OXFORD BUSINESS GROUP

EGYPT ICT

Covid-19 Recovery Roadmap

Content Guide

Part 1

Pre-Covid-19 Overview

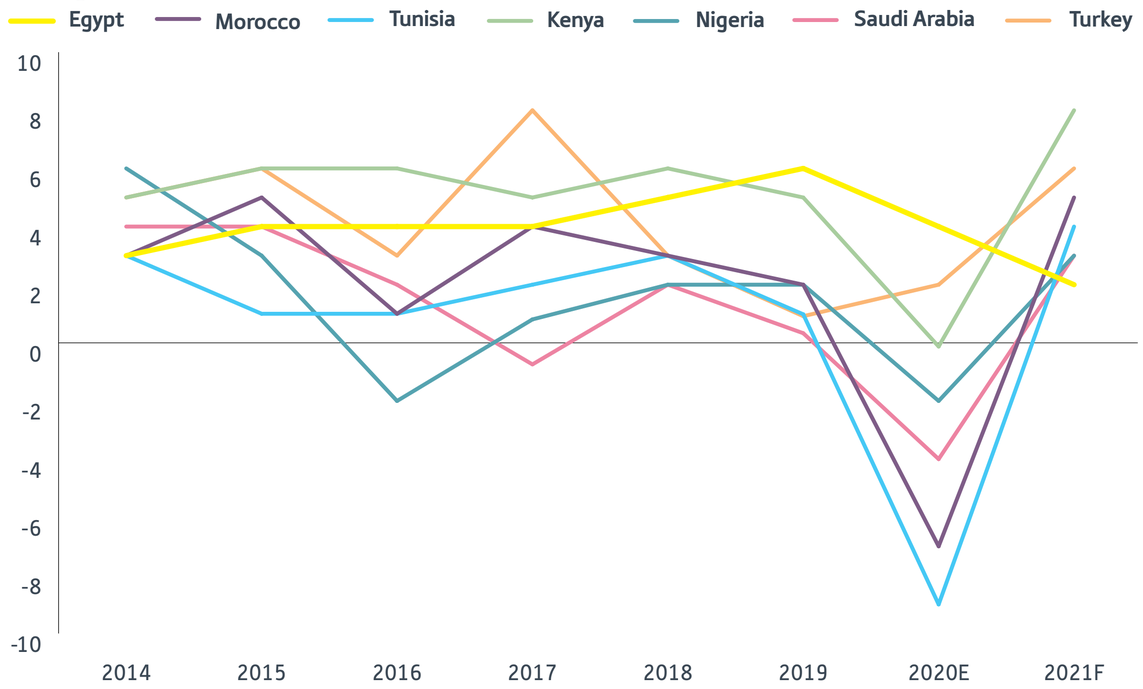
The Egyptian economy has steadily expanded in recent years on the back of extensive reforms aimed at correcting macroeconomic imbalances, attracting investment and reducing the fiscal deficit. Indeed, the country's GDP grew by 5.6% in 2019, up from 5.3% in 2018 and 4.1% in 2017, according to the IMF. The rate of expansion in 2019 outpaced Egypt's North African counterparts: the national GDPs of Morocco, Tunisia and Algeria rose by 2.2%, 1% and 0.8%, respectively. Prior to the outbreak of Covid-19, this upward growth trend was expected to continue in 2020, with the Egyptian government targeting GDP growth of 5.9% that year.

Strong economic performance was reflected in the country's foreign exchange reserves, which steadily ticked upwards from $24.3bn in December 2016 to $42.5bn in December 2018, $45.3bn in late October 2019 and $45.5bn in January 2020. Meanwhile, the current account deficit decreased from $20.5bn in 2016 to $10.2bn in 2019, while consumer price inflation eased from 23.5% in 2017 to 13.9% in 2019.

In July 2019 the IMF – in recognition of the reforms made since the currency crisis three years earlier – released the final $2bn of a $12bn loan agreed upon in November 2016. This move emphasised Egypt's success in meeting its primary budget surplus target of 2% of GDP by FY 2018/19, as well as the positive effects of the reforms on economic stabilisation.

The Egyptian authorities were able to leverage this economic momentum to generate widespread and sustainable benefits for the broader society. The unemployment rate, for example, fell from 13.2% in 2013 to 9.8% in 2018. Moreover, efforts to formalise the workforce and enhance financial inclusion began to pay off, with the proportion of Egyptians aged 15 and over with a bank account rising substantially from 9.7% in 2011 to 14.1% in 2014 and 32.8% in 2017.

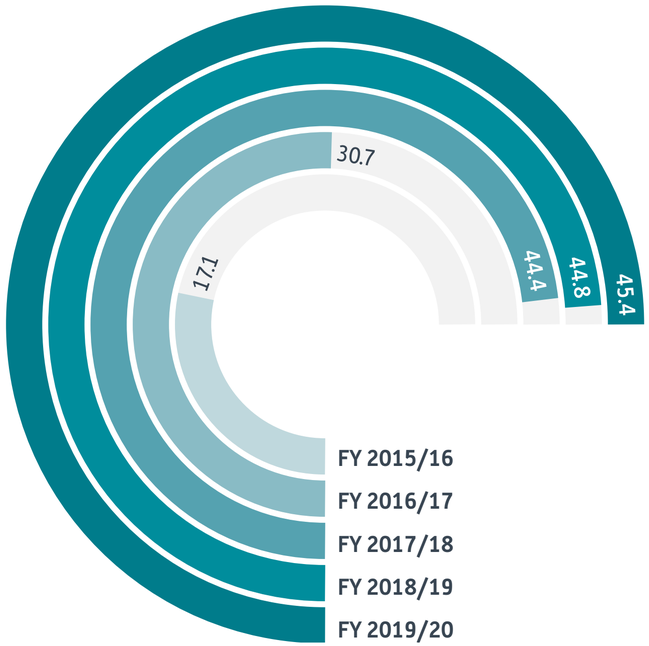
GDP growth of selected economies, 2014-21F (%)



Graph source: *IMF World Economic Outlook Database, April 2021*

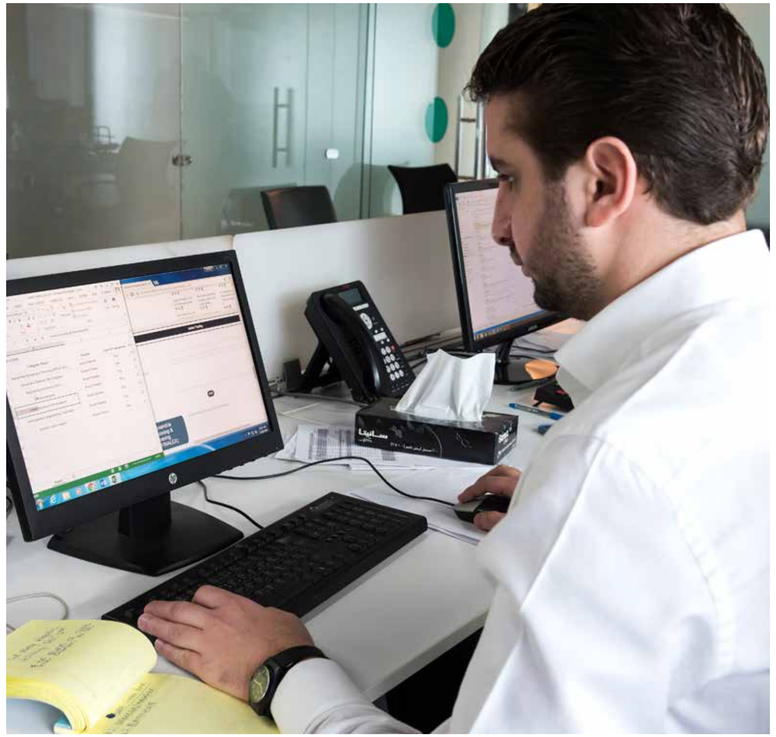
Coordinated Reform Programme

Gross international reserves, 2015-19 ($ bn)



Recent efforts to fortify and diversify the economy proved to be fortuitous given the emergence of the Covid-19 pandemic, which had severe effects on economies around the world as hospitals reached capacity, business activity slowed, and movement restrictions were placed on people and goods. The reforms provided Egypt with a more secure economic base for resilience in the face of external shocks, giving the country more operating room to address the intertwined health and financial emergencies of the pandemic.

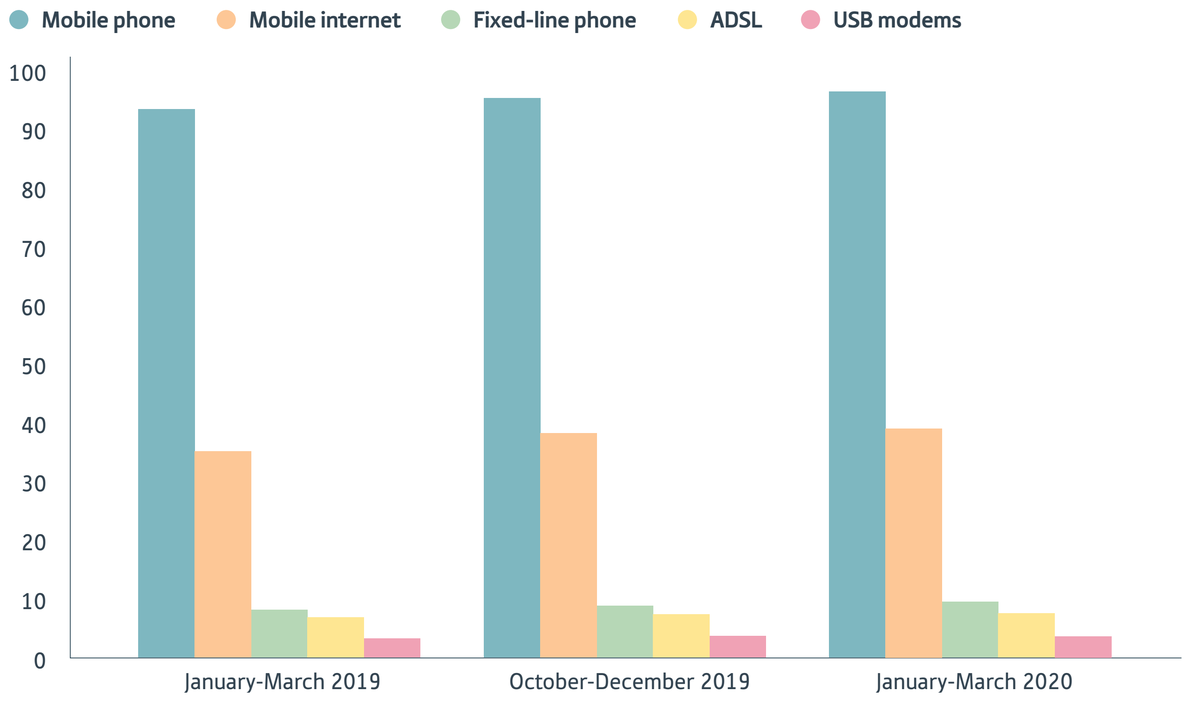
After the currency crisis in 2016, Egypt implemented a series of reforms to strengthen its economic fundamentals. The most significant elements of this programme included shifting to a flexible exchange rate to restore equilibrium in the foreign exchange market; launching a three-year fiscal reform plan to reduce the budget deficit – which, at over 10% of GDP, was one of the highest in the region; dismantling an expensive fuel subsidy system; and creating a more equitable framework of social support mechanisms.



Graph source: *IMF*

A More Agile System

ICT subscriptions, 2019-20 (m)



The introduction of a flexible exchange rate in November 2016 was part of the loan agreement with the IMF. The international organisation had advocated for the move as a means of stabilising the economy and alleviating a shortage of US dollars – an acute concern for a country reliant on imports. While the depreciation initially brought higher inflation, the move facilitated foreign investment as the weaker Egyptian pound bolstered competitiveness.

