and managed-services offerings. Fast and ever-expanding fiber and 4G infrastructure underpins most of these developments.

In Iran, mobile broadband was introduced with significant delay in 2012 by third-largest operator RighTel. MTN Irancell and MCI followed later, and the uptake of their mobile broadband offerings exceeded expectations, proving pent-up demand. Nevertheless, smartphone penetration and the accompanying mobile-broadband usage are still low compared to those in other markets. Most data users subscribe to 2G and 3G, with only a small minority using 4G. Fixed and mobile networks have improved significantly in the last year, although they are still slow compared to networks in other markets. This hinders video consumption and the broader app economy. As a result of low take-up of 4G and fiber, average data consumption is still negligible compared to that in developed markets. The B2B market is largely untapped, and historically the segment was non-existent in players' offerings. After decades of sanctions and years of currency devaluation, infrastructure quality and quantity are insufficient.

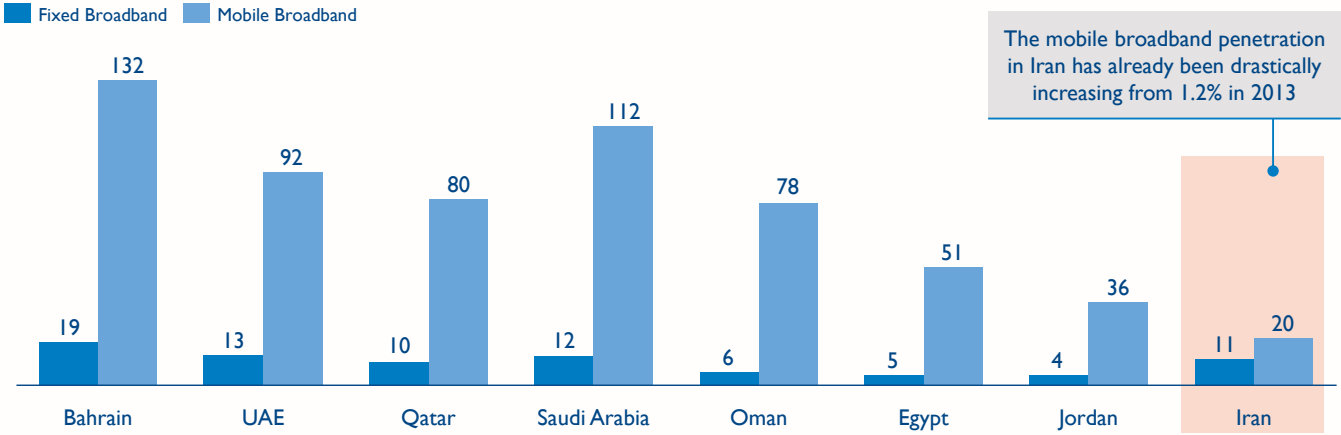## Penetration of both fixed and mobile broadband must be improved

While the overall penetration of fixed-line and mobile services in Iran is relatively high and comparable to that in other markets in the region, broadband penetration remains low. Given swift

Figure 1: Key global trends in the telecom industry

Main trends	
Consolidation…	…of telco operations/assets (intensive M&A activity, NW sharing, carve-out activities to create optimal scale and operational efficiency) to achieve scale
Convergence…	…of telecom and adjacent industries' value chains, fixed and mobile technologies and network and IT technologies
Reconfiguration…	…of industry value chains and asset portfolios characterized by diversification moves in adjacent and non-core verticals through partnerships in digital ecosystems
Virtualization…	…of network, IT and computing assets and resources
Optimization…	…of operations and processes for enhanced agility, simplicity and efficiency through digitalization

Source: Arthur D. Little

Figure 2: Fixed and mobile broadband penetration, selected Middle Eastern countries, 2016

■ Fixed Broadband ■ Mobile Broadband

The mobile broadband penetration in Iran has already been drastically increasing from 1.2% in 2013

	Bahrain	UAE	Qatar	Saudi Arabia	Oman	Egypt	Jordan	Iran
Fixed	19	13	10	12	6	5	4	11
Mobile	132	92	80	112	78	51	36	20

Source: The State of Broadband 2016 by ITU, Arthur D. Little analysis

recent uptake, the numbers might have increased strongly beyond the publicly available data that shows mobile broadband penetration of only ~20 percent.

