Telecom Revolution in Egypt

NTRA Annual Report 2017
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industry development, technology innovation and entrepreneurship, thus creating more job opportunities and attracting foreign direct investments. Egypt also strives to be a global Internet hub, thanks to its strategic geographic location, with already 16 submarine cables passing through its territory. The country will focus, in the near future, on electronics industry and establishing more technology parks outside the capital, Cairo, thereby providing youth with equal opportunities. e-Commerce is one of the key initiatives that the country will work on developing with some successful existing companies working in the field. Moreover, Egypt is keen to develop the ICT sector infrastructure, a key element for overall development, thus contributing to the expansion of services provided.

Egypt’s innovative minds build the knowledge industry and we work on supporting those minds and developing the industry. Next year will be marked by the development of the ICT sector and a breakthrough whether in terms of offering solutions—as a serving sector—to develop economic areas, improve productivity and solve community problem, or by launching new projects to meet the local demand for technology. We also wish to create a business society, which we will call “Business Park”. In governorates to become the nucleus of development. Development is to be distributed equally between different geographical areas to help create investment opportunities and consequently attract investment. The State’s most important focus for development is to invest in infrastructure and provide training and employment opportunities.

Access to ICT is a primary and central human right; it is a necessary tool to impact and change communities, improve levels of awareness for all segments of the society and aspire for a better future on all aspects. ICTs, at present, are influencing every aspect of human life and many people recognize ICTs as a catalyst for change. They, therefore, are progressively applying ICT tools in all walks of life, thereby shifting steadily towards a desired digital society.

We are committed to continue our dynamic and effective role in promoting the national ICT sector, thereby placing Egypt as a key player on the ICT global map.

Yasser ElKady
Minister of Communications and Information Technology
The ICT sector in Egypt has witnessed in the past few years an amazingly remarkable growth as the Egyptian administration strives to endorse the development of the ICT sector through a bundle of measures to create the digital society, thereby enabling the governmental authorities to exchange and share information effectively and safely, augmenting the efficacy and quality of services provided to the citizens at affordable prices. In fact, all the achievements accomplished in the ICT sector over the past two decades do represent a great national feat and all the mandates that the National Telecom Regulatory Authority (NTRA) bears in the near future is another national attainment and success that I have no doubt we all have the ability to realise.

The regulation of the Egyptian telecom sector and exertion of great efforts for its development and enhancement, and the deployment of the services to all citizen categories of the Egyptian society with their different economic, social and cultural levels, represent the main pillar of the NTRA’s functions that it has been seeking to accomplish in an effective and fair market. Hence, it acts as a stimulus to the State’s economy through ensuring the realization of high growth rates in the sector and the augmentation of the State’s revenues, attracting foreign investments that are pumped in the ICT sector to provide more promising employment opportunities and draw international expertise, which is, in turn, reflected on the culture of the Egyptian cadres.

This vision has been adopted by the government in all sectors as its policies intertwine with the regulatory reforms implemented by the country in its efforts and commitments to the liberalization of the telecom market. We are witnessing these days novel opportunities that emerge in this changing scenery. As we deal with the “Internet of Things” (IoT), millions of individuals still lack access to Internet services, which also affects their ability to participate in the digital economy on all social, financial, and economic levels. Here the obstacles and challenges lurk. As we all well know the information and communication technologies are the essential pivot for the growth of the economic sector.

Our urgent need for a favorable environment and cooperative milieu is clear with the participation of all market players: operator, service providers, technical experts, bankers, and all interested parties who are considered key partners in connecting the world together and create added value for businesses. In the framework of NTRA’s keenness to create a favorable setting for the telecom market liberalization through free competition and investment enhancement with the elimination of antitrust practices, NTRA has issued a general framework for interconnection agreements and exchange of services between licensed operators. This framework is founded on the realization of the equality and non-discrimination principles among all players in the telecom market, and includes a range of technical, commercial, legal and regulatory rules that ensure the operators’ compliance with interconnection agreements.

NTRA, in recognition of the relations governing and regulating telecom services in the light of market advances and developments, has allowed the service providers to provide all telecom services, whether they are fixed, mobile, or data. Moreover, NTRA has awarded Telecom Egypt and the three mobile operator companies the 4G license for the establishment and operation of 4G mobile broadband networks and the provision of virtual fixed-line services with the aim of provision of services at the highest speeds and quality by virtue of the award of an integrated and unified license. NTRA’s award process these took place with all transparency, integrity and professionalism in accordance with the international standards applicable in this regard.

In this seemingly-small global village, NTRA has recognized the importance of the international dimension of the International Telecommunication Union (ITU), regulatory authorities throughout the world and in the sister countries not to mention the Arab Regulators Network (AREGNET) as NTRA’s staff and experts spare no effort to actively participate in all the international and regional events and conferences. All the achievements and successes attained by NTRA and all what we dream to accomplish in the upcoming period concerning drawing strategies and implementing plans would not have been possible without the efforts and cooperation of its experienced staff who have been striving hard to achieve all prosperity and gain confidence in the Egyptian telecom sector as per what our beloved Egypt deserves of progress and leadership.

These are some milestones of our challenging road that we are treading and the hopes that we dream to attain. We will continue proceeding on our work, exerting all efforts tirelessly and determinedly to eliminate all challenges and impediments that we are committed to remove with all due diligence and efficacy to perfect the course of development for the welfare of our nation.

Mostafa Abdel-Wahed
NTRA Acting Executive President
The National Telecom Regulatory Authority (NTRA) was established in accordance with the provisions of Telecom Regulation Law No. 10/2003 as the national authority competent to regulate and administer the telecommunications sector. NTRA, pursuant to the Law, aims to enhance and deploy services in compliance with the most advanced technologies, satisfying the customers’ needs at the most appropriate prices, taking into consideration transparency, open competition, universal service and the protection of customer rights.

NTRA is responsible for creating an enabling environment for competition among operators in the industry as well as ensuring the provision of qualitative and efficient telecommunications services throughout the country.

NTRA has been taking the lead in areas that drive the advancement of the communications industry, as, pursuant to the Telecom Regulation Law no. 10/2003, it enjoys the juristic personality and financial independence in order to meet its mandates as set forth in the Law. In this regard, NTRA seeks to capitalize on its competencies in:

- Guaranteeing the provision of telecom services to all regions throughout the country, including the economic and developmental regions as well as the urban, rural and remote areas;
- Supporting the creation of a healthy investment environment based on free competition and equal opportunities principles;
- Developing and promoting appropriate strategies and policies that boost infrastructure development and use of ICT services;
- Organizing the interconnection agreements between licensed operators in order to guarantee efficiency and fair internetworking practices in the telecom sector;
- Protecting national security and ensuring the security and efficiency of telecommunications networks;
- Attaining efficient management, allocation of the radio frequency spectrum and access there to.
- Testing and certifying telecommunications and broadcasting equipment to ensure compliance with (i) international standards; (ii) environmental health and safety standards, including electromagnetic radiation and emissions.

In fact, it is within this equilateral triangle (representing the state, consumer and industry) set inside a regional arena, and embedded in a broader context of rapid global changes, that the playing field upon which NTRA is set to score and excel, truly exists.

The State provides the national and international policies regulating and managing the scarce resources, and enforcing fundamentals and ethics of fair competition among industry players while protecting consumers’ rights.

**Mission Statement**

Anticipates and leads the reform of the telecom market and develops the telecom industry while keeping the balance between the different stakeholders on a fair basis and protecting consumer rights.

**NTRA Vision**

Access to digital economy through communication and information technology to achieve prosperity, freedom and social justice for all.