In addition to the flotation of the currency, the IMF agreement included an overall economic reform agenda that, among other things, targeted reducing the public debt. In April 2019 the Ministry of Finance and the Central Bank of Egypt announced the goal of reducing the government's estimated general debt from 86% of GDP at the end of June of that year to 72% by June 2023. This initial figure was already lower than the 93% of GDP seen in June 2018, an improvement the IMF attributed to fiscal consolidation and high nominal GDP growth.

Central to lowering the public debt was eliminating expensive fuel subsidies that weighed on government finances, a process that began in 2017. By mid-June 2019 the authorities had removed subsidies on most energy products in the country, leading petrol, diesel, kerosene and fuel oil to reach international benchmark prices through indexation mechanisms.

Alongside economic reforms, diversification efforts helped to lay the groundwork for innovative responses to the pandemic. Around 140 investment deals were made with Egyptian start-ups in 2019, according to the "2019 MENA Venture Investment Summary" report by MAGNiTT, equivalent to 25% of all deals in the MENA region that year and placing Egypt as the top country by number of deals. Those deals amounted to $98.5m, 3% more than in 2018. The greater emphasis on ICT and the start-up community allowed a strong ecosystem to flourish, one that was able to respond to the economic and health effects of Covid-19.

Graph source: *MCIT*

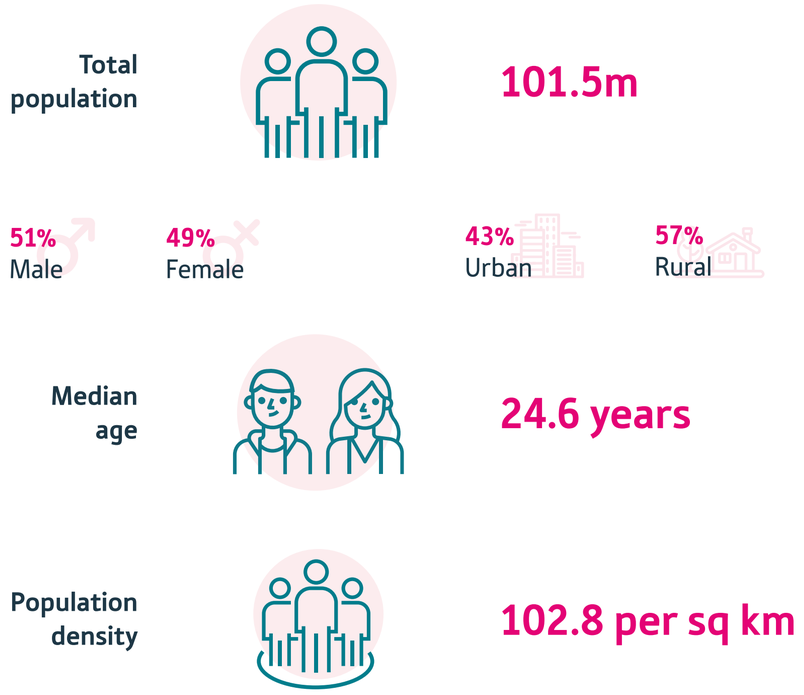
Favourable Demographics

Several non-economic factors have supported growth and made Egypt more resilient to external shocks. First and foremost is the country's growing population, which rose from 90.2m in FY 2015/16 to 101.5m in FY 2019/20. The population is expected to expand at a compound annual growth rate of 1.9% through to 2030, according to Fitch Solutions, reaching 120.8m by that year. As the largest in the MENA region, Egypt's consumer base is a strong incentive for retail investment.

The population is also youthful and tech-savvy, with 60% of Egyptians under 30. Young adults aged 20-39, which comprise around one-third of the total, are more likely to buy new consumer goods. These younger generations have contributed to rising demand for devices such as smartphones: this is reflected in the fact that the number of smartphones shipped to Egypt increased by 16.5% in 2019 to 14.9m units, according to the International Data Corporation. This, in turn, has led to greater mobile internet use. Per the Ministry of Communications and Information Technology, the number of mobile internet users stood at 42.3m in January 2020, up 24% on one year earlier.

Economic resilience is supported by high levels of consumer spending relative to the region. Real total household spending grew by an annual average of 6.4% between 2015 and 2019, according to a report by Fitch Solutions in February 2020. At that time the trend was expected to continue, with total household spending growing from an estimated LE2.3trn in 2020 to LE3.4trn in 2024. The research company attributed the rise in spending to the stabilisation of inflation, with the consumer price index easing from 12.7% in January 2019 to 7.2% one year later. The decision to raise minimum wages and pensions in March 2019, and Egypt's attractive consumer profile – including a growing middle class with more disposable income – also contributed to robust consumer spending prior to the pandemic.

Population indicators, January 2020



Infographic source: *We are Social; Hootsuite*

Covid-19 Timeline

MARCH 11, 2020
Large public gatherings, including concerts, parties, celebrations, birthdays, exhibitions and festivals, as well as large religious ceremonies, are suspended until further notice.

MARCH 15, 2020
All schools and universities are shut down for two weeks.

MARCH 18, 2020
The government issues a curfew for all restaurants, cafes, night clubs and public places from 7.00pm to 6.00am until March 31. Food markets, pharmacies and home delivery services are the only establishments allowed to be open on weekends and weekdays after 5.00pm. International flights to Egypt are suspended until March 31.

MARCH 22, 2020
The government announces the suspension of prayers in mosques for a period of two weeks. The Coptic Orthodox Church announces the closure of all churches and the suspension of ritual services, masses and activities.

MARCH 24, 2020
Prime Minister Mostafa Madbouly sets a nationwide curfew from 7.00pm to 6.00am for an initial period of two weeks. School closures are extended for two additional weeks.

MARCH 31, 2020
Shops close from 5.00pm to 6.00am during the week, and completely shut down on Fridays and Saturdays. The closure decisions do not include bakeries, pharmacies, grocery stores or supermarkets outside shopping centres. Restaurants are limited to take out and delivery. Cafes are closed.

APRIL 5, 2020
A central bank stimulus of LE100bn is opened to all companies.

MAY 12, 2020
The IMF approves a $2.8bn rapid-financing instrument for Egypt.

MAY 14, 2020
The Ministry of Health publishes a three-stage plan for the gradual reopening of the economy.

MAY 20, 2020
The Ministry of Communications and Information Technology launches an artificial intelligence-powered automated Covid-19 testing service for people with disabilities. The initiative is a collaboration with the WASEL transport app, tech firm Avaya and the UN Development Programme (UNDP).

JUNE 27, 2020
Egypt lifts the nationwide curfew in line with its reopening plan, but retail hours are shortened, large gatherings prohibited and hotels limited to operate at 50% capacity.

JULY 26, 2020
Cafe, restaurant, retail and mall operating hours are extended from 10.00pm to 12.00am at 50% capacity.

AUGUST 7, 2020
Prime Minister Madbouly announces a negative Covid-19 test is necessary for travellers.

SEPTEMBER 1, 2020
All archaeological and tourist areas reopen.

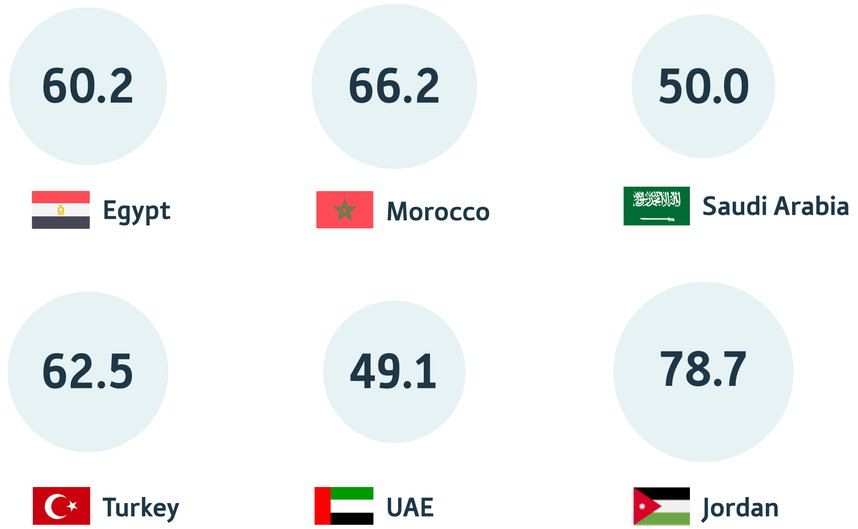
DECEMBER 25, 2020
Egypt announces a deal to purchase 30m Covid-19 vaccine doses from AstraZeneca and 20m doses from Sinopharm.

JANUARY 3, 2021
Hala Zayed, the minister of health and population, states the vaccination campaign is to begin that month, with priority given to citizens with chronic diseases, the elderly and medical workers.

APRIL 18, 2021
The UNDP and Telecom Egypt, in collaboration with digital health platform Altibbi, launch the One Million Free Medical Consultations Initiative to provide 1m remote consultations for free.

Stringency of Response

Stringency score of selected economies, mid-December 2020 (out of 100)



The Oxford University Covid-19 Government Response Tracker is a composite measure based on nine response indicators including school closures, workplace closures and travel bans, rescaled to a value from 0 to 100 (100 = strictest). If policies vary at the sub-national level, the index is shown as the response level of the strictest sub-region.

Egypt implemented a host of measures aimed at stemming the spread of Covid-19, including establishing testing centres, imposing curfews and capacity limits on retailers and restaurants, temporarily closing houses of worship, and restricting domestic and international air travel. The authorities also recommended that non-essential civil servants work from home.

The stringency of Egypt's response was not only aimed at flattening the curve and relieving mounting pressure on health facilities, but also allowing a measure of business activity to continue in order to cushion the economic impact of the pandemic.

In mid-May the government unveiled a three-phase plan to gradually reopen the economy and normalise life, with curfews relaxing somewhat in June. The second half of 2020 proved to be a balancing act between economic and health priorities – demonstrated, for example, by the government requiring travellers to have a negative Covid-19 test to enter the country, while moving to reopen archaeological and tourist venues.

According to the Oxford University Covid-19 Government Response Tracker, Egypt's measures against the pandemic received a stringency rating of 60.2 out of 100 as of mid-December 2020, above those in Saudi Arabia (50) and the UAE (49.1). The stringency of its measures was comparable to Turkey (62.5), but lower than Morocco (66.2) and Jordan (78.7). The index is a composite measurement based on indicators including workplace, school and public transport closures; travel restrictions; public event cancellations; limits on private gatherings; and shelter-in-place mandates.

Financial Measures

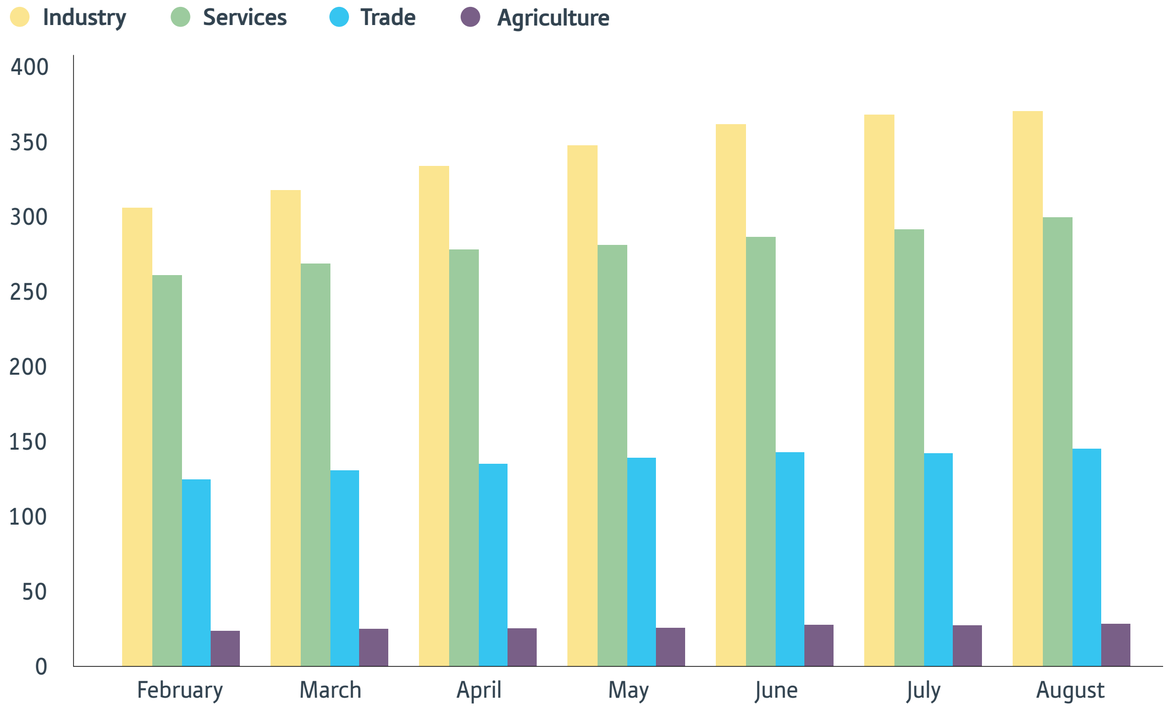
The government acted swiftly to implement financial measures to alleviate the economic effects of the pandemic. A LE100bn stimulus was announced in late March 2020, half of which went to the hard-hit tourism sector. The package laid out support for poor families and those affected financially by the crisis, including LE3bn in subsidies of LE500 per affected worker for three months; a six-month extension on credit repayments for all individuals and businesses; and soft loans for the manufacturing sector.