This can be attributed to a number of historical reasons, including poor quality of broadband services, economic sanctions and speed restrictions imposed by regulatory authorities. Additionally, the weak financial strength of the fixed
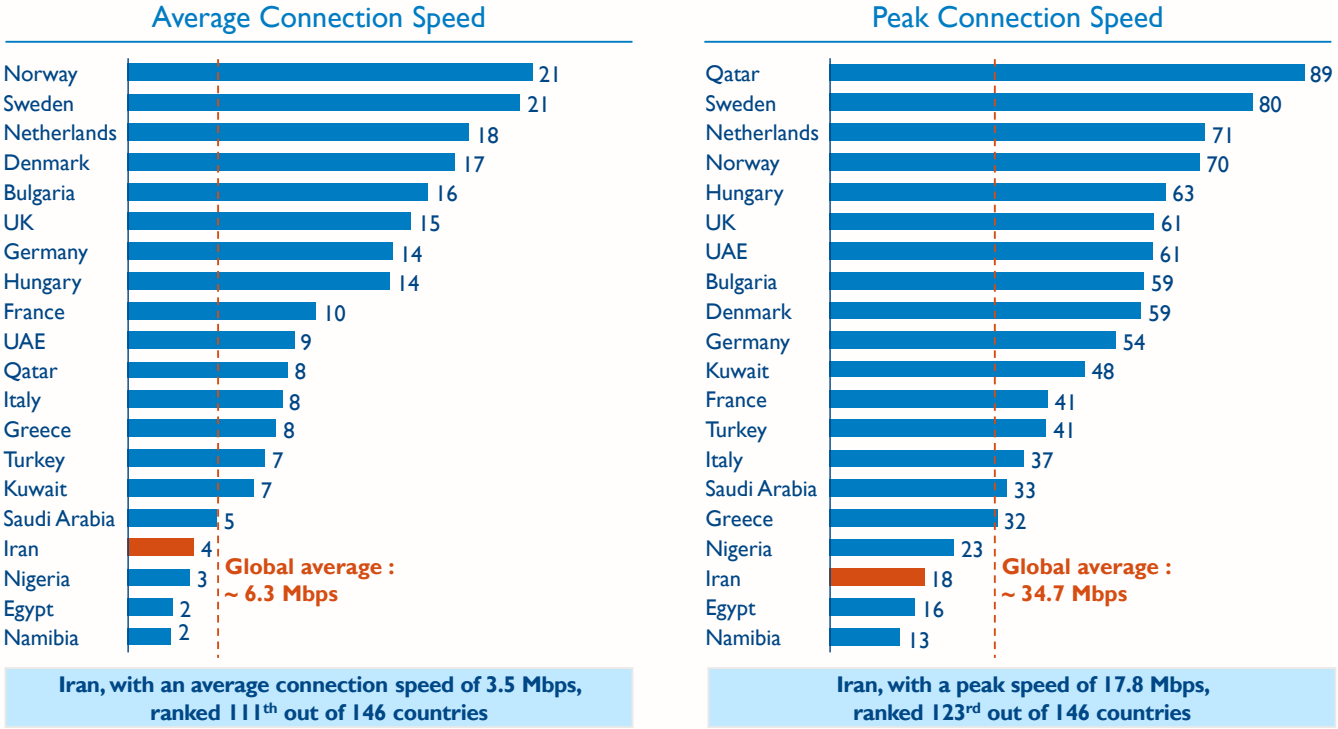
incumbent, Telecommunication Company of Iran (TCI), partially caused by low end-user prices for its services, has resulted in limited roll-out of fiber infrastructure in the country until now.