**Scope of Work**

The mandates commissioned to NTRA and the measures it takes always illustrate its commitment to foster the Egyptian telecom sector and strengthen the correlation between the market cornerstones, which goes along with the international trend aiming at bridging the existing digital divide as well. This is obviously interpreted in NTRA’s duties that are represented in setting the main broad lines of the telecom sector in Egypt can be summed up as follows:

- Offering a well-established licensing system to ensure the implementation of the latest technologies along with international standards at affordable prices within a fair framework that ensures the attainment of investors’ and consumers’ mutual benefit.
- Ensuring the abidance by several and sequential procedures in order to create a healthy investment environment, based on free competition and equal opportunities principles.
- Providing an effective radio spectrum management system, maximizing its efficiency and revenues and protecting national security and citizens’ health, while abiding by the international regulations.
- Protecting the backbone of market dynamics, that is, the consumers. To this end, NTRA established the Consumer Rights Protection Committee (CRPC) that guarantees a direct interaction with telecom services users in order to enhance quality of service and minimize negative health implications in accordance with the consumer bill of rights and international regulations.
- Assuring the delivery of telecom services in consistence with preset quality standards through market surveys and directly monitoring telecom services providers.
- Initiating research programs which are sometimes held in cooperation with foreign experts in order to solve technical problems caused by existing technologies or pave the way for launching new services into the market.
- Extracting suitable standards for the Egyptian market from the international standards to set a constant accountability base with regards to quality, affordability and health. Moreover, NTRA has set a National Numbering Plan in order to prepare the market for new technologies, services, tariffs and billing methodologies.
- Conducting economic studies to determine the most significant industry and market indicators that enable the assessment of existing services or those newly launched in the market, taking into account pricing models of telecom services.
- Supervising the Wireless Institutes that qualify students to apply for the wireless operator exams as NTRA issues certificates and awards licenses required for the holders of these certificates in accordance with the international rules and regulations concerning the Global Maritime Distress and Safety System (GMDSS). NTRA also checks the certificates to validate them, making any necessary modifications or changes thereto in coordination with the concerned authorities.
NTRA

Strategic Objectives

Enabling an integrated digital system on the national level to gain access to knowledge and services in simple and cost-effective ways at any time and any place for all citizens

Developing the telecom industry by encouraging innovation and entrepreneurship, attracting foreign investment and creating new job opportunities

Enabling Egypt’s geographic location and optimizing exploitation of marine cables for Egypt to become a Global Digital Hub

Digital Economy

Industry Development

Egypt’s Digital Hub

Main Priorities

Amending Telecom Law

4G License

Transformation

Digital Dividend

Cyber Security

Broadband Investment

OTT

Digital Economy

Applications & Databases of the State

Mobile Apps

Open source Software

Regional & International Relations

Innovation & Entrepreneurship

Support Companies

Professional Resources

Outsourcing

e-Villages

e-Services

Health Insurance

Taxes

Renewing Licenses

National Support Etc.
## Service Licenses

NTRA is the only official authority competent to grant licenses and permits to companies or establishments wishing to provide telecommunications services or operate in the field of communication or ICT sector, supervise it and follow up on its performance. The most important licenses issued by NTRA are shown and illustrated in the following table:

<table>
<thead>
<tr>
<th>Mobile Services</th>
<th>License</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Peering</td>
<td>GMPCS</td>
<td>1/10/2006</td>
<td>The right to offer mobile services through satellite systems.</td>
</tr>
<tr>
<td>Mobile Operators</td>
<td>MGSM/MGC</td>
<td>1/10/2004</td>
<td>The right to operate mobile services using the telecommunication network.</td>
</tr>
<tr>
<td>Bulk SMS</td>
<td>One To Many</td>
<td>2006</td>
<td>The license gives the licensee the right to provide mobile services across A.E.U.</td>
</tr>
<tr>
<td>One To One</td>
<td>Voice</td>
<td>2004</td>
<td>The license gives the licensee the right to offer individual and group speech calls and data transfer for closed user groups.</td>
</tr>
<tr>
<td>Wireless Trunk</td>
<td>Merc</td>
<td>2003</td>
<td>The license gives the licensee the right to offer international or national voice traffic services and certain data transfer services.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Satellite Services</th>
<th>License</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SatCom</td>
<td>VSAT</td>
<td>2005</td>
<td>The right to provide telecommunications services to VSAT.</td>
</tr>
<tr>
<td>Satellite Operators</td>
<td>GMSI</td>
<td>2006</td>
<td>The right to operate and manage the telecommunications systems of VSAT.</td>
</tr>
<tr>
<td>Satellite Transponders</td>
<td>GMSI</td>
<td>2007</td>
<td>The right to provide satellite transponder services.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data Services</th>
<th>License</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet</td>
<td>GMPC</td>
<td>2008</td>
<td>The right to offer ISDN services.</td>
</tr>
<tr>
<td>Virtual Private Network</td>
<td>VPLC</td>
<td>2009</td>
<td>The right to offer Virtual Private Network services.</td>
</tr>
<tr>
<td>Two Way Radios</td>
<td>GMPC</td>
<td>2010</td>
<td>The right to offer two-way radio services.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fixed Services</th>
<th>Category</th>
<th>License</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Telephony</td>
<td>Telecom Egypt</td>
<td>10/10/2003</td>
<td>The right to offer voice services to customers.</td>
</tr>
<tr>
<td>Virtual Fixed Telephony</td>
<td>Orange</td>
<td>10/10/2003</td>
<td>The right to offer virtual fixed telephony services.</td>
</tr>
<tr>
<td>Access</td>
<td>Vodafone Data</td>
<td>20/10/2003</td>
<td>The right to offer access services to customers.</td>
</tr>
</tbody>
</table>

### Accounting Authorities

<table>
<thead>
<tr>
<th>Author</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTRA</td>
<td>2004</td>
<td>The right to operate and manage the telecommunications systems of VSAT.</td>
</tr>
<tr>
<td>NTRA</td>
<td>2005</td>
<td>The right to offer ISDN services.</td>
</tr>
<tr>
<td>NTRA</td>
<td>2006</td>
<td>The right to provide two-way radio services.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wireless Institutes</th>
<th>License</th>
<th>Date</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Wireless Institutes</td>
<td>LICENSE</td>
<td>2012</td>
<td>The right to operate and manage the telecommunications systems of VSAT.</td>
</tr>
<tr>
<td>Wireless Institutes</td>
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<th>Infrastructure</th>
<th>License</th>
<th>Date</th>
<th>Description</th>
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<tr>
<td>Telecom Egypt</td>
<td>2004</td>
<td>The right to operate and manage the telecommunications systems of VSAT.</td>
<td></td>
</tr>
<tr>
<td>Telecom Egypt</td>
<td>2005</td>
<td>The right to operate and manage the telecommunications systems of VSAT.</td>
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</tr>
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</table>

### International Service Licenses

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<tr>
<th>International Gateway</th>
<th>License</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nile Sat</td>
<td>Nile Sat</td>
<td>2004</td>
<td>The right to offer international voice services.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>International Submarine Cable</th>
<th>License</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa Wave</td>
<td>2005</td>
<td>The right to offer submarine cable services.</td>
<td></td>
</tr>
</tbody>
</table>

### Service Providers

<table>
<thead>
<tr>
<th>Class A</th>
<th>License</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>Mobile Operators</td>
<td>10/10/2003</td>
<td>The right to offer mobile services.</td>
<td></td>
</tr>
<tr>
<td>Satellite Operators</td>
<td>20/10/2003</td>
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<table>
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<th>Class B</th>
<th>License</th>
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<tr>
<td>Internet</td>
<td>20/10/2003</td>
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<tr>
<td>Virtual Private Network</td>
<td>20/10/2003</td>
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<table>
<thead>
<tr>
<th>Class C</th>
<th>License</th>
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<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Global Peering</td>
<td>10/10/2003</td>
<td>The right to offer global peering services.</td>
<td></td>
</tr>
<tr>
<td>Registrar</td>
<td>20/10/2003</td>
<td>The right to offer domain name registration services.</td>
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### Mobile Telecommunications

<table>
<thead>
<tr>
<th>Mobile Operators</th>
<th>License</th>
<th>Date</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Vodafone Data</td>
<td>2004</td>
<td>The right to offer mobile services.</td>
<td></td>
</tr>
<tr>
<td>Orange</td>
<td>2005</td>
<td>The right to offer mobile services.</td>
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### Satellite Operators

<table>
<thead>
<tr>
<th>Satellite Operators</th>
<th>License</th>
<th>Date</th>
<th>Description</th>
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<tbody>
<tr>
<td>Vodafone Data</td>
<td>2006</td>
<td>The right to offer mobile services.</td>
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<td>Orange</td>
<td>2007</td>
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### Two Way Radios

<table>
<thead>
<tr>
<th>Two Way Radios</th>
<th>License</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecom Egypt</td>
<td>2008</td>
<td>The right to offer two-way radio services.</td>
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</table>

### International Gateway

<table>
<thead>
<tr>
<th>Gateway</th>
<th>License</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nile Sat</td>
<td>2009</td>
<td>The right to offer international voice services.</td>
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</tbody>
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### International Submarine Cable

<table>
<thead>
<tr>
<th>Cable</th>
<th>License</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa Wave</td>
<td>2010</td>
<td>The right to offer submarine cable services.</td>
<td></td>
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### Service Providers

<table>
<thead>
<tr>
<th>Service Providers</th>
<th>License</th>
<th>Date</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Internet</td>
<td>2011</td>
<td>The right to offer Internet services.</td>
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<tr>
<td>Virtual Private Network</td>
<td>2012</td>
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<tbody>
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<td>Internet</td>
<td>2020</td>
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<tr>
<td>Virtual Private Network</td>
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<tbody>
<tr>
<td>Vodafone Data</td>
<td>2022</td>
<td>The right to offer mobile services.</td>
<td></td>
</tr>
<tr>
<td>Orange</td>
<td>2023</td>
<td>The right to offer mobile services.</td>
<td></td>
</tr>
</tbody>
</table>
Licenses Chart
Diagram to show telecom licenses granted in Egypt
New Regulatory Framework

In the last few years, the telecom industry in Egypt has undergone a number of significant changes. These were represented in the high growth rates attained in terms of revenues, mobile and internet subscribers, whereas the fixed line segment experienced a slower growth path.