Importantly, the measure also included up to LE20bn for a stock-purchasing programme by the Central Bank of Egypt. Under the plan, the bank would buy shares listed on the Egyptian Exchange (EGX) to support asset prices amid sustained market volatility and sell-off. The financing was equivalent to more than 5% of the market capitalisation of the EGX100 index. Also in March, the central bank lowered the preferential interest rate from 10% to 8% for loans to small and medium-sized enterprises, those in the industry and tourism sectors, and low- and middle-income families for housing.

The central bank took additional measures to support the economy during the health crisis. In November 2020 it cut interest rates for a second time to bolster local businesses, reducing the overnight lending rate from 9.75% to 9.25%, and the overnight deposit rate from 8.75% to 8.25%. The authority had cut rates the month before amid stabilising inflation. The body also lowered the cost of transactions on the EGX from 0.15% to 0.125% for non-residents, and from 0.15% to 0.05% for residents, as well as exempted spot transactions from stamp duties.

Tax measures including extensions, deferrals and moratoria were similarly implemented to help those affected by the pandemic. The suspension of capital gains taxes for residents on securities listed on the EGX was extended from May 17, 2020 to January 1, 2022. Moreover, firms in industry and tourism were given a three-month extension on property taxes.

Bank loans by sector*, Feb-Aug 2020 (LE bn)



*excludes loans from central bank

Graph source: *CBE*

Health Measures

LEARNING FROM EXPERIENCE

Egypt's plan to address one of its most significant health burdens, Hepatitis C, established a framework that the country can use to roll out **Covid-19 vaccines**

- In 2015 Egypt had the highest prevalence of **Hepatitis C** in the world, stemming from a failed government vaccination programme from the 1950s to the 1980s for schistosomiasis that spread Hepatitis C via **unclean and reused needles**
- In 2018 the country launched the **100 Million Healthy Lives** campaign to utilise preventive methods and early detection against diseases such as Hepatitis C
- Around **60m** Egyptians were **screened** under the programme, and those with the disease were provided **treatment at no cost**
- On July 28, 2020 – World Hepatitis Day – Egypt declared itself **free of the virus**

The government moved quickly to implement containment and other health measures. The Ministry of Health (MoH) announced the first confirmed case of Covid-19 on February 14, 2020, and by March 19 all international flights were suspended and a curfew from 7.00pm to 6.00am was imposed. Places of worship were closed on March 22, and Ramadan gatherings were banned in April. A state of emergency was also imposed, giving the president additional powers aimed at better controlling the spread of the virus.

The government disbursed LE8bn to facilitate the provision of urgent medical supplies and bonuses for staff working in quarantine hotels and laboratories. An initial 17 facilities were designated as isolation hospitals, with medical professionals working there given a 75% pay increase. In November 2020 the government announced measures to stem a possible second wave of the virus, including fines of LE4000 for people not wearing masks in public and creating a protocol for medical treatment of Covid-19 cases to be used in facilities across the country.

The pandemic is expected to have long-term implications for the health sector, as it highlighted areas for improvement and public-private collaboration. In June the Sovereign Fund of Egypt launched subfunds for the health, infrastructure, food and agricultural processing sectors, which are seen as having significant investment opportunities. To help the health sector better manage the pandemic and future crises, the fund reshuffled its priorities to include the development of health services and pharmaceutical manufacturing capacity. The pandemic also underscored the need to address the rising incidence of chronic and non-communicable diseases (NCDs), as these underlying conditions led to more severe cases of Covid-19. According to the World Health Organisation, NCDs account for around 82% of deaths and 67% of premature deaths in Egypt. These diseases put extra strain on the health care system, but the development of specialised programmes and training for medical staff – through either public-private partnerships or incentives for private investment – could improve the provision of preventive care.

Infographic source: *Ministry of Health and Population*

Amr Talaat

Minister of Communications and Information Technology

How has Egypt addressed the impacts of Covid-19, including the surge in demand for ICT services?

A $1.9bn nationwide upgrade of the telecoms infrastructure, deployed over two years, was key to a well-performing internet, supported by resilient infrastructure, throughout the pandemic's peak period. On the human development side, the government propagated a number of online capacity-building initiatives to increase digital competency. For example, Future Work is Digital is a government-sponsored technology learning and upskilling scholarship that aims to benefit 100,000 workers seeking opportunities in the global freelance marketplace. Its focus specialisations are data modelling and analysis, web development and digital marketing. This unique programme is open to all members of society and also offers hands-on experience. Collaboration with other government organisations – for example, the Ministry of Health – was demonstrated in the establishment of a telemedicine platform where citizens could receive 24/7 assistance. Moreover, a partnership with the Ministry of Education and Technical Education, and the Ministry of Higher Education and Scientific Research, allowed 16m students to shift online smoothly.

In what ways can investment in intelligent technologies boost economic competitiveness?

Egypt is spearheading numerous initiatives to apply advanced digital technologies to serve citizens better, increase productivity and support the economy. Our priority at this stage is to create a base of expertise among tech-savvy professionals and youth by offering intensive training and learning opportunities. Building on this potential, heavy investment is currently being directed to research and development, where strong global collaborations are materialising. The research efforts aim to utilise technologies like artificial intelligence, data science and the internet of things to address specific and pressing challenges in fields such as urban planning, natural language processing, health care, medicine, agriculture, irrigation, water management, education and resource optimisation.

The government is also building innovation centres to improve the national entrepreneurial spirit. Hosted on university campuses with the objective of forging closer collaboration between academia, industry and investors to benefit the country's entrepreneurs, they aim to create unprecedented economic competitiveness at the local community level before extending it to the wider world. Since 2019 Egypt has maintained its leadership in the MENA region for start-up-focused financing and investment deals; this reflects the attractive business environment that both investors and entrepreneurs are seeking.

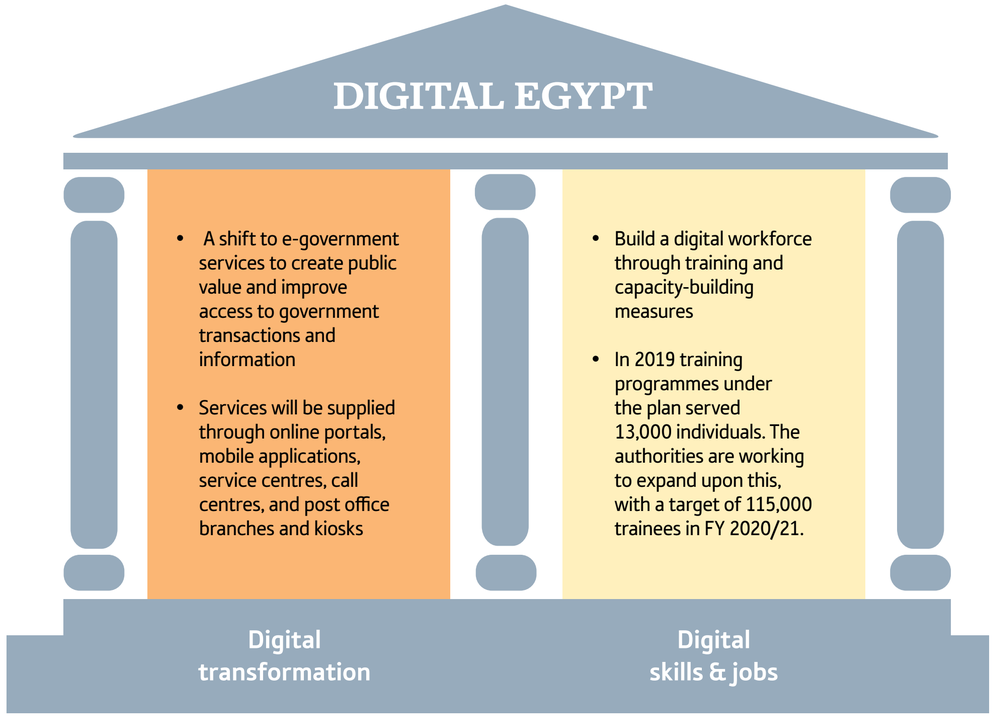
Where can ICT play a role in supporting the ongoing evolution of the public sector in Egypt?

Egypt is implementing a mega-project for the digital transformation of the public and private sectors. Work is progressing to realise the digital government initiative, Digital Egypt, which includes the transformation of government activities and services into a platform model: 75 digital services are now offered nationwide, with plans to reach 170 by end-2021.

The pandemic undoubtedly accelerated the uptake and acceptance of digital services. To support the efforts of transformation and increase trust in the ICT ecosystem, the Personal Data Protection Law came into force in July 2020. The law is modelled, to a large extent, on the EU's General Data Protection Regulation and will support Egypt's efforts to become a regional data centre.

Part 2

Introduction to the ICT Sector



Egypt is home to a robust and innovative ICT sector, with growth outpacing broader economic expansion. In FY 2018/19 the industry grew by 16% to reach LE93bn – one of the fastest rates of expansion across all economic sectors – while overall GDP growth was 5.6%. This trend was expected to continue, with the government forecasting in December 2020 that the sector would grow by 15.2% in FY 2019/20 to comprise 4.4% of GDP and bring in LE108bn in revenue. The industry's strong performance stands in contrast to that of many other sectors – notably tourism, which was significantly impacted by the pandemic-induced lockdowns. ICT sector growth is forecast to reach 16% in FY 2020/21.

Expansion in 2020 was largely attributable to the fact that ICT was key for firms looking to address the challenges brought on by the health crisis. Indeed, the sector experienced a significant boom in demand, which has contributed to Egypt's broader digital transformation.

The government has long prioritised ICT development. To this end, in mid-2020 the Ministry of Communications and Information Technology (MCIT) launched Digital Egypt, a comprehensive plan to shift towards a more digital society and encourage innovation. The plan is based on digital transformation, as well as digital skills and jobs. "The project includes digitalising all government activities and services. As of July 2021, 75 public services have been digitalised and are being offered nationwide, with plans to reach 170 by the end of 2021," Amr Talaat, the minister of communications and information technology, told OBG.

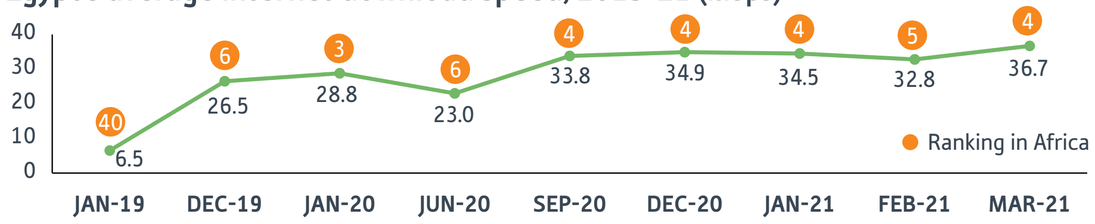
The ministry aims to transform the country into a leader in innovation through targeted investment, capacity-building and training programmes, the adoption of e-government services and infrastructure improvements. In doing so, the Digital Egypt plan will promote digital inclusion and boost competitiveness.