Fixed-broadband speed is still low

The broadband speeds in Iran are relatively low; fixed broadband, in particular, compares quite poorly with international

Figure 3: Average and peak fixed broadband speeds (Q3'2016), selected countries
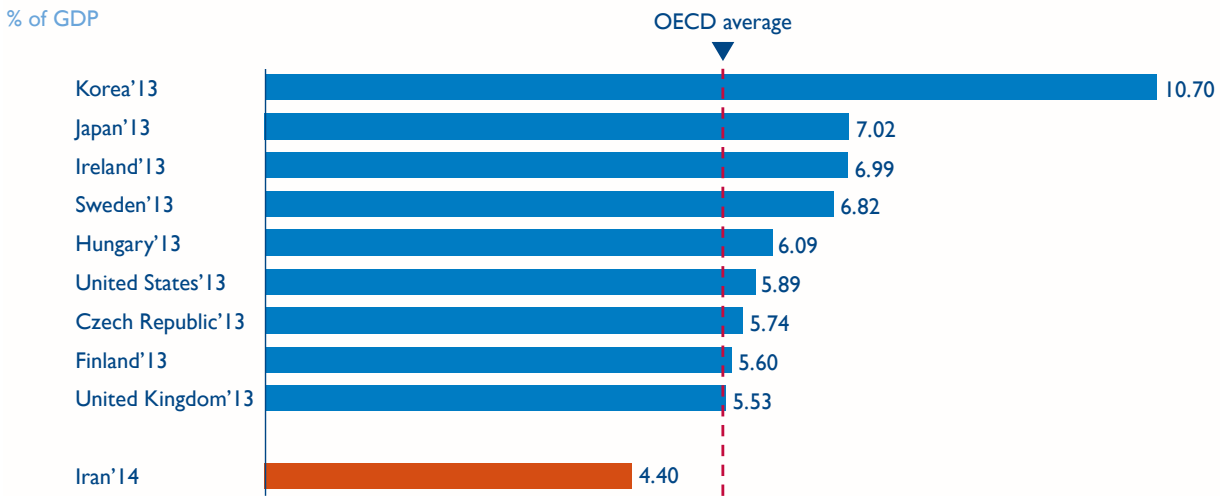
Avg. Mbps

Average Connection Speed

Country	Mbps
Norway	21
Sweden	21
Netherlands	18
Denmark	17
Bulgaria	16
UK	15
Germany	14
Hungary	14
France	10
UAE	9
Qatar	8
Italy	8
Greece	8
Turkey	7
Kuwait	7
Saudi Arabia	5
Iran	4
Nigeria	3
Egypt	2
Namibia	2

Global average : ~ 6.3 Mbps

Iran, with an average connection speed of 3.5 Mbps, ranked 111th out of 146 countries

Peak Connection Speed

Country	Mbps
Qatar	89
Sweden	80
Netherlands	71
Norway	70
Hungary	63
UK	61
UAE	61
Bulgaria	59
Denmark	59
Germany	54
Kuwait	48
France	41
Turkey	41
Italy	37
Saudi Arabia	33
Greece	32
Nigeria	23
Iran	18
Egypt	16
Namibia	13

Global average : ~ 34.7 Mbps

Iran, with a peak speed of 17.8 Mbps, ranked 123rd out of 146 countries

Source: Akamai 'State of the Internet' (2016), Arthur D. Little analysis

1 Akamai's State of the Internet, Q3'2016 report

Arthur D Little

Figure 4: ICT contribution to GDP, selected countries

% of GDP

OECD average

Country	% of GDP
Korea'13	10.70
Japan'13	7.02
Ireland'13	6.99
Sweden'13	6.82
Hungary'13	6.09
United States'13	5.89
Czech Republic'13	5.74
Finland'13	5.60
United Kingdom'13	5.53
Iran'14	4.40

Source: Frost & Sullivan, World Bank, OECD, Arthur D. Little analysis

and regional benchmarks. With an average connection speed of 3.7 Mbps, Iran ranked 112th out of 146 countries in Q3'2016[1], when the global average was 6.3 Mbps. In terms of peak speed, Iran ranked 124th out of 146 countries with peak speed of 16.9 Mbps, whereas the global average was 37.2 Mbps. In effect, leading countries have average speeds of ~5x and peak speeds of ~6x compared to those in Iran.