Regulatory policies are considered the core mission and mandate of NTRA to encourage national and international investment within free competition rules.

This underscores the State endeavor towards the formulation of free-market and business-friendly policies. NTRA sees it as a major role to develop a fair competitive telecom market that can enhance confidence among existing operators in the Egyptian telecom sector.

In 2016, NTRA’s Board of Directors approved the regulatory framework of the Egyptian telecom market, which includes 4G services provision. This aims in the first place to enable all companies to provide the same services to the end user with the ultimate privileges of the launching of high speed 4G services and introduction of new services for the benefit of all citizens.

According to this regulatory framework, the existing mobile operators; Orange, Vodafone and Etisalat are allowed to introduce 4G service beside their 2G and 3G services, and the incumbent operator Telecom Egypt (TE) is allowed to provide 4G services and provide 2G and 3G services through national roaming with the existing mobile licensees. In addition, the regulatory framework allows Orange, Vodafone, and Etisalat to provide virtual fixed-line services using TE’s network.

So, the new licenses will allow the companies to provide 4G and virtual fixed lines services, thereby providing distinct, remarkable and integrated services to its customers. 4G technology for mobile services will significantly contribute to increasing internet speeds, improving the quality of the current service and introducing new services. The entry of the three Egyptian telecoms as new operators of the virtual fixed-line phone services will increase healthy competition, and help in benefiting citizens in terms of quality of services and prices provided. This is in addition to providing revenues to the State’s public treasury and creating new jobs.

In its attempts to ensure the implementation of this regulatory framework, NTRA is currently cooperating effectively with all licensed operators to avail new wholesale and infrastructure leasing services among market players such as fiber to mobile sites, infrastructure sharing, national roaming, etc. Such services are considered mandatory for the introduction of 4G and virtual fixed services and will have significant impact on quality of service provided to the end user.

Moreover, NTRA has forced a new competition regulation in the license document of the four licensed operators. The new competition regulation is based on the widely adopted antitrust principles and methodologies aiming to ensure the protection and welfare of consumers as well as ensuring a level play field to the market’s operators.

The competition regulation includes: the designation of market power in the relevant (regulated) telecom service and forced obligations on the designated operator[s]; definition of anti-competitive conducts which must be avoided by all licensees; and a wide range of remedies that can be adopted by NTRA in case of any violation of the competition regulations.

In October 2016, NTRA approved the regulatory framework of the Egyptian telecom market, which includes 4G services provision. This aims to enable all companies to provide the same services to the end-user, including the launching of high-speed 4G services that augment Internet speed, improving the quality of the currently-provided services and introduction of new services for the benefit of all citizens.

Accordingly, Eng. Mustafa Abd El-Wahid, acting executive president of NTRA, and Telecom Egypt (TE) signed 4G mobile license for the establishment and operation of 4G mobile networks and the provision of mobile services in Egypt, with a total amount of EGP 7.98 billion. This took place with the attendance of Eng. Yasser El-Kady, the Minister of Communications and Information Technology, the executives of NTRA and TE’s Board of Directors.

The new license allows TE to provide 4G mobile services using the new frequencies. The license also allows TE to provide 2G and 3G services through national roaming agreements with the existing Licensees.

The entry of TE to the Egyptian market as a new mobile operator will enhance free competition, hence upgrading the quality of services provided thereto at more affordable prices, not to mention the provision of revenues to the state’s public treasury and new jobs.

In addition, NTRA awarded Etisalat Misr, Vodafone, and Orange the 4G license for the establishment and operation of 4G mobile networks that is worth USD 1.3545 billion. The licenses were signed by Eng. Mustafa Abdul Wahid, Acting Executive President of NTRA with the attendance of Eng. Yasser El-Kady, the minister of communications and information technology, and the executives of NTRA. As a result of this award, Etisalat Misr has a total frequencies of 40 MHz allocated, Vodafone Egypt a total of 42.5 MHz and Orange a total of 42.5 MHz.

Moreover, NTRA awarded Etisalat Misr, Vodafone, and Orange licenses for the provision of the virtual fixed services as part of the regulatory framework approved by NTRA. Each operator paid $11.262 million for the acquisition of the virtual fixed license

The new licenses will allow Etisalat Misr, Vodafone Egypt and Orange Egypt to provide 4G mobile services and the virtual fixed-line services as part of the agreement, thereby providing remarkable and integrated services to the Egyptian customers.
Broadband is now regarded as the engine for social and economic development and not merely a platform for entertainment and personal communication. This fact coupled with the need to cater for different requirements by government and business sectors for a capable broadband infrastructure has led the Government of Egypt to set up several initiatives to promote Broadband networks.

**Egyptian Broadband Market**

The Egyptian residential fixed broadband market has witnessed tremendous growth by 18% CAGR (Compound Annual Growth Rate) in the past 5 years. The prevailing technologies in the Egyptian market are mainly ADSL technology supported by wide rollout of FTTC network which started to boom since 2013. The figures below show that the fixed broadband penetration has reached 21% of the total Egyptian families.

As for the mobile broadband and Internet market, the number of users has been growing steadily with a CAGR of 24% since 2012. By the end of 2016, 3 out of 10 Egyptians are using Internet over the mobile networks.

The flourishing growth in subscribers has been coupled with similar growth in international Internet capacities, which have experienced a CAGR of 56% as depicted in the below chart. It is also clear from the chart that the average utilization of International capacity has not exceeded 85% over the past 5 years.

Moreover and to reduce the digital gap, NTRA has been using the Universal Service Fund to provide discounted prices for E1 local transmission capacities outside Cairo and Alexandria to help ISPs expand their broadband footprint in under-served areas.

In 2014, the NTRA issued guidelines for ADSL contracts to assert consumer rights, and accordingly NTRA revised and approved the ISPs’ ADSL contracts.

In 2015, the NTRA worked closely with internet service providers to reduce the retail prices for broadband services, this collaboration resulted in significantly reducing the broadband packages prices and making higher speed connections more affordable.

Recently, NTRA started to inspect ISPs’ stores to ensure compliance with NTRA directives on approved tariffs and offers as well as the ADSL contracts, and to identify any bottlenecks in order to ensure a quality experience for the end user.
National Broadband Plan “eMisr”
The eMisr National Broadband Plan is committed to increasing broadband internet penetration in Egypt and endorsing the development of a digital society. The plan was launched in 2011 and was revised in 2014. It proposes different strategic directives to meet Egypt’s broadband service needs.

eMisr National Broadband Plan aims to position Egypt as a leader in digital communications, create more job opportunities and promote the use of ICTs across government sectors, thus improving quality of life for citizens and reducing the digital divide between urban and rural communities.

NTRA announced a tender for the Broadband pilot project in 2014. The project aims to provide high speed broadband service for around 1600 institutions affiliated to eight ministries and government bodies including ministries of education, health, youth, scientific research, justice, agriculture, manpower and civil aviation. This is in addition to the public prosecution, Central Administration for Central Authority for Public Mobilization And Statistics, and Information Technology Institute. The project scope is to provide and maintain high speed internet connectivity. It covers all Egyptian governorates clustered into five geographic regions.

By January 2015, four regions out of five were awarded to Telecom Egypt’s subsidiary TE Data with a total value of 58 Million EGP and the fifth one awarded to Etisalat’s subsidiary NOL with a total value of 28 Million EGP.

By December 2016 TE-Data & Nile On Line finished installing broadband connections to 1087 institutions affiliated to more than 11 ministries and government entities covering all Egyptian governorates.

eMisr initiative’s Objectives:
- Developing ubiquitous and robust telecom infrastructure through creating proper investment opportunities.
- Contributing to improving the national GDP through creating direct/indirect job opportunities.
- Laying a solid foundation for the country’s transition to a digital economy.
- Enabling governmental entities to enhance their working environment and productivity through up to date ICT platform & technology.
- Enhancing Egyptian citizen quality of life through ICT applications over the top of the enhanced broadband networks.
- Contributing in mitigating the chronic problems (e.g. traffic congestion, energy and pollution) through innovative ICT services and applications.

Beneficiaries from the initiatives & Deliverables:

<table>
<thead>
<tr>
<th>To the Community</th>
<th>High speed, high quality, low price broadband services</th>
</tr>
</thead>
<tbody>
<tr>
<td>To the Communication sector stakeholders</td>
<td>Investment opportunities to telecom operators on different network levels (Backbone – access) enabling them to offer a range of innovative services.</td>
</tr>
<tr>
<td>To the Information Technology sector stakeholders</td>
<td>Investment opportunities to IT companies as the foreseen broadband diffusion will trigger the need for innovative applications and end user equipment manufacturing.</td>
</tr>
</tbody>
</table>
| To the Government of Egypt (G.o.E)       | • Improve citizens’ perception of the government; Broadband will be an enabler for the efficient delivery of services to citizens (healthcare, education, etc…)  
• Budget saving: Reducing the subsidy allocated to fuel by reducing commuting via teleworking.  
• Reducing pollution through reduced commuting (teleworking – e-commerce, etc…) |
Telecom Services Tariffs

“NTRA shall aim to regulate the telecommunication service and to enhance and deploy services in compliance with the most advanced technology means satisfying users’ needs at the most appropriate prices. NTRA shall also encourage national and international investment in this field within free competition rules” Article 4 Law No. 10 of 2003.