Infographic source: *MCIT*

Introduction to the ICT sector

The country is working to develop specialised segments such as electronics design and manufacturing, IT outsourcing (ITO) and business process outsourcing (BPO), as well as encourage new start-ups. The MCIT's Digital Egypt plan seeks to provide all government entities with fibre-optic cable connections; as of September 2020, 5300 government buildings had been connected to the fibre-optic network. Once completed, the programme will connect around 32,000 buildings at an estimated cost of LE6bn. "The pandemic has been an unprecedented opportunity to encourage the uptake of digitalised services," Talaat told OBG. "As of mid-2021 more than 1.3m citizens had registered for and accessed government services online." Included in the ICT 2030 Strategy is the creation of several technology parks for a total investment of LE1bn. Importantly, these facilities will be spread across the country with an eye to boosting digital inclusion outside the capital, where much of Egypt's investment and innovative activity is heavily concentrated. In mid-2020 Talaat told local media that six technology parks would be completed by the end of that year in Minya, Menoufiya, Mansoura, Sohag, Qena and Aswan. The parks will include training facilities, hardware design labs, incubators, and shared workspace to support innovation and entrepreneurship.

Egypt's average internet download speed, 2019-21 (Mbps)



Case Study

With the support of the Ministry of Communications and Information Technology, Egypt has prioritised digital transition and the wider adoption of technological tools to facilitate business. These efforts have created a supportive ecosystem for companies such as Cloud4Rain, an IT solutions firm focused on the digital transformation, cloud computing, cybersecurity and enterprise software.

Adaptability was a key component for business growth in 2020 given the general instability from changing circumstances during the year. However, adjustments have been more challenging for companies that operate with legacy hardware compared to those that use the cloud.

In light of this, Cloud4Rain focused on helping its client base move towards digital transformation. Rising demand for such services was highlighted by reports from the Ministry of Communications and Information Technology showing that there was a 50% increase in data traffic through international gateways between the start of the pandemic in March 2020 and October 2020.

The Covid-19 pandemic brought many challenges, but it was also a catalyst for digital transformation as companies shifted to remote work and consumer outreach. Between April 2020 and June 2020 the country saw a 7.7% increase in internet penetration, with 7.6m additional users, according to figures from the Ministry of Communications and Information Technology.

While the ICT sector benefitted in the short term from a wider understanding of the critical role technology plays in business continuity and efficiency, its longer-term performance will depend on the availability of skilled talent to facilitate digital acceleration.

Graph source: *Ookla*

Part 2: Sector Mobilisation

Telecommunications

At the onset of the Covid-19 pandemic, the initial shift to the digital sphere by most businesses caused a surge in demand for ICT services, and highlighted the need to expand both infrastructure and capacity further. "People went fully digital in most aspects of their lives," Talaat told OBG in September 2020. "The pandemic caused an immediate surge in internet usage patterns, both in terms of users and peak hours." There was a 40% year-on-year increase in online traffic in the period between mid-March and mid-April 2020 alone, while web browsing increased by 131%, according to a report from the National Telecom Regulatory Authority. Home internet usage was up 87%, while mobile internet activity expanded by 18% over the same period. At the same time, the peak hours for internet services and applications doubled to 15 hours per day, from 12.00pm to 3.00am.

Home internet usage was up **87%** between mid-March and mid-April 2020

In line with the increase in demand, the Information Technology Industry Development Agency (ITIDA) disbursed over LE61m in export subsidies to 106 ICT companies between mid-April and July 2020 through the ExportIT programme, while the MCIT increased the capacity of the country's international gateways by over 50%. The ministry also provided hospital staff access to the internet and data at no charge, and created digital platforms for public school students to help them keep up with their studies while schools were closed.

Fixed broadband (FBB) operators worked to ensure adequate connectivity at home and had teams on standby to accommodate increased traffic. In 2019 the MCIT prioritised the strengthening of ICT infrastructure at a cost of $1.9bn, which enabled the sector to support much of the additional demand. Average internet speeds quadrupled from 6.63 Mbps in February 2019 to 32.77 Mbps in February 2021. Moreover, all FBB operators agreed to raise internet bundle download quotas by 20% at no extra charge to accommodate e-learning and other online activities. They were also involved in the creation of information hotlines that contributed to the effective response to Covid-19.

Case Study

telecomegypt

The Covid-19 pandemic has resulted in fundamental changes across many industries. Telecom Egypt's (TE) investments in critical infrastructure prior to the health crisis, coupled with its response to the new normal, helped to facilitate business continuity and personal communications.

At the beginning of the pandemic Egypt saw heightened demand for data services, and TE temporarily increased fixed broadband quotas by 20% with support from a government subsidy. Part of the increase in demand was driven by the shift to remote work and communication by business leaders and consumers who were taking steps to ensure their own safety and the safety of those around them. TE, for its part, streamlined operations and protected its employees and customers by applying work-from-home and social-distancing policies, while continuously sanitising buildings, stores and company vehicles. It also enhanced the infrastructure around its digital platforms – including its My WE and WE Pay apps – allowing customers to complete transactions online.

Throughout the pandemic Egypt's national digital transformation projects – such as fitting government buildings and secondary schools with fibre-optic cables, and providing free access to all ministry e-learning websites – continued apace. TE's investment in network upgrades allowed it to play a significant role in facilitating these transformation projects. Moreover, the company heavily supported the health care sector by providing fixed broadband connectivity to all quarantine hospitals, and dedicated free hotline numbers to reach the Ministry of Health and various clinics for consultations. In the economic recovery phase, the trend of increasing reliance on data is expected to accelerate, making investment in underlying digital infrastructure an important aspect of maintaining Egypt's competitiveness.

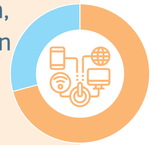
Digital Transformation

Egypt has a large public workforce of roughly 5.6m people, and government operations are largely paper-based. However, ministries are working with the MCIT to digitise all services. To this end, in 2020 ITIDA launched the Our Opportunity is Digital platform, where national digital transformation projects are offered specifically to small and medium-sized enterprises either for direct implementation or in partnership with large local and multinational companies. Furthermore, in May of that year the MCIT and the General Health Care Authority announced they would create a framework to facilitate the digitalisation of the authority's operations in order to streamline health services and make care more accessible.

The government has also required that certain transactions be conducted online – such as payment for services, Customs duties and taxes – which has encouraged the private sector to offer similar solutions to enable the transition.

Egypt is working with global leaders in this space. The Ministry of Public Enterprise Sector announced in November 2019 that Microsoft and software solutions provider SAP won a tender to implement the digital transformation of 60 state-owned firms and holding companies. The tender, which at the time was the largest of its kind in the Middle East, would facilitate the standardisation and automation of operations to improve efficiency. Human resources, sales, purchases, and enterprise resource planning related to finance, production and warehousing were covered under the agreement. The project was slated to be completed by June 2021.

In 2020 ITIDA launched the **Our Opportunity is Digital** platform, where national digital transformation projects are offered specifically to small and medium-sized enterprises either for direct implementation or in partnership with larger companies



Case Study

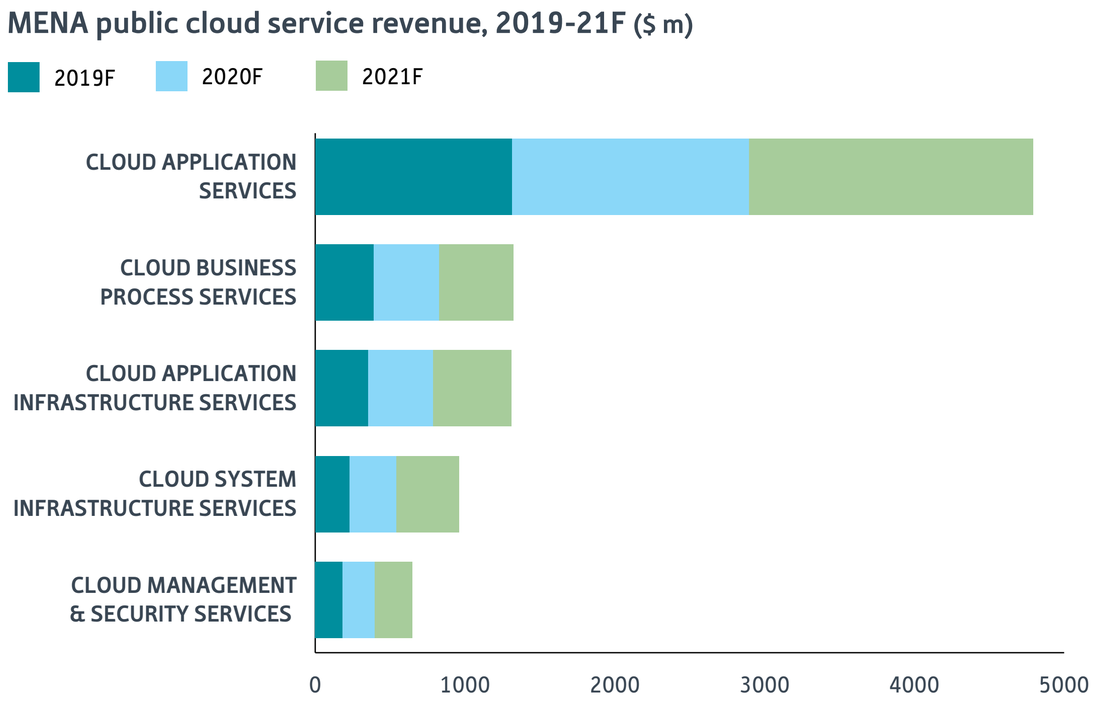
Summit Group is an ICT and business solutions provider operating in MENA and Asia, focused on managing enterprise transformation while containing financial risk. Digitalisation and technology transformation are important tools for improving efficiency and effectively competing across all sectors of the economy, from industrial enterprises to health care, logistics and retail.

In line with Egypt's Vision 2030 goals, the government rolled out a digital transformation strategy to strengthen the foundation for future economic growth, which is centred around e-governance, improving the availability of qualified talent by teaching digital skills, creating technology jobs and fostering a business environment that is conducive to innovation.

Summit Group offers key ICT solutions to help organisations implement the measures deemed necessary by the current environment to contain and prevent the spread of Covid-19, which have changed where and how organisations operate, and employees work. The ability to work remotely has become indispensable to the continuity of operations in today's business environment, increasing the urgency of the country's digitalisation plans.

"Communication and cybersecurity solutions have experienced the most significant growth due to the pandemic," Magda El Sabee, CEO of Summit Group, told OBG. "Awareness of cybersecurity risks is growing rapidly as an increasing proportion of businesses store sensitive information and conduct transactions online," she added. As such, Egypt's legal structures are evolving to effectively deal with issues posed by new modes of doing business, with a new data protection law entering into force.

Cloud Services



Public cloud services have emerged in recent years as core contributors to the ICT sector's growth. The market is expanding rapidly, with Africa expecting more than $15bn in data centre investment between 2020 and 2025, much of which will be concentrated in Egypt, Morocco, Nigeria, Kenya and South Africa. In a similar vein, revenue from public cloud services in the MENA region was expected to grow by 21% in 2020 to reach $3bn, according to global research and advisory company Gartner.

The development of these services proved to be central to facilitating the economy's shift to remote work after the outbreak of Covid-19, as companies moved their operations to reliable cloud platforms in order to use video-conferencing applications and other remote-work technologies. The cloud allowed both employees and customers to carry out daily operations and transactions at home. Moreover, cloud services enable greater levels of outsourcing and flexibility for companies to more easily scale up or down according to demand. This allows businesses to effectively manage their resources and reduce costs without any interruption to workflow.