Low broadband speed has the dual negative impact of limiting consumer applications, such as video streaming, as well as businesses' technology-based innovation.

Product portfolios are relatively limited

The existing market players have relatively limited options in their product portfolio for both consumers and enterprises.

Even though the Iranian market is very competitive, this has not resulted in converged offerings between fixed and mobile products yet. The mobile and fixed incumbents – MCI and TCI, operate completely independently, whereas the newer mobile players do not offer fixed services in the classic sense. At the

same time data packages are largely sold on a standalone basis, with bundles of voice, text and data being the exception rather than the norm. Furthermore, international app stores are not available in Iran, and subsequently smartphone apps are downloaded from local app stores such as Café Bazaar.

The ICT contribution to Iran's GDP is below the developed market average

Moreover the B2B segment in Iran is still largely untapped by operators, with no dedicated offerings for the different segments and limited ICT portfolio in general. While in other markets 15-30% of a telecom operator's business is generated by business customers, in Iran a business owner might still buy multiple consumer subscriptions for business usage.

Given the low broadband penetration and speed, Iran has not been able to unlock the full potential of ICT towards its socio-economic development. While in leading ICT countries, the contribution of ICT to GDP can go as high as 10 percent, in Iran it stands at 4.4 percent of the overall GDP. At the same time, the developed markets'[2] average of 5.5 percent is within reach.

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2 OECD member countries

2. Affordability and geopolitics at odds with quality and sustainability

A number of factors have held back Iran's telecom sector until recently.

Low level of investment in infrastructure deployment

Owing to strong regulatory intervention, the prices for telecom services in Iran have been low. Mobile- and fixed-broadband tariffs remain among the lowest globally, in dollar terms, at purchasing-power parity[3].

Furthermore, between 2012 and 2017, the Iranian rial depreciated by 62 and 53 percent compared to the US dollar and the euro, respectively. This depreciation resulted in ever-dropping revenue in foreign-currency terms and decreased the affordability of imported telecom equipment and infrastructure for local operators.

In addition, shareholders of TCI and MCI had been focused on receiving dividends from the companies. MTN, on its part, saw the value of its original investment reduced by currency devaluation; the uncertainty of the economy and difficulty of taking money out of the country contributed to the company's hesitation to make further investments in Iran.
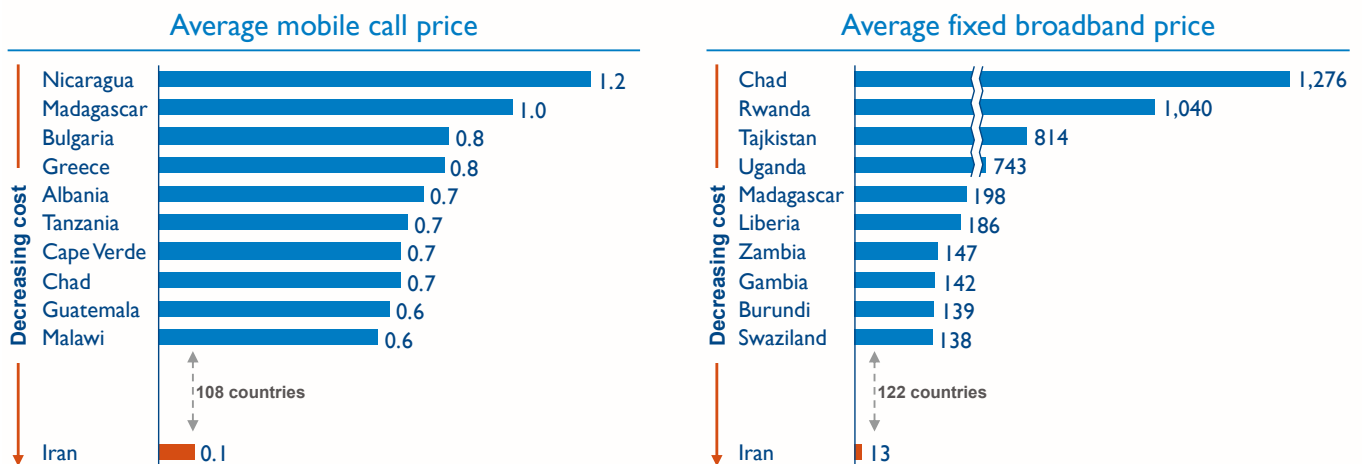
The other mobile players today remain marginal – RighTel has market share of ~3 percent, and Taliya, ~0.5 percent. They have been cash strapped and consequently unable to make significant investments.