Landline Trend 2008-2016

- For the Landlines: The graph illustrates the tariff trends from 2008 – 2013.
- In Greater Cairo the tariffs were constant, while the paging service fees were decreased by 80% to amount to 3 piasters for more than and less than 60 kilometers.
- Phone calls from a landline to a mobile phone and vice versa were decreased by around 50% from 30 piasters all day long to 14 piasters.

Mobile (Pre-Paid) Trends 2008-2016

- Zone A (Arab Countries - United States)
- Zone B (Canada - Europe - Caribbean Countries)
- Zone C (Rest of the World)

Mobile (Post-Paid) Trends 2008-2016

- Zone A Off-Peak
- Zone A Peak
- Zone B Off-Peak
- Zone B Peak
- Zone C Off-Peak
- Zone C Peak

Landline & Mobile International Trends 2008 - 2016

- Zone A (Arab Countries - United States)
- Zone B (Canada - Europe - Caribbean Countries)
- Zone C (Rest of the World)
.Masr Domain Name مصر.

With the increasing usage of the Internet by diverse societies and communities using non-Latin languages, the demand for the usage of multiple-language domain names, including the Arabic language, has increased as well. As ICANN has announced that it allows for the registration of non-Latin domain names, it has become possible for the user to register the domain name of its own website on the Internet in the Arabic language.

It is worth mentioning in this respect that the registration of Arabic domain names is considered a highly significant step toward the attraction of a new segment of Internet users as the use of the Arabic language in domain names breaks the language barrier. Hence, it encourages Arab users to use the Internet. Accordingly, this will enrich the Arabic content on the Internet and maintain the Egyptian and Arabic identity. Moreover, it will be far easier for users to remember URLs in the Arabic language than those in the English language.

Domain names can be registered for any natural, or legal person or entity, whether private or public, as per the registration requirements and terms published on the official website for the registrar "masr".

The registration process is available through the official websites of the Registrars Licensed to provide this service. They are as follows:

» TE Data Company
» Vodafone Egypt Company
» Link Datacenter Company
» Egyptian Universities Network (EUN) (only for governmental and educational agencies)

Registration is opened under the ccTLD "Masr" on three phases:

• Sunrise Phase (a):
  This phase has passed and was limited to the registration of the Arabic domain names under the ccTLD "masr" only for governmental entities, and educational governmental bodies, in addition to the trademarks registered in Arabic in Egypt, whether this registration process takes place locally at the Egyptian Trademarks and Industrial Designs Office (Ministry of Internal Trade) or internationally at the World Intellectual Property Organization (WIPO).

• Sunrise Phase (b):
  This phase has passed too and the registration of Arabic domain names under the ccTLD "masr" in this phase was limited to all the bodies and entities that had the right to apply for registration in the Sunrise Phase (a) in addition to the entities that have a commercial registry in Egypt, international governmental organizations, embassies and consulates.

• Land-Rush Phase:
  This is the current phase. During this phase the domain names can be registered for any natural or legal person as per the precedence of registration.

Registration Procedures:

The applicant must fill in the reservation form online for the Arabic domain name available on the website for any of the authorized registrars. This form must include at least:

» The domain name to be registered in Arabic in accordance with the technical rules,
» Contact information of the applicant.

For more information, please review .Masr website: www.dotmasr.eg
A national Computer Emergency Response Team (EG-CERT) was established within NTRA in April 2009. EG-CERT has a team of full-time specialized professionals and operates on a 24/7 basis. EG-CERT provides support in protecting national critical information infrastructure, especially in both the ICT and financial sector. It monitors incident response, undergoes forensic analysis, malware analysis and reverse engineering. Its main aim is the enhancement of the security of Egypt’s communications and information infrastructure through proactive action, gathering and analyzing information on security incidents, coordination and mediation between the interested parties in solving security incidents and international cooperation with other CERTs.

EG-CERT efforts have contributed to give Egypt a high rating as Egypt rank as the 27th among 193 countries as reported by the ITU/ABI Global Cybersecurity Index published in Dec 2014.

EG-CERT Services

Proactive services
Proactive services cover penetration testing, vulnerability assessments, etc. Proactive services require taking all the measures possible to be ready for various cyber incidents or threats.

Reactive services
Reactive service includes taking appropriate action against the cyber threats and cyberattacks, and mitigating their effects and harms through full analysis of the data and feeds and working in partnerships with professionals in the target entity, and if required, with the cybersecurity community nationally and internationally.

Forensics services
Forensics analysis and investigations of cyber or computer-related crimes and preparing professional reports for auditors, crime investigators, and prosecutors.

Awareness Program
The cyber security awareness program is designed to spread and enhance the awareness of various types of cyber threats and to focus attention on security, making the average user sensitive to different threats and malicious behaviors which improve the level of cyber security in Egypt. The training programs covers professional training seminars, sessions, and workshops, both nationally and internationally.

Contact EG-CERT
For more information and to contact EG-CERT:

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Fax +202 3539 0444
Mobiles +20 100 411 1777 / +20 122 111 1188
E-mail Incident@egcert.eg
website www.egcert.eg
Radio Spectrum Management

The radio spectrum is considered one of the state’s vital scarce resources that is being utilized in the daily activities of the modern society. These activities include TV and radio broadcast services, commercial mobile services, public safety services, disaster relief activities and much more.

National Frequency Allocation Table

NTRA’s Radio Spectrum Planning Team, pursuant to Telecom Law No. 10/2003, is commissioned with the planning and management of all affairs related to the radio spectrum resources in Egypt, including the development of national radio spectrum regulatory policy that is compliant with the international radio spectrum regulatory framework and the regulatory publications of ITU-R [such as the Resolutions, Recommendations and Handbooks] that addresses various space and terrestrial radio services and systems.

In fact, NTRA is responsible for developing the appropriate radio spectrum usage fees system and the establishment of the National Frequency Allocation Table that comprises the umbrella of various radio services under which all wireless applications and systems must work according to. The National Frequency Allocation Table is the cornerstone of the Egyptian Radio spectrum resources management system, it allocates the radio spectrum ranging from 8.3 kHz to 300 GHz to 35 radio services. The table is aligned with the most recent version of the International Radio Regulations that are published after the World Radiocommunications Conference (WRC).

International Coordination

For radio spectrum’s international coordination activities, NTRA plays an essential role in coordinating matters related to national frequency assignments under space and terrestrial radio services on international and regional basis. NTRA also carries out technical and regulatory tasks in order to protect and coordinate the national radio spectrum usage and associated orbital positions of national satellite networks as well as terrestrial networks, paving the way to be registered in the ITU Master International Frequency Register (MIFR), providing international recognition for its operation through current procedures illustrated in the Radio Regulations, and in adherence to the ITU’s convention and constitution. Also, NTRA carries out international agreements with various parties, governing proper radio spectrum usage for national operators in its strenuous attempt to avoid harmful interference that could hinder or affect national networks’ operation.

International Radio Spectrum Regulatory Framework

On the international level, NTRA, as the representative of the Egyptian administration, has been actively contributing to the international regulation activities of radio spectrum in ITU, such as ITU-R Study groups and World Radio Communications Conferences (WRCs). This contribution enabled NTRA to play major role in the continuing development of the international radio spectrum regulatory framework and its associated regulatory publications in order to maintain Egypt’s national interests within this international framework, and to address its requirements on the international level.