Over **$15bn** will be invested in data centres in Africa between 2020 and 2025

Graph source: *Gartner*

Cloud Services

Private sector partnerships played a vital role in facilitating remote learning during the pandemic. For example, telecoms provider Orange Egypt partnered with global tech company Avaya to provide digital solutions, including cloud-based video-conferencing platform Avaya Spaces, for educational purposes at no charge. Meanwhile, in late March 2020 the Vodafone Egypt Foundation launched an e-learning platform with publishing group Nahdet Misr to help students continue their education after in-person learning was suspended.

Cloud technology will also underpin the New Administrative Capital (NAC), the smart city that, once complete, will host government ministries, diplomatic missions, international universities and residential neighbourhoods. The pandemic delayed trial operations, which were initially planned to take place in the second half of 2020, until the first half of 2021. In January 2020 urban development authorities signed an agreement with Orange Egypt to build and operate the NAC's data centre and cloud facilities. The data centre was officially inaugurated in March of that year, in cooperation with Chinese tech giant Huawei. Cloud-computing services were also made available to corporate clients, further facilitating the shift to remote work as Covid-19 lockdowns were announced and implemented.

Case Study

teradata.

Teradata is a US-headquartered ICT firm focused on providing enterprise software, data analytics and cloud services, and consulting in the Americas, Europe, the Middle East, Africa and Asia.

Egypt's ICT sector has been a key component of economic growth over recent years. When the Covid-19 pandemic hit, working from home became more established in the US and Europe. By contrast, Egypt's work culture continued to be centred around face-to-face professional interactions.

For Teradata, transitioning to remote work was easier than most given its knowledge in the field. Yet, as was the case for many companies in Egypt making this transition, not all employees had sufficient access to high-speed internet at home, which required investing in increased bandwidth or mobile Wi-Fi hotspots. Indeed, in the past, financing the transition to cloud computing was viewed as low-priority or a luxury in many cases; however, the pandemic has boosted demand from companies looking to transition in order to maintain operations in a remote-working environment, offering significant growth opportunities for Teradata.

The country's progress on the regulatory front with the new data security law and measures allowing for e-signature and remote board meetings underpins the uptick in demand witnessed in 2020.

"I do not think the situation will ever return to how it was, even after the world has completely recovered from Covid-19," Khalid Hammouda, managing director of Teradata Egypt, told OBG. "As more young, tech-savvy people enter the workforce, demand for cloud-based remote collaboration tools will only grow stronger," Hammouda added.

Digital Workplace

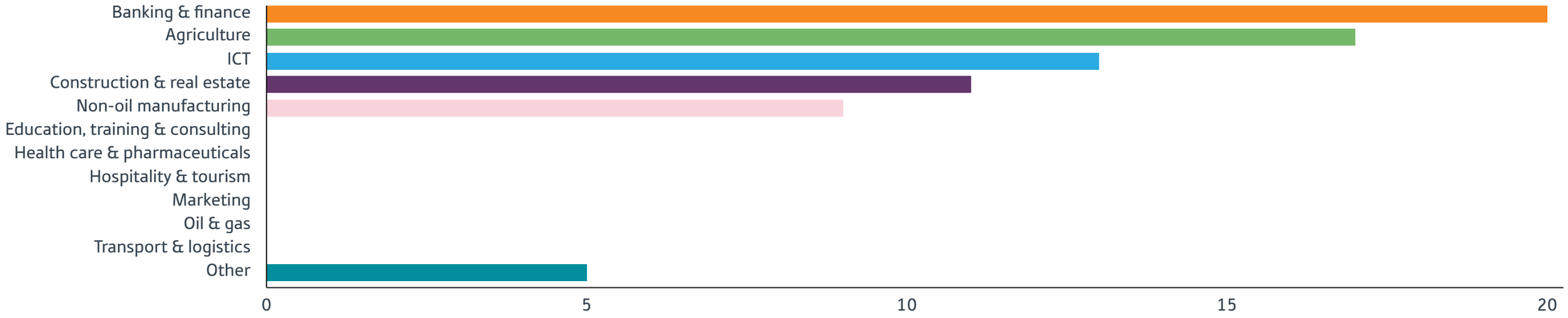
Prior to the pandemic, the widespread adoption of remote work was relatively novel, especially in a country where business transactions are largely carried out face to face. To support the transition, the MCIT encouraged employees to work from home, while balancing efficiency and productivity with health and wellness measures.

According to Talaat, it was important to change the work style. "Now the culture of working from home is prevalent in Egypt, and is more and more acceptable," he told OBG. "Hopefully, when the pandemic is over, people will not go back to how they learned or worked before."

The private sector quickly adopted measures to stem the outbreak of Covid-19, such as shifting operations online and implementing remote work. According to a survey published in April 2020 by the American Chamber of Commerce in Egypt, more than 90% of respondents had adopted infection-control procedures, and nearly all had shifted non-essential employees to remote work.

For ITO and BPO companies, between 50% and 85% of employees were working from home within the first two weeks of the pandemic. ITIDA sampled 19 companies a few weeks later and found that 11 companies were 100% remote, five companies were 80-90% remote and three companies were 50-60% remote. Per ITIDA's discussions with the surveyed companies, productivity decreased slightly in the first two weeks when employees were adjusting and getting used to new tools, but productivity then resumed to levels previously seen in the office.

Share of companies with plans to hire more staff in 2020 by sector (%)



Graph source: *American Chamber of Commerce in Egypt survey*

OXFORD BUSINESS GROUP

IT and Business Process Outsourcing

Egypt is becoming increasingly popular as a destination for ITO and BPO given its advantageous location between Europe, the Middle East and Africa; its young, educated and multi-lingual population; and strong IT infrastructure. Indeed, the country is now widely considered one of the fastest-growing destinations for offshore services.

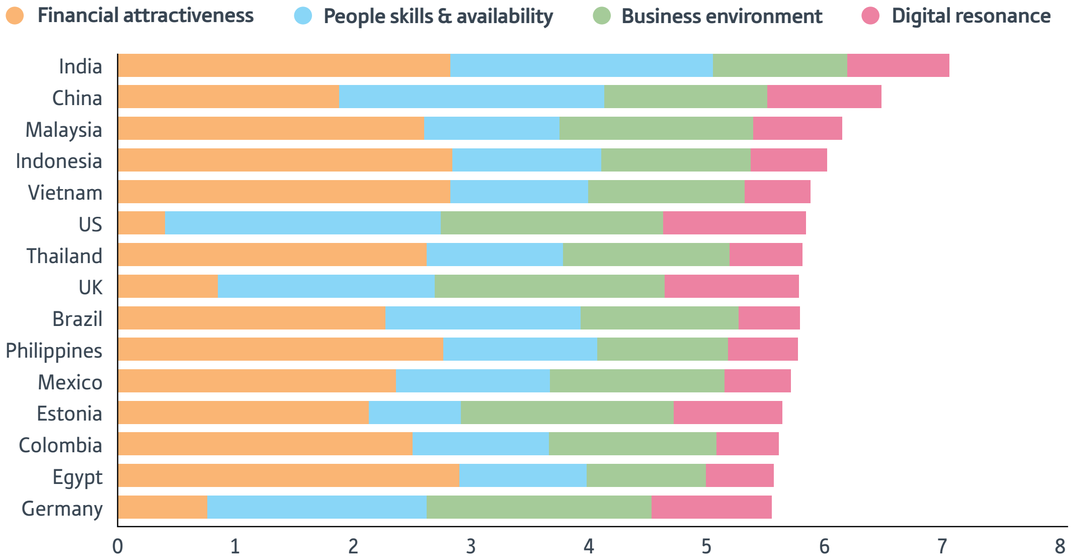
Several large multinationals are already active in the Egyptian ITO and BPO market, including Vodafone, Orange, Teleperformance and Majorel, with RAYA Contact Center and Xceed among the important local players in the field.

The emphasis on human capital and both private and public investment has helped to expand the sector workforce, which increased from 169,000 employees in 2017 to 212,000 employees in 2019. This also involves training workers in more specialised skills, with ITIDA launching courses in artificial intelligence, data science and web development in 2020, in line with the Digital Egypt plan. In cooperation with the MCIT, ITIDA aims to train around 115,000 individuals in the skills needed by large multinationals.

As the population has gained more specialised skills, the country has been able to market itself as a provider of higher-value-added services. While in the past it largely focused on multi-lingual contact centres, in recent years the local industry has moved towards high-value niches such as product development and design.

As a result of these trends, the sector has proven resilient to the pandemic. Existing delivery centres were able to accommodate additional services that other locations could not handle, while a number of companies established new delivery centres in Egypt in 2020, including Webhelp, TTEC, Transcom and Robiquity.

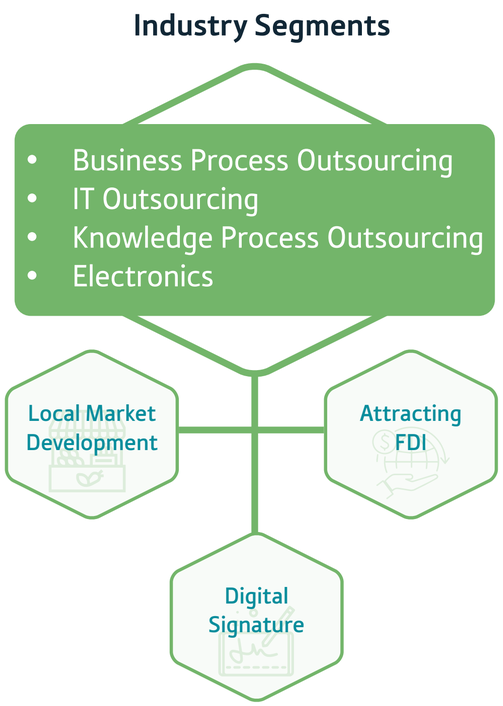
Top-15 countries in the 2019 Global Services Location Index



Financial attractiveness accounts for 35% of the total index weight; people skills and availability, and business environment 25% each; and digital resonance 15%. The index covers a total of 50 countries.

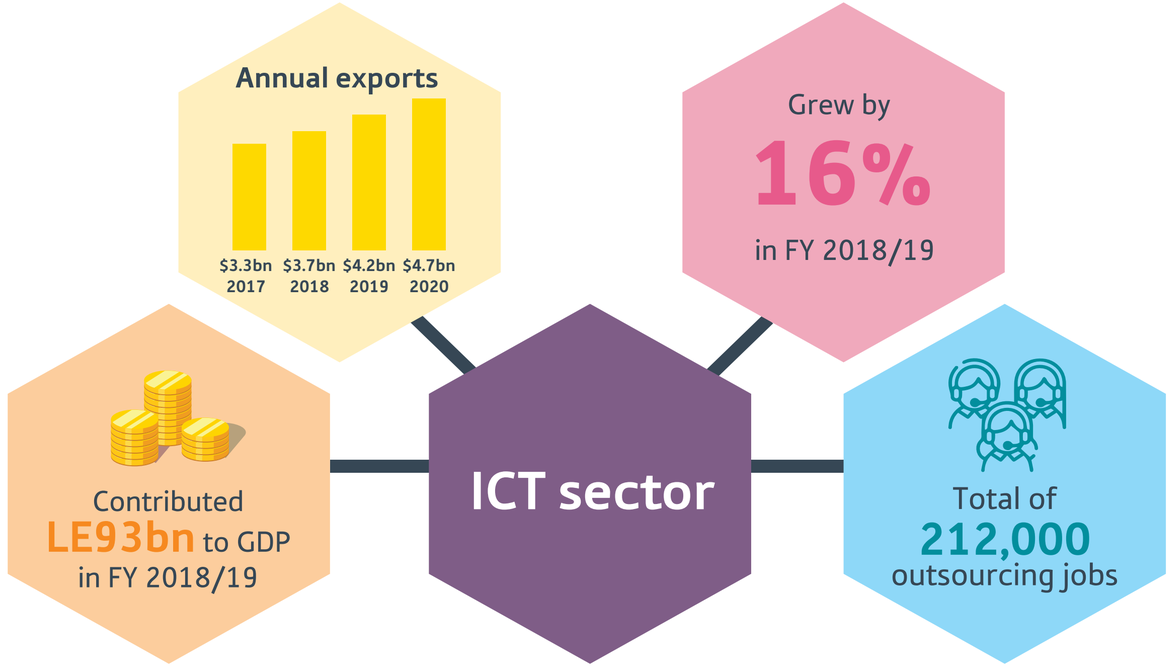
Graph source: *AT Kearney*

IT and Business Process Outsourcing



ITO, BPO and other ICT exports are an important source of revenue for Egypt, which provided services to approximately 100 countries in 20 languages as of 2018. According to market research firm IDC, Egypt's ICT exports – which include ITO and BPO – were set to expand from $3.3bn in 2017 to $4.7bn in 2020. This projection reflects the benefits to the segment of the mass shift to online operations worldwide.