This combination of factors resulted in low levels of telecom infrastructure investment in Iran. This is reflected in the level of capex in Iran, which is low compared to that in other countries, and stood at ~USD 23 per capita in 2014. For comparison, in the most advanced markets annual capex per capita is above USD 100, whereas the average in the analyzed markets stands at ~USD 80. We estimate capex/sales ratio in Iran at ~15 percent, whereas in emerging markets it is often 20–30 percent or even more.

Regulatory decisions might be further disincentivizing players from investing

Two recent regulatory measures can serve as disincentives for investment and have had the unintended consequence of holding the sector back instead of developing it further. In an apparent attempt to boost competition, the regulator mandated that each of the three largest mobile operators make provisions for supporting two mobile virtual network operators (MVNOs) each. At the same time the regulator mandated national roaming on the mobile networks of the three operators on which new players could launch services competitively until their own network rollouts reached critical levels. Both measures would increase market competition, but at the same time reduce the incentive for existing mobile players to invest in badly needed network infrastructure.

Figure 5: Mobile and fixed prices, selected countries

Average mobile call price

Country	Price
Nicaragua	1.2
Madagascar	1.0
Bulgaria	0.8
Greece	0.8
Albania	0.7
Tanzania	0.7
Cape Verde	0.7
Chad	0.7
Guatemala	0.6
Malawi	0.6
Iran	0.1

Decreasing cost · 108 countries

Average fixed broadband price

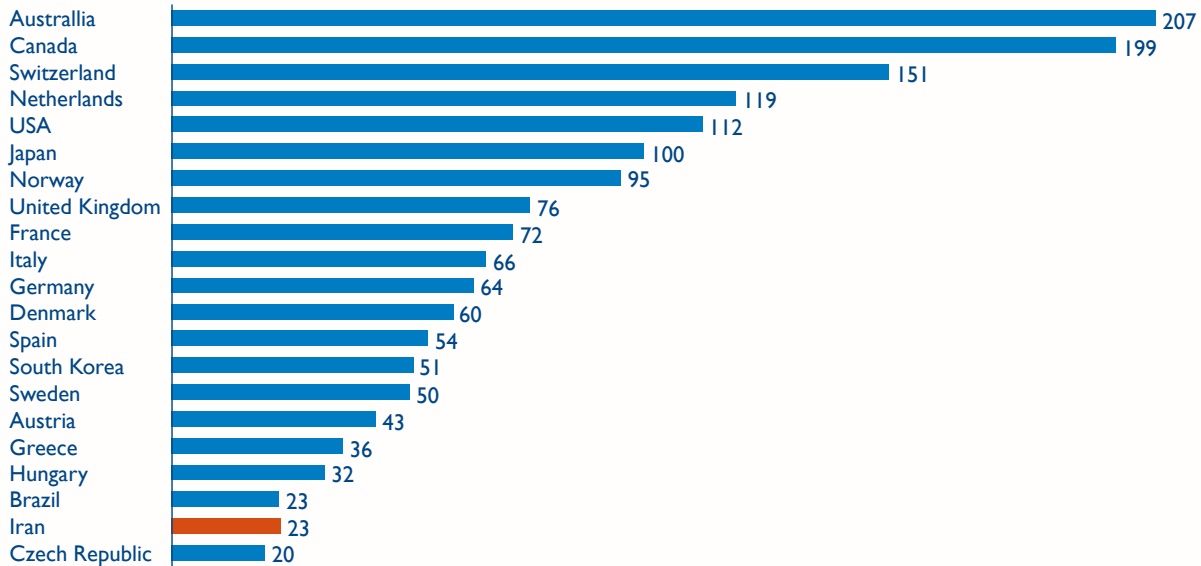| Country	Price
Chad	1,276
Rwanda	1,040
Tajkistan	814
Uganda	743
Madagascar	198
Liberia	186
Zambia	147
Gambia	142
Burundi	139
Swaziland	138
Iran	13