On the regional level, NTRA maintains close cooperation activities with other Arab and African regulatory authorities. NTRA’s spectrum management team carries out this cooperation activities throughout Arab Spectrum Management Group (ASMG) established by the League of Arab States, as well as the African Telecommunication Union (ATU) established by the African Union. Due to this continued and successful regional cooperation, Egypt is considered one of the key leading administrations in both ASMG and ATU.
### Frequency Band Designations

<table>
<thead>
<tr>
<th>Frequency Range</th>
<th>Designation</th>
</tr>
</thead>
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<tr>
<td>0.4 – 1</td>
<td>P</td>
</tr>
<tr>
<td>1 – 2</td>
<td>L</td>
</tr>
<tr>
<td>2 – 4</td>
<td>S</td>
</tr>
<tr>
<td>4 – 8</td>
<td>C</td>
</tr>
<tr>
<td>8 – 12</td>
<td>X</td>
</tr>
<tr>
<td>12 – 18</td>
<td>Ku</td>
</tr>
<tr>
<td>18 – 27</td>
<td>K</td>
</tr>
<tr>
<td>27 – 40</td>
<td>Ka</td>
</tr>
<tr>
<td>40 – 75</td>
<td>V</td>
</tr>
<tr>
<td>75 – 110</td>
<td>W</td>
</tr>
<tr>
<td>110 – 300</td>
<td>mm</td>
</tr>
</tbody>
</table>

### Definitions of Some Radio Services:

- **Maritime mobile service**: A mobile service between coast stations and ship stations, or between ship stations, or between associated on-board communication stations; survival craft stations and emergency position indicating radiobeacon stations may also participate in this service.
- **Maritime mobile-satellite service**: A mobile-satellite service in which mobile earth stations are located on board ships; survival craft stations and emergency position indicating radiobeacon stations may also participate in this service.
- **Aeronautical mobile service**: A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position indicating radiobeacon stations may also participate in this service on designated distress and emergency frequencies.
- **Radionavigation service**: A radiodetermination service for the purpose of radionavigation.
- **Radionavigation-satellite service**: A radiodetermination-satellite service used for the purpose of radionavigation.
- **Meteorological aids service**: A radiocommunication service used for meteorological, including hydrological, observations and exploration.
- **Standard frequency and time signal service**: A radiocommunication service for scientific, technical or other purposes, providing the transmission of specified frequencies, time signals, or both, of stated high precision, intended for general reception.
- **Amateur-satellite service**: A radiocommunication service using space stations on earth satellites for the same purposes as those of the amateur service.

### How to read this chart:

- Any colored rectangular area represents a radio service. The two numbers written over the edges of the colored rectangular area represent the limits of the frequency range occupied by this radio service.
- The name of the radio service can be known from the color of the representing rectangle and the color legend located above on the left side of the chart.
- One or two letter(s) can be found inside any rectangle. These letters refer to the notices which may be difficult to be written inside the colored rectangle. All notices represented by these letters are located under the color legend.
- A small square may be found in the middle of any rectangle. This square indicates that the radio service represented by the surrounding rectangle is allocated on a Secondary Basis over the corresponding frequency range otherwise it is allocated on a Primary Basis.

### Remarks:

1. The allocation chart is based on the Radio Regulations (2008) published by the ITU.
2. The graphical spacing of any frequency band is not always proportional to the actual occupied amount of the spectrum due to the graphical restrictions.
Universal Service

Granting Funds for Universal Service
The government of Egypt believes that all citizens have equal right to access information and telecom services at affordable prices with the aim of strengthening national, political and social cohesion and contributing to economic growth. The Telecommunications Regulatory Law No. 10 of 2003 stipulates the necessity of establishing a universal service fund, assigning the responsibility of its administration to NTRA. The USF was officially initiated in March 2005 with an initial budget of EGP 50 million in order to compensate operators for their provision of telecom service in the economically non-feasible areas and to promote unreserved regions to achieve universal service objectives that are based on ensuring the provision of telecom services to all members of society at the most appropriate prices through a balanced tariff of services and fair basis in addition to the provision of these services to remote areas, educational institutions, public libraries, etc. while promoting free competition and elimination of monopolistic practices.

Universal Service can be defined as “the provision of affordable basic telecom services to all citizens especially in the economically non-feasible regions within framework of technology neutrality and competitive environment.

Basic Telecom Services Definition
- The ability of making and receiving local and international calls to all citizens in Egypt especially in the suburban and border areas.
- Data transfer services with a high rate to ensure access to the Internet and building the infrastructure of the digital community
- Customer services.
- The availability of free emergency communication services.

Economic Benefits of Equitable Access To Telecom Services
- The flourishing of modern employment market;
- The flourishing of SMEs;
- The improvement of the marketing potentials of corporates and companies to reach more customers;
- The increase in outsourcing services from developed to developing countries as indicated by augmented teledensity and the availability of Broadband services.

Social Benefits of the Equitable and Widespread Distribution of Telecom Services
- Elimination of the disparity between rural and urban areas, sometimes known as the domestic digital divide, which tends to be more obvious in lower income countries;
- Improvement of law enforcement;
- Attainment of rapid and effective communications during disasters;
- Improvement of the national political, economic and cultural cohesion;
- Consolidation of kinship ties among citizens;
- Attainment of a more balanced population distribution in order to encourage the development of new areas outside congested metropolitan areas.

Goals of NTRA Universal Service Policy
More specifically, the Telecommunications Regulatory Law No. 10 of 2003 has set clear objectives for the implementation of the universal service policy, including the following:
- Promotes the provision of high-quality modern services at affordable prices, increasing their availability throughout the country.
- Enhances the availability of such services to all users, including low-income users, and border and remote areas, and high-cost areas at prices similar to those offered throughout the country.
• Increases access to modern telecom services in educational institutions, libraries and health care facilities in rural and remote areas.
• Establishes fair and non-discriminatory bases among telecom service providers for their contribution to the universal service fund.

**Benefactors of Universal Service**
- Inhabitants of remote and border high-cost areas;
- The Disabled;
- Public establishments and entities such as schools, libraries and hospitals.
- National Projects.

**Role of NTRA in Universal Service Projects**
- Setting regulations for provision of telecom services in remote areas or areas where service provision is economically non-feasible;
- Defining financing mechanisms for Universal Service projects such as the Universal Service fund;
- Setting Universal Service policy, identifying telecommunication service providers and operators, that are subject to Universal Service obligations and defining these obligations in accordance with Telecom Act 10/2003;
- Determining the un-served areas, which deserve subsidies from the Universal Service Fund;
- Determining Universal Service projects for each year. Projects will be open for bidding where proposals will be examined on the technical and economic levels to select the best thereof;
- Monitoring the implementation of Universal Service projects to ensure their compatibility to timeframes as well as their compatibility with the technical and economic specifications;
- Setting measures that should be carried out in case the Universal Service operators and providers do not abide by the set standards or timetables;
- Pre-estimating the universal service projects forecasted budget, depending on a prerequisite RF planning for each project.

**Current Activities**
A project is currently implemented to provide telecom services in three remote areas in South Sinai Governorate. Mobile services in Saal Valley area have been awarded to Etisalat Masr. Moreover, Vodafone shall provide mobile services in Firan Valley and Orange will provide mobile services in Sarabit Al Khadem region.

A project to cover three roads in El Wadi El Gedid, has been assigned to Etisalat.
- A project to cover two areas in El Farafra El Gedida (El million Fadan Project), has been assigned to Vodafone.

Many similar projects are underway in other areas, such as Strategic Roads, North Sinai, Aswan, Toshka, Halayeb and Shalatin and other National Projects.

**Aims of the Universal Service Fund (USF)**
According to the law, the USF aims are as follows:
- To compensate telecom operators and service providers for price differences between the approved economical price for a service and that which may be determined by the State in favour of the user;
- To finance infrastructure projects required for establishing the universal service rule;
- To fund projects of the telecommunication and information national plan;
- To fund the reallocation of the frequency spectrum.

NTRA receives requests from different localities detailing their needs for working and operating in an unserved area, (for example, North Sinai as a request was submitted to cover some roads).

NTRA reviews requests with available information within NTRA about current telecommunication networks (mobile and fixed). NTRA holds a meeting with the different operators and a representative for the localities to arrange for future plans of the operators and look at the obstacles of implementing their networks in un-served areas, trying to help them to cover these areas.

If the business case still needs a subsidy from the USF, NTRA will ask the operators for an estimation of the required number of base stations to cover that area. According to this estimations sent by operators and to the estimation done by NTRA, NTRA calculates the budget needed for subsidy. This budget is set as a ceiling for the reverse auction bid which would be held to cover unserved areas. The winner shall be the company asking for lowest subsidy. The subsidy amount shall be paid on instalments tied with a time schedule and performance indicators.
Type Approval is one of the most significant services provided by NTRA to preserve and maintain the consumers’ welfare.

Various equipment certification techniques, including Type Approval, play an important role in regulating the telecom equipment market through issuing regulations, procedures and regulatory directives that ensure that all the locally manufactured equipment and all imported devices entering the local market comply with the internationally approved health, environmental and safety standards.

NTRA examines and approves the products technical certificates submitted by the applicant, as NTRA relies on its accredited type approval labs as a means used to examine and inspect the equipment and devices and ensure their compliance with the internationally approved standards and specifications through testing samples. These samples can be taken randomly from shipments coming to the country. The testing process takes place in the customs ports. Otherwise the samples, collected from the market, will be taken during market surveillance activities.

To whom does Type Approval apply?
The telecommunications regulatory rules and arrangements apply to any person, business or company that represents the initial point of customer telecom equipment supply to the Egyptian market. This includes:
» Any local manufacturer, who makes or assembles telecommunications products as well as authorized agents;
» any overseas principal (manufacturer, representative, agent, type approving agency, etc.); or
» any locally registered agency acting on behalf of any overseas principal.