The pandemic has accelerated existing digital and outsourcing trends, as companies looked to move to the cloud and rationalise budgets. The government's investment of $1.6bn between 2018 and 2020 to improve internet provision facilitated the transitions necessitated by the pandemic, Amr Mahfouz, CEO of ITIDA, told press in December 2020. "When people had to leave their offices, we had the capacity to allow them to work from home, and this left us with over 17% of the outsourcing market worldwide."



Part 2: Sector Mobilisation

Case Study

RAYA Customer Experience | FIRST-CLASS CX DOMAIN EXPERTISE

RAYA CX (RCX) provides a range of integrated business process outsourcing (BPO) solutions across a number of verticals for clients in North America, Europe, Africa and the Middle East. Founded in 2001, the company has been listed on the Egyptian Exchange since April 2017.

RCX has 13 facilities across Egypt, Poland, the UAE, Saudi Arabia and Bahrain, which together cover numerous sectors, including fast-moving consumer goods, retail and e-commerce, banking and insurance, automotive, health care, travel, government services and real estate.

The BPO industry is one of the most reactive and adaptable in Egypt given the breadth and scope of the sectors and services it covers. Innovation through the use of new technologies and refined processes such as data analytics and artificial intelligence is increasingly important in light of broader expansion of digitalisation, and the Egyptian BPO industry has the scalability to serve more markets than it currently does.

"Although there has been a decline in demand for some industries, growth is expected to be solid in the medium to long term," Ahmed Refky, CEO of RCX, told OBG. "This is partly down to a strong rebound in countries such as Egypt, as well as more agile business practices implemented by firms in response to the pandemic," Refky added. As the pandemic unfolded, RCX expanded its digital capabilities and tools to support customer experience solutions globally, allowing companies to maintain relationships with their customers and improve business outcomes in the face of disruption. The insourcing segment has seen the strongest demand since March 2020, while demand for outsourcing and hosting has declined somewhat.

Viewpoint

Ahmed Refky, CEO, RAYA CX

The inevitable reality of the Covid-19 pandemic is that some sectors and verticals have been declining while others are flourishing unexpectedly. In the customer-facing sphere, those experiencing brisk growth tend to have an expansive digital presence.

When looking at every touchpoint, the pandemic has changed the routes and behaviours of customers across the entire consumer journey. Today, consumers are more intelligent and educated, largely due to the volume of data that is readily available to them.

This is the macro-scale equivalent of what happened to many industries when the internet first appeared – such as the move from in-person to online purchases for air travel. As such, it is the role of companies to accompany their customers on this digital journey.

The value of Egypt as a business process outsourcing (BPO) centre is undeniable. Its location in terms of time zones and the variety of languages available for services, along with low operating costs, make it competitive with other locations regionally and globally.

However, as the industry quickly grows, the challenge for any BPO destination is the talent pool, and in recent years the definition of soft skills has evolved. For example, 20 years ago we talked about time management, but now soft skills refer to learning capacity and adaptability.

To ensure scalability for Egypt, the continued development of human resources is vital to the sector's long-term success. The current initiative, involving collaborative programmes sponsored by the government and key BPO players, has proved useful and should be sustained.

Part 2: Sector Mobilisation

Cybersecurity

The crisis highlights the urgency of cybersecurity. A 2020 report by IT security firm Trend Micro found a 16% year-on-year rise in vulnerabilities in industrial control systems in the first half of 2020.

With more people working remotely, the need for digital protection presents opportunities: pre-pandemic the Middle East's cybersecurity market was slated to grow from $16.1bn in 2020 to $28.7bn in 2025, for a compound annual growth rate (CAGR) of 12.2%. In mid-August 2020 this was amended to $15.6bn in 2020 and $29.9bn in 2025 – a CAGR of 13.8% – with growth accelerated by more frequent and sophisticated security breaches against critical industries, government and enterprises.

Health care is expected to be the fastest-growing cybersecurity market, as entities seek solutions like medical device penetration testing, inventory and risk analysis, risk assessments and network segmentation – especially in light of reports in late 2020 of hackers targeting sensitive information on the development of Covid-19 vaccines and the cold chain needed for their storage and distribution.

The Middle East's cybersecurity market is forecast to grow by a compound annual growth rate of **13.8%** to reach $29.9bn in 2025

Policymakers are also working to strengthen cybersecurity at the national level. The National Cybersecurity Strategy 2018-21, for example, seeks to monitor and respond to threats; secure critical infrastructure; and create a safe environment for businesses to thrive. These efforts are reflected in international indices, with Egypt ranking fourth out of 22 Arab states and 23rd out of 175 countries in the International Telecommunication Union's most recent Global Cybersecurity Index, released in 2018.

Furthermore, Egypt enacted an anti-cybercrime law in 2018, and in February 2020 the Egyptian Parliament passed the Personal Data Protection Law, which came into force in July 2020 and aligns with the EU's General Data Protection Regulation.

Case Study

Atos

Atos in Egypt is based in Cairo, and specialises in facilitating digital transformation and providing innovative digital solutions. As part of the broader economic reforms being undertaken by the government in line with Egypt Vision 2030, the ICT sector has seen significant progress in terms of digital transformation as the public sector worked to reduce paper waste and private companies shifted their operations online.

This has driven demand for software, cloud and data services, as well as customer relationship management software and digital workplace solutions. The growth in the market and the sector's further potential have created an attractive environment for investment by both local and foreign firms in the digital space.

The Covid-19 pandemic highlighted the importance of digital transformation, as well as the central role cloud and enterprise services, big data, cybersecurity and digital communication platforms can play in helping a variety of companies succeed.

With fully digital offerings, Atos was able to react to clients' needs effectively. Thanks to its global presence, the company had an early understanding of the difficulties clients were facing during the crisis and how solutions could be geared to the current situation, with health and safety measures taken into account.

"Adaptability and security will be the common denominator of businesses that are able to survive and even thrive during the pandemic," Ahmad Elharany, general manager of Atos Egypt, told OBG. "Digital solutions such as cloud computing are well suited to an environment that requires the ability to adjust quickly. As such, industries across the economy will find benefit in the integration of digital platforms and solutions into their business operations."

Part 3

Part 3: Future Transformation

Turning Point

Egypt's partial lockdown resulted in a surge in demand for telecoms services as business and social interactions moved online. While growth waned as lockdown measures eased, the pandemic has hastened digital transformation. Some trends that accelerated – including wider acceptance of remote work, digital payments and e-commerce portals – are expected to continue in the years ahead. This will lead to opportunities not only for investment, but also for public-private collaboration to strengthen digital infrastructure. Companies from retail to banking had to shift to virtual operations at the onset of the pandemic. These moves required renewed investment in ICT products and services – efforts that must be sustained in the coming years in order for companies to remain competitive as new trends emerge.

The creation of smart cities, the introduction of 5G networks, and companies' adoption of disruptive technologies such as artificial intelligence (AI) and the internet of things (IoT) are expected to contribute to the continued expansion of the ICT sector. There has also been a concentrated effort on behalf of the government and the private sector to bring small and informal enterprises into the formal financial fold, as well as facilitate business operations amid social-distancing guidelines. Official efforts have in part relied on encouraging the uptake of mobile money and e-wallets, with companies such as local electronic payment network Fawry – Egypt's first unicorn that was present in over 194,000 businesses as of early 2021 – contributing to this shift. Enhancing financial inclusion is expected to be a priority into the future, further cementing ICT's role as the conduit of digital transformation across the economy.

Local electronic payment network Fawry was present in more than **194,000** businesses as of early 2021

Case Study

SAP is a global software and technology solutions firm that has operated in Egypt since 2007. The company has identified the Egyptian market as one of its priorities in the region, following the acceleration of the Digital Egypt plan and the country's focus on public-private cooperation to drive digital transformation. In 2018 SAP launched the Egypt Growth Investment Plan to grow economic, social and environmental inclusion, job creation and competitiveness by supporting Egyptian organisations in their digital transformation. Digital investments in Egypt rose by 35% in 2020, reflecting the country's high mobile penetration rate of over 100% and reforms to promote ICT's role in national efforts to improve the business environment.

The ICT sector has facilitated the digital transformation of organisational procedures and helped to shift the broader business mindset during the pandemic, which is likely to make the Egyptian economy more dynamic in the long run. Digital tools are helping to solve persistent challenges; using the cloud and adopting data security measures are trends already taking off in the financial sector. At the government level, SAP has partnered with the Ministry of Finance to automate core taxation processes and allow taxpayers to pay online, with the aim of streamlining tax administration and spurring more digital transformation in the regulatory space.

As a leading business application, SAP plans to support further digital transformation by developing young IT talent in Egypt and across the MENA region. In the first quarter of 2021 the company partnered with the German government to enrol two new cohorts of Egyptian IT graduates in the SAP Young Professionals Programme, which aims to strengthen the domestic IT ecosystem with a greater number of highly skilled professionals.

Digital Egypt

Developing the digital economy and strengthening Egypt's ICT infrastructure are central to efforts by the Ministry of Communications and Information Technology (MCIT). Digital Egypt is the ministry's roadmap to facilitate further sector growth through initiatives such as capacity-building, digital inclusion and the transition to a knowledge-based economy. Digital inclusion has seen continued gains in recent years. In December 2018 there were a total of 6.3m ADSL subscriptions in the country, rising to 6.9m in June 2019 and 8m in June 2020. Meanwhile, there were 35.1m mobile internet users at the end of 2018, a figure that increased to 36.5m six months later and 41.8m by mid-2020.

The plan also seeks to build local electronics design and manufacturing capacity. The Information Technology Industry Development Agency (ITIDA) is working with the MCIT to encourage such activities through its Egypt Makes Electronics initiative. The programme aims to bolster exports by leveraging trade agreements; fostering industry-academia collaboration; and encouraging the production of smartphones, tablets, GPS devices, smart meters, LED lighting, industrial electronics and more. Investors are offered incentives and subsidies on research and development, tools and development kits, and training. Efforts have paid off: in December 2017 the MCIT inaugurated a 4500-sq-metre electronics manufacturing plant in New Assuit Technology Park. The facility began to produce mobile phones, tablets and tracking devices in 2018, and by October 2019 it had the capacity to produce 2m devices annually.

More recently, the MCIT has launched various CREATIVA knowledge and innovation centres to train youth in tech-related skills that align with market demands. In March 2021 LE300m was granted to fund the second phase of the initiative, which focuses on developing an integrated system for technological innovation and improving self-employment skills for success in entrepreneurial pursuits.