Decreasing cost · 122 countries

Source: ITU NRI index, Arthur D. Little analysis

3 Purchasing power parity (PPP) adjusts prices, taking into account local purchasing power

Figure 6: Telecom investment levels, selected countries
Capex per head of population per year in 2014
USD per capita

Country	Value
Australlia	207
Canada	199
Switzerland	151
Netherlands	119
USA	112
Japan	100
Norway	95
United Kingdom	76
France	72
Italy	66
Germany	64
Denmark	60
Spain	54
South Korea	51
Sweden	50
Austria	43
Greece	36
Hungary	32
Brazil	23
Iran	23
Czech Republic	20

Source: Frost & Sullivan, World Bank, OECD, Arthur D. Little analysis

For comparison, in the context of blurring boundaries between traditionally different industries such as telecom, media and information technology, more and more telecom regulators are choosing "open" and "light-touch" regimes.

Telecom service providers lack best-in-class capabilities and optimized operations

While the incumbent operators (TCI and MCI) are hindered by aging infrastructure, the inability to contract best-in-class IT vendors due to sanctions has impacted the IT architecture of all players. This creates significant scope for more effective and efficient operations, thereby enhancing overall customer experience.

In addition, companies often pursue more complex, theoretical approaches instead of quick, pragmatic solutions. This limits their ability to lead and manage effectively, and leaves a lot of opportunity for optimization through introduction of international practices and adopting more business-oriented approaches.

A home-grown start-up ecosystem has developed, but limited exposure to international competition and no access to outside markets are significant drawbacks

The economic sanctions and isolation of Iran from the international financial system have precluded almost all of the global platform champions from entering the market, including payment, analytics, content and cloud platforms. As a result,

a closed ecosystem has emerged, with local equivalents of international digital companies that have gathered significant momentum. These include Digikala (e-commerce), Cloob (social networking), Lenzor (photo sharing), Aparat (video sharing), Café Bazaar (app store), Snapp (ride hailing), Divar (online advertising) and many more.

While these players have further potential due to the still-growing local market, and are safeguarded by the language barrier and unwillingness for international players to enter the market, going forward they face major challenges. Not being exposed to cut-throat competition from global standard-bearers such as Facebook, Amazon and Netflix is among the factors precluding Iranian companies from developing agility and best-in-class capabilities. At the same time, not having access to external markets limits the ability of these players to scale outside Iran, whereas available funding is quite limited. Therefore, sustaining their advantage in the future in an open, competitive ecosystem will be very difficult.

Regardless of all the challenges, a number of factors are starting to play to the advantage of the Iranian telecom industry.

3. Factors for growth seem aligned

Many of the issues and challenges mentioned have been or are in the process of being addressed.

Relaxation of sanctions

Certain economic sanctions have been relaxed, allowing Iran to regain access to foreign assets and badly needed investments. Along with all other sectors, this will have a massive impact on telecom-industry development, with potential for previously excluded telecom ecosystem players to enter the Iranian market, bringing state-of-the-art infrastructure, services and know-how. For the time being, investments are being undertaken more slowly than expected, but we believe they will come sooner rather than later.