Type Approval standards applied in Egypt
NTRA applies the following standards:

<table>
<thead>
<tr>
<th>Standard</th>
<th>Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecom / Radio</td>
<td>ETSI, ASA, FCC, ITU</td>
</tr>
<tr>
<td>EMC/EMI</td>
<td>CENELEC, EC, ASA</td>
</tr>
<tr>
<td>Safety/Health</td>
<td>CENELEC, EC, ASA, UL, FCC</td>
</tr>
</tbody>
</table>

Equipment Labeling
Starting from the 1st of January 2007, a new labeling requirement was added to the Egyptian Type Approval regulations. Equipment that require Type Approval must be labeled with one of the approved and accredited international labels in Egypt.

The approved labels in Egypt are FCC, CE and ASA Tick Mark. Also, NTRA has 8 accredited test labs in China and 3 in India for equipment manufactured and imported from China. Manufacturers in some cases have to perform a manufacturer assessment program in order to be able to export to Egypt. For more information,
### Numbering Plan

<table>
<thead>
<tr>
<th>First No</th>
<th>Second No</th>
<th>Third No</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>International calls</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Mobile calls</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Premium calls</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Free calls</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Geographical numbers</td>
<td></td>
</tr>
<tr>
<td>5 - 6 - 7 - 8 - 9</td>
<td>Future Use</td>
<td></td>
</tr>
<tr>
<td>10 - 11 - 12 - 13 - 14</td>
<td>Premium calls</td>
<td></td>
</tr>
<tr>
<td>15 - 16 - 17 - 18 - 19</td>
<td>Free calls</td>
<td></td>
</tr>
<tr>
<td>20 - 21 - 22 - 23 - 24</td>
<td>Geographical numbers</td>
<td></td>
</tr>
<tr>
<td>25 - 26 - 27 - 28 - 29</td>
<td>Future Use</td>
<td></td>
</tr>
</tbody>
</table>

**Vodafone 0**
- Elsokh 1
- Orange 2
- Future Expansion 9-8-7-a-4-3
- Telecom Egypt 5

**Cairo 2**
- Alexandria 3
- Tanta 40
- Future Expansion 44 - 41
- Damiette 45
- El Sheikh 46
- El Shenn 47
- Sharka 48
- Future Expansion 49
- Mansoura 50
- Future Expansion 54 - 51
- Dagon 52
- Future Expansion 56
- Damiette 57
- Future Expansion 41 - 58
- Suez 62
- Future Expansion 63
- Smaloo 64
- Gharbota 65
- Port Said 66

**Future Expansion**
- Cairo 0
- Giza 1
- Alexandria 2
- Gharbota 65
- Port Said 66

### Mobile Numbering Plan

National Telecom Regulatory Authority (NTRA) has awarded 4G mobile licence to Telecom Egypt (TE), Orange, Vodafone and Etisalat for the establishment and operation of 4G mobile networks and the operation of a virtual fixed-line service as part of the agreement.

The new licence allows TE to provide 4G mobile services in addition to 2G and 3G services through national roaming.

### Emergency Numbers

It is the responsibility of NTRA to assign emergency short numbers in the range (1xx), for ex:
- 123 = Ambulance
- 180 = Firefighting
- 122 = Police

### Short Numbers

NTRA assigned the (15xxx), (16xxx) and (19xxx) ranges to be used for commercial usage; within such ranges the governmental entities, companies, restaurants can use these ranges as appropriate.

### Number Portability (NP)

Number Portability (NP) is developed telecom service that enables the subscriber to change his/her operator without changing his/her own number. The NP gives subscribers all freedom to port their number to another operator without forcing them to lose their number. This leads to the elimination of all barriers that hinder free competition between telecom operators. In addition, it helps in reducing rates, improving the quality of service, hence satisfying customers.

With the new 4G mobile and fixed licences in Egypt assigned to Orange, Vodafone, Etisalat and Telecom Egypt (TE), NTRA was keen to provide all users with the NP option for all subscription systems (mobile and fixed). NTRA sets easy procedures for users to port their numbers from one operator to another.

* It is worth mentioning that the national numbering prefix of 10th of Ramadan City has been changed from 015 to 055
Economic Indicators

The number of mobile subscribers has reached the number of population of Egypt, with an observed decrease in the number of fixed line subscribers and a smooth increase in internet subscribers.

Internet Users Subscribers for 2016

Total Number of Telecom Subscribers by Sector

Telecom Penetration rate by Sector
Quality of Service

The National Telecom Regulatory Authority of Egypt (NTRA) has the competence and authority to monitor and measure the Quality of Service (QoS) provided by the four mobile operators in Egypt (Orange, Vodafone, Etisalat and Telecom Egypt mobile operator).

NTRA is responsible for laying down the standards of QoS to be provided by mobile operators, ensuring the quality of provided service and conducting periodical drive test surveys to protect interest of the consumers of wireless networks in Egypt.

Mobile operators deliver weekly reports to NTRA including performance, traffic and rollout indicators. The operators weekly reports present the results of the Quality of Service indicators based on statistical measurements, averaged over a week.

Moreover, NTRA conducts field survey campaigns covering all governorates across the country on a monthly basis to measure QoS for mobile operators in terms of the major KPI’s according to the national standards (ETSI, ITU-T) which are introduced in the issued license for mobile operators.

In order to measure those major KPIs, NTRA uses ASCOM’s TEMS Automatic solution which include drive test RTU’s latest automated measuring tools to perform outdoor measurements surveys to benchmark the three mobile operators up to streets level.

QoS Methodology
NTRA has nine teams mandated to measure the Quality of Service (QoS) of mobile operators all over Egypt. Methodology of NTRA includes major KPIs to be measured, the technical tools used in the drive test and finally the different tests to be performed.

QoS Key Performance Indicators
Major QoS indicators were measured during drive test although the available NTRA QoS monitoring tools can measure other KPIs. These major KPIs give clear image on the performance of the three mobile operators for Voice and Data Services.

Voice Service KPIs:
- Call Block Rate: The percentage of unsuccessful call setup attempts to the total number of call attempts in a specified time period (Threshold value = 2 %)
- Dropped call Rate: The percentage of calls being dropped or interrupted without the subscriber’s permission after successful call establishment to the total number of successfully established attempts (Threshold value = 2 %)
- Speech Voice Quality: Is the rate of bad speech voice calls (less than 2.8) scored on Mean Opinion Score (MOS) score which is a measure for end-to-end (mouth to ear) speech quality of a voice service call (Threshold value = 10 %).
- MOS (Mean Opinion Score) – Max, Min, Mean Values: Is a measure for end-to-end (mouth to ear) perceived speech quality of a voice service call. It is expressed on a MOS (Mean Opinion Score) scale which describes quality categories: best, high, medium, low and poor represented by numbers from 5 to 1 respectively.

Data Service KPIs:
- Average http download throughput: The average rate of successful message delivery over a communication channel. This data may be delivered over a physical or logical link, or pass through a certain network node. The throughput is usually measured in bits per second (bit/s or bps), and sometimes in data packets per second or data packets per time slot.
- Latency (Ping): It is the most sufficient element that contributes to network speed. The term latency refers to any of several kinds of delays typically incurred in processing of network data. A so-called low latency network connection is one that generally experiences small delay times, while a high latency connection generally suffers from long delays.
Measuring System:
NTRA uses ASCOM’s TEMS Automatic Solution as a multi-purpose solution for data collection and end-to-end testing, developed for 24/7 monitoring, troubleshooting, and benchmarking. It produces multi-level output, spanning the whole range from raw route data to KPIs.

TEMS Automatic provides NTRA with:
» Insight into the end-user’s perception of the network.
» Automated measurements in the truest sense.
» Benchmarking capabilities.
» Remotely configurable data collecting probes.

**Benchmarking Drive Test Scenarios:**
Voice Scenarios: NTRA applies the configurations of tests MTM mobile-to-mobile between RTUs the A-Part is RTU moving through the measured region and the B-Part is RTU placed in NTRA premise to terminate the call, and MTF mobile-to-fixed with RTU devices engaging a Call Generator connected to a PSTN network.
> Ping test: to test the network latency.
> HTTP browsing: by testing the time to browse the URL www.facebook.com.
> HTTP download: to test the throughput by downloading a file of 100 MB.
> Streaming: To stream a one minute video from www.youtube.com to measure it’s buffering time.

Data Scenarios: Data test is measured using RTU Data Card. The A-Part is RTU moving through the measured region while the B-Part is the Internet Gateway.
> Ping test: to test the network latency.
> HTTP browsing: by testing the time to browse the URL www.facebook.com.
> HTTP download: to test the throughput by downloading a file of 100 MB.
> Streaming: To stream a one minute video from www.youtube.com to measure it’s buffering time.