Egypt Makes Electronics initiative

SEGMENTS

- Product design and development
- Integrated circuit design and development
- Contract manufacturing
- Semiconductors
- Logistics, repair and recycling

PRODUCTS

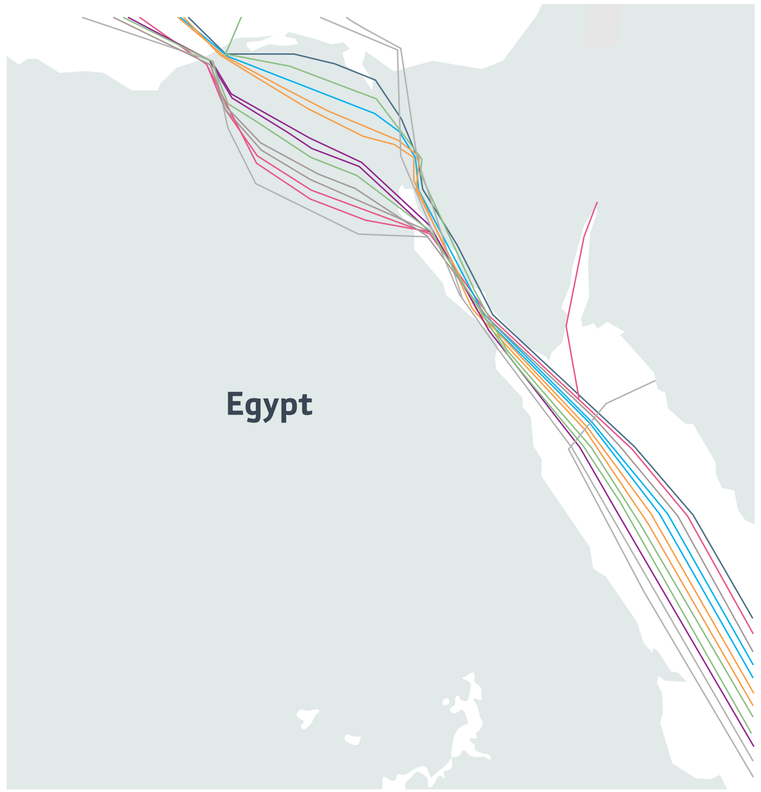
- Smartphones, tablets and GPS
- LED lighting and displays
- Smart meters
- Solar facilities
- IoT devices and smart solutions
- Industrial electronics

INCENTIVES & SUBSIDIES

- up to **50%** Office space in industrial parks for design firms
- up to **80%** Research and development
- up to **80%** Enterprise training
- up to **90%** Electronic design tools and development kits
- up to **100%** Graduate training
- up to **100%** Tax and Customs duty exemptions

Infographic source: *ITIDA*

Infrastructure and 5G



5G is a key component of the MCIT's strategy to encourage technological innovation and sustainable development, and both the government and private telecoms providers have invested in necessary upgrades. In 2018 the National Telecom Regulatory Authority deployed broadband fibre optics, a central requirement for 5G. In November 2019 state-owned Telecom Egypt signed an agreement with Sweden's Ericsson to make its core cloud network 5G ready, and the same month signed a memorandum of understanding (MoU) with Finnish multinational Nokia to introduce 5G test use cases. The following month Etisalat Misr tested commercial 5G services in partnership with Ericsson, reaching speeds of up to 1.4 Gbps. A year later, in December 2020, Vodafone Egypt announced it would begin 5G tests in the New Administrative Capital (NAC). Once widespread, 5G could facilitate the use of IoT devices, AI and other next-generation technologies. This will not only attract both foreign and domestic investment, but help companies enhance efficiency and service dependability. There are early signs this shift is already taking place: in September 2020 representatives from Chinese telecoms equipment provider Huawei met with Mohamed Shaker El Markabi, the minister of electricity and renewable energy, to discuss ways to facilitate the wider use of smart electricity grids in Egypt.

Subsea fibre-optic cables are also central to ICT infrastructure, as Egypt is connected to more than 60 nations through 17 submarine fibre-optic cables. When compared to its African counterparts, Egypt's internet speed ranks third on the continent, according to a June 2021 Ookla report. It also compares favourably on cost to neighbouring countries. To further improve connectivity, Telecom Egypt invested LE17bn in both 2019 and 2020 to shift domestic cables from copper to fibre optic. This helped maintain internet performance during the lockdown and curfew periods in early 2020, when demand from homebound Egyptians spiked.

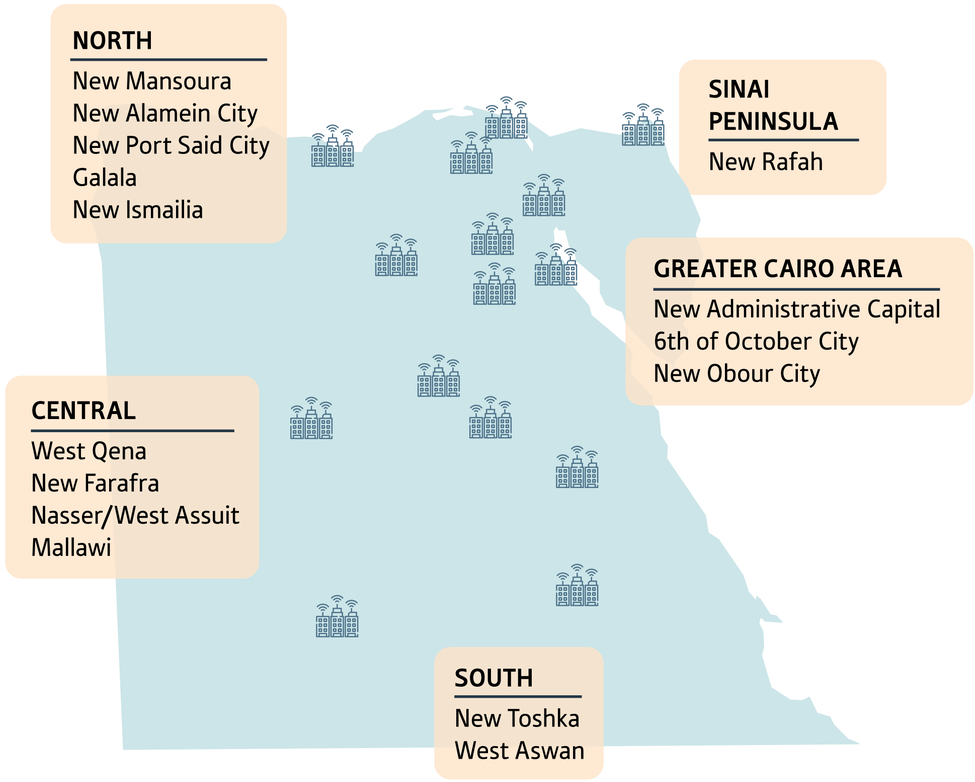
17 subsea fibre-optic cables run through Egypt's territory

Smart Cities

Egypt plans to build 50 fourth-generation cities – or smart cities – by 2050, with 22 under development as of late 2020. The headline project, the NAC, will replace the current capital of Cairo as the centre for government and foreign missions. Construction began in 2015 and, once complete, the $58bn new capital will span 700 sq km and be home to 6.5m residents. Importantly, it will ease overcrowding in Cairo, the population of which stood at more than 21m in 2020. The NAC will use smart technology to manage security, traffic and resources in real time. Such tools applied to utilities will reduce consumption and costs, and fibre technology will connect every structure to the network. Building and energy management will focus on renewable energy and using IoT devices to boost efficiency. A planned 90-sq-km solar farm will help to ensure energy consumption is sustainable. These technologies are expected to result in cost savings for both the private and public sector, as well as improve service provision, attract investment and enhance Egypt's competitiveness on a global scale.

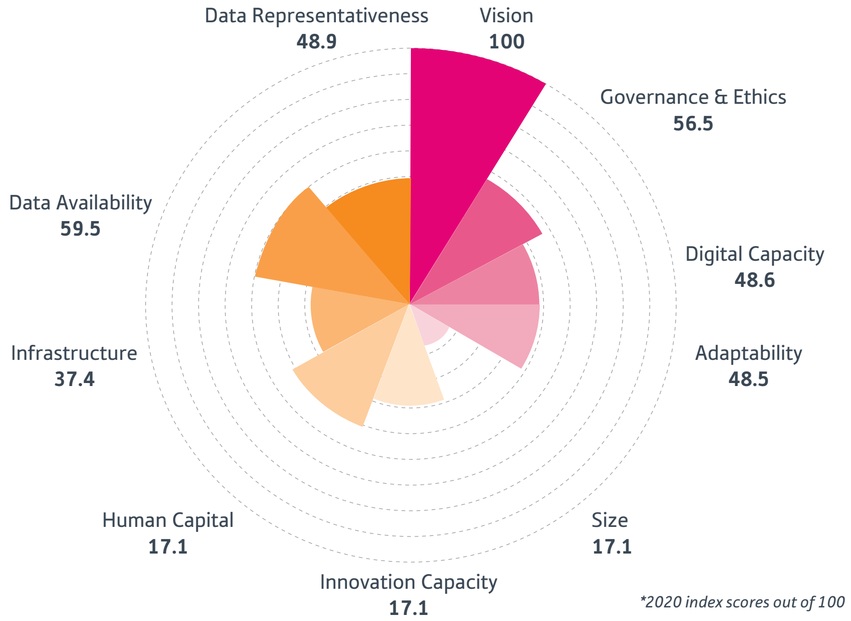
In addition to public offices and embassies, the NAC will feature Knowledge City – a centre for applied research, technical training, software and application development, and data design that will include universities, a science park, and research, innovation and entrepreneurship facilities. "Public-private research efforts aim to deploy AI, data science and IoT to address specific and pressing challenges in fields such as urban planning, health care, agriculture, water management, education and resource optimisation," Amr Talaat, the minister of communications and information technology, told OBG.

In September 2020 a new headquarters for the Ministry of Finance was finalised. The following month the New Administrative Capital for Urban Development (NACUD) body announced it would sell the remaining land available under the first phase of the project – which focused on residential development – by 2022. NACUD also noted it signed 196 contracts for schools, sporting clubs, banks, mixed-use developments and offices, and is expected to start bringing facilities on-line by 2023. Meanwhile, work on the second phase – which includes government and presidential districts – began in September 2020, with public offices set to shift to the new capital in mid-2021.



Automation and Industry 4.0

Egypt ranked 56th out of 172 countries in the 2020 Government AI Readiness Index*, up from 111th in 2019



*2020 index scores out of 100

Egypt has well-diversified industries, and the cost and availability of labour have been competitive advantages for attracting investment. Now, as automation under the Fourth Industrial Revolution – also known as Industry 4.0 – gains pace around the world, Egypt is seeking to modernise its industry by adopting new technologies in production and service delivery to improve efficiency and boost the contribution of value-added products to the sector.

Efforts include applying robotics, nanotechnology, AI, IoT tools, biotechnology, self-driving vehicles and quantum computing. While this shift is in the early stages and there are variations across industry segments – oil and gas, for example, remains relatively under-digitalised compared to manufacturing – important first steps are enhancing Egypt's competitiveness as a centre for production. In late 2019 the Industrial Modernisation Centre, formed by presidential decree in 2000, announced plans to create a centre of excellence for Industry 4.0 technologies to raise awareness of the benefits of automation and digitisation among small and medium-sized enterprises, as well as young entrepreneurs. Similarly, towards the end of 2020 the government established the Applied Innovation Centre to promote the use of AI, data science and the IoT in a variety of areas. Industry 4.0 is also the focus of ITIDA's innovation clusters in Borg Al Arab and Assiut.

Nonetheless, large capital outlays remain a hurdle to implementing Industry 4.0 solutions at some private companies, and there are concerns regarding data ownership, the digital divide and unemployment. However, here, too, the pandemic has accelerated the shift to advanced technology, with universities, research labs and businesses all recognising the role technology plays in continuity amid health and mobility measures.