Pent-up demand for mobile broadband

The rapid uptake of 3G and 4G in the aftermath of the national launch in 2014 exceeded all expectations and proved that there was pent-up demand for data services in Iran. Still, given that smartphone penetration was ~55 percent in 2016, compared to ~85 percent in countries such as Qatar, Saudi Arabia and the UAE, there is significant further potential. Telegram, the most popular messaging app in Iran, is used by ~30 percent of Iran's population (~24m users), which shows that there is demand once the product is there – in particular, after the internet speed cap of 128 kbps is not enforced anymore.

We expect Iran to witness strong development in mobile broadband over the coming years. In line with observations in other emerging markets, this should be followed by increased demand for ultra-fast fixed broadband. Typically, mobile broadband is used for accessing the internet in the initial years following its launch, after which demand for fixed broadband catches up.

Infrastructure investments on the rise

The two leading mobile operators in Iran – MTN Irancell and MCI – have made heavy investments in long-term evolution (LTE) rollout. MTN initiated these with its push for LTE, which stimulated MCI to follow. The recent acquisition of 49 percent of Iranian Net by MTN might affect the fixed market in a similar way.

This acquisition, coupled with the announced intention of TCI to merge with MCI, is likely to increase efficiency and ultimately lead to emergence of convergent operators in the medium term.

Favorable demographics

Iran has favorable demographics, with ~65 percent of the population below 35 years of age. A strong focus on tertiary education in recent years, specifically in engineering disciplines, can help Iran gain a stronger foothold in the regional ICT market. This is a path already explored by Jordan, which was able to become a leading ICT exporter in the region on the back of its strong focus on human-capital development.

The factors for growth in Iran now seem aligned for sustained telecom development. Improving national conditions, although preliminary, should push the government, regulator and existing service providers to take necessary steps towards achieving a leapfrog in the sector, unlocking strong socio-economic development for the nation in general.

The way forward

In order for the Iranian telecom industry to leapfrog, an integrated approach involving all key stakeholders is required – the government, the regulator, telecom providers, and other players within the telecom ecosystem. Isolated measures will not be enough to achieve the holistic socio-economic transformation that a telecom leapfrog can bring about. A strong push from the government with dedicated funding will help set the overall tone for the way forward. Regulations should be aligned with market needs through provision of the right incentives to service providers. Existing service providers should upgrade their operations and capabilities in order to serve and delight both segments – individual consumers as well as businesses.

Recommended actions for the Ministry of Information and Communications Technology

The Ministry is called to step up and play a broader role in the socio-economic development of Iran, given that digitalization is transforming the way different industries conduct their business, and make ICT play a larger role than it has in the past:

- Set up an ICT fund to subsidize development of telecom and ICT infrastructure in the country, including ultra-fast broadband infrastructure

- Set up new technology free zones, and promote ICT research & development and entrepreneurship

- Develop human capital in the ICT domain and enable Iran to fully leverage its favorable demographics along similar lines to how Jordan become a leading exporter of ICT within the Middle East

Recommended actions for the Communications Regulatory Authority

The regulator is called to enhance the level of engagement with wider industry stakeholders within the overall policy making process:

- Develop a clear vision and objectives for the Iranian telecom sector along with a roadmap for the achievement of these

- Revise the pricing caps upward in order to incentivize investments from service providers, while still ensuring that the services remain affordable for subscribers

- Increase competition across all segments to ensure that service competition does not hinder deployment/upgrade of network infrastructure

Recommended actions for telecom service providers

Existing service providers in the market should increase investments in infrastructure and capabilities across functions such as product development, network, IT, sales & distribution and human capital, towards achieving innovative product portfolios, increased cost optimization and enhanced customer experience:

- Strengthen the core offerings, including maintenance of a wide range of content partnerships

- Provide a suite of B2B products to tap into the full business potential of the B2B opportunity and play a larger role in other industry verticals; this will also empower businesses and increase their efficiency

- Obtain access to operational best practices and world-class business and management capabilities, for instance, by partnering with leading international service providers and recruiting returning Iranian expats.

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Arthur D. Little

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