Special dedicated Drive Test Scenarios: NTRA will perform special dedicated missions to measure the QoS in certain locations that are strategically important. Those measures may include but not limited to:
> Indoor measurements for (Conference centers, Airports, Subways, Hotels, Malls)
> Outdoors measurements for places like ring roads and high ways.
Research and Development (R&D)

NTRA’s R&D programs aim at enriching the constructive interaction between scientific and research entities on one hand and each of the needs of the ICT industry and national trends on the other hand, in order to achieve an integrated system to serve and develop the Egyptian society.

R&D Programs

NTRA seeks to achieve this vision through launching a package of programs that boosts the national research activities in the field of communications, and establishing recognized and sustainable centers of excellence in the sector. In addition, NTRA pays special attention to the development of human resources that benefit the telecom sector in general and NTRA in particular, and the development of services and applications of modern telecommunications in a way that keeps pace with the global developments and local requirements.

Research and Applied Projects

NTRA announces periodical calls for proposals (CFP) for research and applied projects in certain priority areas and fields, in accordance with:

- NTRA’s needs and the national interests;
- The industry and market needs through consultation with operators, vendors, and service providers;
- Recent developments and trends.

NTRA also organizes conferences to present the projects’ activities results and to achieve effective interaction and communication between the different stakeholders in the sector.

Skills Development

- Financial and technical sponsorship of selective graduation projects in telecom-related systems and applications;
- Provision of summer training for students on NTRA activities, market trends, and technology developments (in collaboration with the telecom companies operating in the sector);
- Development and inculcation of a special curriculum on “Regulations, Laws and Technologies of Telecom” for Bachelor’s degrees students;
- Provision of hardware, software and auxiliary tools supportive of research activities (e.g., OPNET software);
- Sponsor of students’ events and activities;
- Offer of specialized lectures and workshops.
Specialized Studies
- Conducting techno-policy studies supporting decision making at NTRA.
- Watching for and reporting on new technologies and recent developments.

The number of research projects during the various sessions

Universities and research institutes, benefiting from the program

Standardization Activities
- Participating in and contributing to the activities of the Telecommunication Standardization Sector at the International Telecommunication Union (ITU-T).
- Participating in the activities of the Institute of Electrical and Electronics Engineers (IEEE).
- Taking all measures to ensure the involvement of universities and national research centers in the international standardization activities.

International contributions
- Contributing in the technical economic studies in collaboration with various international bodies.
- Publishing/presenting reports/papers in international conferences and journals.
- Contributing to the activities of the ITU Telecommunication Development Sector (ITU-D).
- Participating in the projects of the Arab Regulators Network (AREGNET).
- Membership of international organizations, bodies, and forums.

Number of Graduation Projects

Number of Students in the Summer Program
NTRA’s Societal Interaction Department aims at serving the needs and solving the problems of telecommunication consumers in Egypt.

**Its Main Responsibilities:**
- Prepare and implement consumer rights procedures and conduct awareness campaigns;
- Prepare, coordinate and document activities of consumer rights committees and representatives of the telecom industry;
- Manage consumers’ inquiries and complaints via the Contact Centre;
- Design, prepare and conduct market surveys according to NTRA activities and needs;
- Develop statistical comparison with similar services nationally and internationally.

**Consumer Rights Protection Committee (CRPC)**
The Egyptian Telecom Law No. 10/2003 stipulated the formation of the Consumer Rights Protection Committee (CRPC) that started as an affiliate to NTRA, and which is considered the first Egyptian authority mandated to protect consumer rights. In addition, it aims to promote awareness about user rights in the field of telecommunication, putting this in consideration CRPC was able to achieve the following:
- Issued the Code of Consumers Rights and Obligations;
- Issued guidelines about the role of NTRA with regards to the Disabled;
- Issued awareness videos for disabled translated into sign language;
- Carried out studies for the establishment of a call center for the Disabled;
- Modified service contracts of telecom operators in line with protection of consumer rights;
- Reached an agreement with Telecom Egypt and mobile operators to customize numbers 122 and 112 as emergency service numbers;
- Coordinated with all telecommunication companies to publish an electronic version of their service contracts on their official websites;
- Announced the hotline 155 regularly in newspapers and having the hotline advertised on operators’ websites;
- Launched a campaign under the title “Know Your Right”, where field visits were conducted to the provinces to raise people’s awareness about their rights in Telecom services directly;
- Cooperation with different NGO’s, schools, journalists in Egypt to cascade and implement awareness issues through different conferences and meetings all over Egypt and through awareness service brochures;
- Issued a code of ethics for consumers on the use of the Internet and the mobile service;
- Issued a guideline for Safety of Using mobile while driving and Online internet shopping;
- Issued different telecom service awareness brochures such as: fixed line service, mobile service, internet service, safe child use of internet at home and safety mobile network measures;
- Signed a cooperation protocol with the General Union of Institutions and Associations and thus conducted joint workshops that aimed at creating associations that can promote a culture of rights and duties in telecommunication;
- Prepared awareness material that included medical clarifications regarding mobile base stations and mobile devices and their health and environmental impacts;
- Set rules and principles that service providers must adhere to regarding confidentiality and privacy of communications;
- Launched a page for CRPC on the Facebook, Twitter and Youtube:
  - [http://www.facebook.com/CRPC.NTRA](http://www.facebook.com/CRPC.NTRA);
  - [@NTRAEgyofficial](https://twitter.com/NTRAEgyofficial);
  - [https://youtube.com/CRPCNTRA](https://youtube.com/CRPCNTRA)

**Contact Center**
The Contact Center main target is to receive customers complaints (2nd tier) and all inquiries related to the telecom sector and NTRA, and to investigate and solve customer complaints in cooperation with telecom operators and ISPs.

**Customers Complaints Handling Statistics**

<table>
<thead>
<tr>
<th>Services</th>
<th>No. of Receiving Complaints</th>
<th>Resolved Complaints</th>
<th>Responsiveness Rate (%)</th>
<th>Operation Max. Response Time (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile Sets</td>
<td>9578</td>
<td>8800</td>
<td>92%</td>
<td>14.53</td>
</tr>
<tr>
<td>Internet</td>
<td>61531</td>
<td>57133</td>
<td>93%</td>
<td>14.38</td>
</tr>
<tr>
<td>Mobile Network</td>
<td>54949</td>
<td>54178</td>
<td>99%</td>
<td>3.06</td>
</tr>
<tr>
<td>Fixed</td>
<td>30024</td>
<td>24872</td>
<td>83%</td>
<td>13.21</td>
</tr>
<tr>
<td>Total</td>
<td>156082</td>
<td>144983</td>
<td>93%</td>
<td>10.18</td>
</tr>
</tbody>
</table>

For any inquiries, the contact center can be reached at:

| Hot number 155  | +202 35344155 | info@ntra.gov.eg |
Telecom Consumers’ and Services Survey
NTRA conducts regular surveys with different telecom consumers in the Egyptian market to obtain their assessment of the provided services. Surveys are conducted biannually on a sample of 5000 consumers per operator and based on high usage areas, all over year 2016.

The following graphs present the annual comparative report for year 2016, QoS of Egypt’s three mobile operators.

These graphs reflect the consumers’ opinion about the following:
1. General satisfaction of operator’s performance
2. Customer service assessment
3. Accuracy of the payment methods
4. Network quality in terms of:
   • Initiating calls
   • Voice clarity
   • Disconnection and drops

In general we can conclude from the graphs the overall customer satisfaction about the operators service.
Call initiation success. 2016

* Conducted on a sample of 9000 consumers

Voice Clarity. 2016

Recharge cards accuracy. 2016

Call Disconnection. 2016
International Cooperation

NTRA’s role in this regard has advanced over almost the two decades as the Egyptian telecom sector has gained a colossal impact on the international community. NTRA’s globally-established International Relations department paves the way for Egypt’s telecom sector to be in the forefront in such a rapidly-advancing world. IR analyzes and studies the global markets to determine the best practices to be adopted by Egypt. It, in addition, standardizes and harmonizes ICT regulations and laws to enhance Egypt’s competitiveness in international markets.

Egypt has been, and still is, a member of several international organizations such as the International Telecommunication Union (ITU), the International Mobile Satellite Association (IMSO), and the International Telecommunication Satellite Organization (ITSO) and IGF. It is also a partner in GSM Association. It is a member in the Arab Regulators Network (AREGNET), the Arab ministerial conference affiliated to the League of Arab States, the Euro-Mediterranean Regulators Group (EMERG), and (ARICEA) Association of Regulators of Information and Communication for Eastern and Southern Africa.

Regional Organizations & Entities
The International Telecommunication Union (ITU)
The International Telecommunication Union (ITU) is the leading United Nations agency for information and communication technologies. As the global focal point for governments and the private sector, ITU’s role in helping the world communicate spans over three core sectors: Radio communication (ITU-R), Standardization (ITU-T) and Development (ITU-D). The NTRA has been keen to participate in ITU events and international conferences, workshops, and meetings of various study groups affiliated to ITU’s sectors.