Graph source: *World Bank*

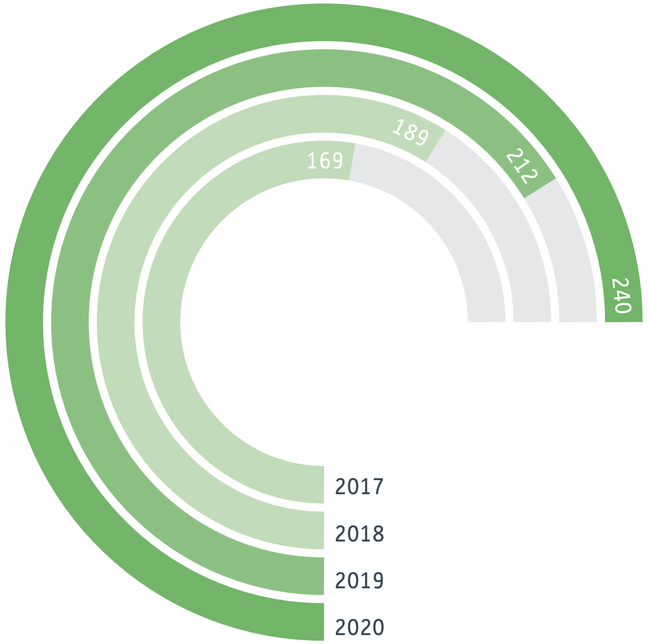
The Future of Outsourcing

IT outsourcing (ITO) and business process outsourcing (BPO) are competitive fields internationally, especially when countries compete for market share with well-established locales such as India and the Philippines. However, Egypt stands out in this realm with its young, tech-savvy and multilingual population; low costs; government support; proximity to key markets in Europe, the Middle East and Africa; and a location that allows it to accommodate work across a variety of time zones to provide business continuity between operations in the US and Asia. In addition to contact centres, Egypt provides IT consulting, application development and maintenance, engineering services, robotics, process automation, analytics, finance support and human resource management.

While the country initially specialised in multilingual BPO centres, it is increasingly shifting to high-value niche services that require specialised experience in managing complex operations and technology. One such focus is smart city management: for example, Vodafone offices in Egypt design and operate smart cities in Europe. Company representatives cite Egypt's skilled human resources and competitive costs as strengths in the administration of smart cities abroad. Vodafone's robotic process automation is also done in Egypt for the rest of the world. The introduction of 5G will likely accelerate this outsourcing diversification trend, creating new opportunities for enterprises to develop services related to AI, IoT devices and big data both within the country and further afield.

Egypt can set itself apart by leveraging these more specialised, value-added services to attract a wider client base. This will improve Egypt's competitiveness on a global scale, especially as clients expand from only needing contact centre support to also requiring more technical expertise. While Egypt has a large talent pool from which companies can hire – graduating 50,000 students with IT-related degrees and 370,000 with business service skills annually, according to ITIDA – private and public sector efforts to provide specialised training for new and emerging segments will allow Egypt's outsourcing sector to reach its full potential.

Egypt's outsourcing industry workforce, 2017-20 (000)



From Cash to Digital Payments

Digital payment use in Egypt, 2019

43.1m
people made digitally enabled payments

13%
growth in the value of digitally enabled consumer payments

$10.25bn
annual value of digitally enabled consumer payments

While blockchain is still in its infancy in Egypt, digital payments have gained traction in recent years as the authorities have worked to encourage financial inclusion and cashless transactions. Around 43.1m people made $10.25bn worth of digital payment transactions in 2019, up 13% by value that year, according to a report from We Are Social and Hootsuite. The study found that 32% of adults had an account with a financial institution, 1.8% had a mobile money account, and 3.5% made purchases or paid bills online. Even so, cash transactions continue to dominate, with 60% of e-commerce transactions in 2019 completed using hard currency.

The Covid-19 pandemic – and the subsequent social-distancing and lockdown measures – contributed to further uptake of electronic payment methods. E-payment platform Fawry announced in September 2020 that its value grew by 300% to $1.3bn from its mid-March low. While some observers are unsure whether the shift will be permanent, the government is doing its part to encourage more people to adopt digital banking, set up e-wallets and otherwise reduce cash use. In this vein, the authorities intend to make the NAC the country's first cashless city.

The MCIT is also working with the UN's International Telecommunication Union, the World Bank, and the Bank for International Settlements' Committee on Payments and Market Infrastructures to further its Financial Inclusion Global Initiative. Launched in 2019, the three-year programme aims to accelerate digital financial inclusion in developing nations. As part of the plan, Egypt targets an increase in the number of active mobile payment accounts in the country from roughly 20m in 2019 to 40m in 2021. Mobile wallets, too, have been targeted for expansion, as only around one-third of Egyptian adults have a bank account, but some 95% had a mobile subscription as of early 2020 – representing a large untapped market for mobile wallets.

At the business level, in January 2021 the Egyptian Financial Regulatory Authority launched the Digital Financial Inclusion 2021 initiative to boost the rate of non-cash payments in the economy, especially among smaller enterprises.

Infographic source: *We Are Social; Hootsuite*

Developing Tech Talent

Like many countries, Egypt is adapting to the changing needs of employers by working to prepare a large youth population for in-demand jobs – many of which require at least a basic set of tech skills. The public and private sectors are seeking to address the gap between the abilities of graduates and the needs of employers: in 2019 three technology universities were opened in New Cairo City, Quesna and Beni Suef. The institutions offer degrees in IT, mechatronics and autotronics, and power plant operations and maintenance. Around 700 students enrolled in the programmes during the schools' first year. In a similar vein, in February 2020 the Ministry of Higher Education and Scientific Research signed an MoU with Huawei to provide Egyptian university students with ICT training as part of a long-term partnership.

The government has identified ICT skills and the technical infrastructure of universities as key to developing the digital economy. After schools and universities were closed in mid-March 2020 and schooling had to take place from home, the MCIT launched an e-learning platform in April to enhance digital literacy and facilitate the secure use of the internet. The same month ITIDA launched the Future Work is Digital programme to train a targeted 100,000 young people in advanced IT, data and digital marketing skills through courses designed in collaboration with tech companies. Between May 2020 and March 2021 around 30,000 people graduated from the programme: 35% were women and over 40% resided outside of Egypt's major cities.

In September 2020 the MCIT launched the Digital Egypt Builders Initiative to build human capital in advanced technologies such as AI, cybersecurity, robotics and automation. By the end of the year the ministry had signed two MoUs with international universities under the programme: the University of Ottawa and the Ohio State University. These moves should help to expand on an already competitive talent pool, as Startup Genome recognises Cairo, in particular, as the one of the top-10 locations for affordable talent globally.

Progress on ICT talent initiatives, 2020-21

LE400m	Public investment in digital skills development in FY 2020/21
115,000	Youth to be trained in public ICT programmes in FY 2020/21
1710	Graduates of the Future Technology Pioneers programme in 2020
1911	Graduates of the Africa for Applications and Digital Games initiative
14,000	Trainees in the Administrative Unit were taught e-skills to facilitate the move to the NAC
30,000	Graduates under the Future Work is Digital initiative May 2020-March 2021
46,000	Completed self-employment skills training under the Work from Your Home initiative
33,100	Trainees obtained certificates of completion from the Mahara Tech e-learning platform
Top 200	ICT graduates in the country honoured at Huawei conference in February 2021

Infographic source: *Council of Ministers*

Data Protection

The importance of strong cybersecurity measures became more evident as companies shifted operations online amid the pandemic. The volume of additional transactions and communications in Egypt and the wider Middle East carried out over the internet exacerbated concerns about cyberthreats that existed before Covid-19; cybercrime in Egypt rose by 190% between 2012 and 2017, according to the Cabinet's Information and Decision Support Centre. Furthermore, a 2019 report by international consultancy PwC found that 70% of companies in the region cited cyberthreats as a risk to their growth.

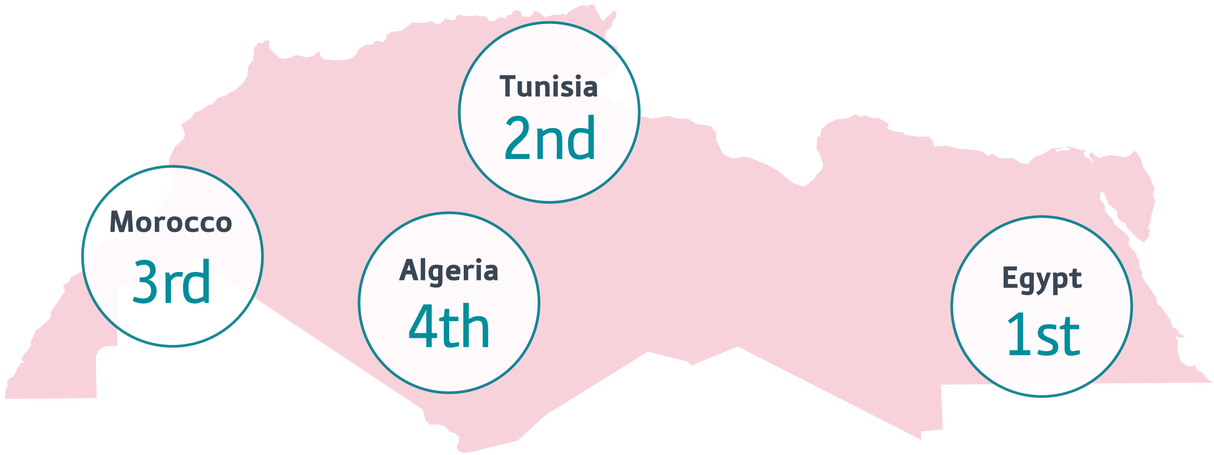
With more firms conducting business operations online, a high level of awareness of data security and the required protections will be necessary for companies to thrive in 2021 and beyond. As of early that year the government was working to create a cybersecurity framework and infrastructure to allow the country to more proactively tackle data-management issues.

Recent developments to codify data protection should help Egypt attract foreign investment by establishing clear measures for companies looking to operate in the market, while at the same time increasing consumer confidence in digital data processing.

In July 2020 the country's first standalone data-protection law came into force. Modelled on the EU's General Data Protection Regulation, the law established a centre composed of representatives from the Ministry of Justice, the Ministry of Foreign Affairs, the General Intelligence Service and the Administrative Control Authority to oversee data protection and prevent breaches. This management model signals to potential investors the importance Egyptian officials place on data protection.

Moves to strengthen online security are paying off: Egypt ranked 84th out of 134 countries in the 2020 Network Readiness Index, placing it first in North Africa. Importantly, it ranked 16th in terms of research and development expenditure by government and higher education, and 25th in terms of cybersecurity in governance.

Network Readiness Index rankings for North Africa, 2020



Infographic source: *Portulans Institute*

6 Key Takeaways

1

Fiscal and economic reforms in recent years put the country in a position to take the necessary steps to support the economy when the Covid-19 pandemic hit. Likewise, pre-pandemic investment to strengthen ICT infrastructure and increase internet penetration was effectively leveraged to facilitate business continuity across sectors.

2

Diversification of the economy and a burgeoning entrepreneurial tech ecosystem provided a foundation for innovative responses to the pandemic. With entrepreneurship likely to be a core driver of economic recovery and reinvention as the pandemic wanes, it is key that this ecosystem continues to receive support.

3

The future of the ICT sector will be shaped by the youthful, tech-savvy generation under the age of 30, which accounts for 60% of Egypt's population. This cohort will both drive demand and be a key source of qualified talent. Education and training can help increase the purchasing power of consumers and underpin future innovation as this generation becomes dominant in the workforce.

4

The Digital Egypt programme to develop and strengthen the digital economy is centred on strengthening infrastructure, capacity-building, digital inclusion and the transition to a knowledge-based economy. Effective government support for the ICT sector and the entrepreneurial ecosystem can help foster the private sector-led growth that is key to sustainable job creation.

5

While technology has long been at the heart of efforts to transition away from cash and improve financial inclusion, the uptake of electronic payments was catalysed by the pandemic. Leveraging technology to improve access to the formal economy and reduce red tape will encourage healthy competition and boost Egypt's attractiveness to foreign and local investors alike.

6

With Egypt looking to reinvent its economy as it emerges from the Covid-19 pandemic, automation and Industry 4.0 solutions will be at the forefront of improving efficiency and increasing value added. The inauguration of smart cities, continued improvements to infrastructure and the prospect of 5G rollout provide a solid foundation to achieve Egypt's goal of being a regional centre for technology and outsourcing.

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