Under the Auspices of H.E. President Abdel Fatah El Sisi Egypt, represented in NTRA, hosted ITU’s Global Symposium for Regulators (GSR-16) for 2016 which is the world’s pre-eminent ICT regulatory event, attracting experts from all corners of the world.

GSR-16 culminated in a series of regulatory Best Practice Guidelines. Outputs from the meeting have been also incorporated into ITU’s annual regulatory report, “Trends in Telecommunication Reform”.

In addition, the Arab and African preparatory meetings of the International Telecommunication Union (ITU) World Telecommunication Standardization Assembly (WTSA-16) was held during the period from September 4 to 8, 2016 with the attendance of at least 170 participants from 30 African and Arab countries, Member states of ITU. NTRA chaired both meetings.

It is worth mentioning that Egypt, represented by the National Telecom Regulatory Authority (NTRA), participated in the World Telecommunication Standardization Assembly (WTSA-16), held in Yasmine Hammamet, Tunis, in the period from October 25 to November 3. WTSA-16 is held every four years to discuss the developments and challenges in ICT sector and ITU-T sector.

Furthermore, during Egypt’s participation in the World Telecommunication Standardization Assembly (WTSA-16), all Egyptian candidates were elected in the positions they run for, hence they assumed the positions of vice chairman of TSAG, SG3, SG13, SG16 and SG 20.

Internet Governance
Over the years, the framework of international public policies related to the Internet has been developed and transformed from a technical project sponsored by one nation into the global framework in the here and now, which all stakeholders from around the world participate in, including governments, businesses, civil institutions, technical community, academia and international organizations.

NTRA is leading Egypt’s engagement in various venues and fora, technical and policy-oriented, to ensure a developmental approach to global Internet governance. NTRA,
thus, aims to ensure that the Internet further develops to offer equal digital opportunity to all citizens throughout the world. NTRA has made significant contributions to the work undertaken at various venues, including the Internet Corporation for Assigned Names and Numbers (ICANN), the United Nations Internet Governance Forum (IGF), the Arab Internet Governance Forum (Arab IGF), and the NETmundial Initiative (NMI). In recognition of its myriad contributions, Egypt was recently elected as vice-chairperson of ICANN’s Government Advisory Committee (GAC), and earlier as vice-chairperson of ARINIC’s Board. Furthermore, Egypt has a permanent seat at the IGF Multistakeholder Advisory Group (MAG).

Through its contributions and participation in these fora and others, NTRA has been working towards its main strategic goals:

- Fostering an integrated digital economy through which all Egyptians can access and harness the opportunities of the global digital economy;
- Boosting innovation and entrepreneurship through forging global policies;
- Positioning Egypt as a digital hub, capitalizing not only on Egypt’s unique geographic location, but also on its young well-educated talents, and internationally harmonized Internet policies.

Regional Relations:

**Arab & African Cooperation**

In fact, NTRA has developed and given great support to its relations with Arab and African countries during 2016, pivoting on Egypt’s international orientation that aims to retrieve its highly active role and pioneering lead in the region, thanks to Egypt’s conviction that these sister states represent the first and foremost strategic dimension thereto.

**League of Arab States (LAS)**

NTRA has been participating effectively and efficiently for more than a decade in the meetings of the Council of Arab Ministers of Information and Communication Technology (AMICT) and its permanent committees and working groups. In addition, The Secretariat of AMICT is considered a dynamic forum that brings together all the staff the Arab ICT divisions and administrations.

Moreover, the decisions and recommendations of the ministers addressed several issues as NTRA’s experts took part in the discussions raised in various committees and formulated these recommendations, chief among them were the Arab domain names, and the usage of information technology to help the Disabled.

**Arab Regulators Network (AREGENET)**

AREGENET held its annual meeting for 2016 in Amman, Jordan, as NTRA has been entrusted to chair a number of working groups affiliated thereto including but not limited to OTT working group and another working group on the implementation and development of Broadband in the Arab region, and a working group on AREGENET enhancement.

**The Association of Regulators of Information and Communications for Eastern and Southern Africa (ARICEA):**

Within the framework of its keenness to engage in all esteemed events and activities, NTRA participated in The Association of Regulators of Information and Communications for Eastern and Southern Africa (ARICEA) meetings as it held its last meeting in Zambia. It discussed a myriad of vital topics, including the project to establish a center for Computer Emergency Readiness Team (CERT) in the member countries to encounter the huge cyber threats facing them. It is worth mentioning that NTRA has submitted a formal request through the Egyptian Foreign Ministry to host this project in Cairo.

This center represents one of the organization’s ambitious projects, NTRA experts believe that Egypt, with its prestigious rank and high technical calibers and capabilities represent the perfect place for such a promising project as the Egyptian Computer Emergency Readiness Team (EG-CERT) is considered one of the most pioneering and prominent computer emergency readiness teams in Africa and Egypt has been a pioneer in the creation of the national team.

**African Telecommunications Union (ATU)**

NTRA has participated in the meetings of the African Telecommunications Union (ATU) Administrative Council meeting that was held on May 7-9, 2016, in Cairo where the meetings discussed the Union’s budget and programs for next year.

**AU Commission**

The African Union Commission has offered a donation (amounting to $180,000) to establish an internet sharing point among the African countries.

NTRA has previously participated in many of the Commission’s activities and events, including, the drafting of a constitutional guideline for information security, that is, a project that was actually adopted last year.

**Bilateral Cooperation:**

**The United Arab Emirates:**

Some of NTRA’s experts visited the United Arab Emirates (UAE) to exchange expertise on the measurements techniques of the services quality for the fourth-generation, and the management of customers’ accounts. The visit underscored the two parties’ enhancement of fruitful cooperation in this regard.
Sudan:
There is mutual cooperation and exchange of expertise and stakeholders among the two countries. It should be remarked that the two parties have succeeded in implementing an integrated cooperation program for the transfer of expertise program during the years 2011 and 2012.

Uganda:
NTRA has provided all contributions necessary for the establishment of the Uganda Computer Emergency Response Team (UG-CERT) and has been always providing the needed technical and technological support thereto.
According to the Telecom Law No.10/2003, NTRA is responsible for licensing and supervising the wireless institutes that qualify their attendees to join the GMDSS certification exams of different degrees. NTRA adopts the internationally approved curricula and according to the curricula defined by the Ministerial Decree No. 259/ 2003 and the amending Ministerial Decree No. 315/ 2011, NTRA also approves the teaching staff of these institutes and supervises the educational process as well.

The successful students obtain the GMDSS certificate approved by the NTRA in any of the following grades: First degree, Second degree, General Operator certificate (GOC) or Restricted Operator Certificate (ROC). In addition, they will obtain a license to participate in their profession as per the certificate they have obtained.

This License authorizes the licensee to operate GMDSS equipment, systems and sub-systems of shore wireless stations or aboard ships or aircrafts, according to the relevant International Resolutions and Regulations.

NTRA awards wireless operators certificates for the Global Maritime Distress and Safety System (GMDSS) according to the recommendations of International Maritime Organization (IMO) and the International Telecommunication Union (ITU), in particular the international treaties and convention STCW-78 as amended.

The number of wireless institutes licensed by the NTRA are 26 institutes in addition to the masters and captains of each of the Marine Academy for Science, Technology and Maritime Transport and the Higher Institute of Marine Naval Forces.

The number of students enrolled in both first and second year in the wireless institutes are about ten thousands four hundred thirty five (10,435) students during year 2016, the addresses of Wireless Institutes licensed from NTRA are shown in Table 1.

Table. 1 The addresses of Wireless Institutes licensed from NTRA.

<table>
<thead>
<tr>
<th>No</th>
<th>Institute</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Radio Communications Center</td>
<td>13 El Ghorfa Al Togareya St., El Raml Station - Alexandria</td>
</tr>
<tr>
<td>2</td>
<td>Egypt Wireless Studies Institute in Alexandria</td>
<td>12 Green Street Moharam Beik, Alexandria</td>
</tr>
<tr>
<td>3</td>
<td>Al Zaytoun Wireless Institute</td>
<td>51  Seleem Al Awaal St. Zaytoun, Cairo</td>
</tr>
<tr>
<td>4</td>
<td>Communication Center for Computer Sciences</td>
<td>80 El-Nasr St., (15) Sohag</td>
</tr>
<tr>
<td>5</td>
<td>Cairo Wireless Institute</td>
<td>9 Magless Al Shaab St., Cairo</td>
</tr>
<tr>
<td>6</td>
<td>Giza International Wireless Institute and Languages</td>
<td>8 Yassin Mohammed St, Nahiya, Bulaq Eldeir, Giza.</td>
</tr>
<tr>
<td>7</td>
<td>Oxford Wireless Institute</td>
<td>10 Istanbul St., El Raml Station, Alexandria</td>
</tr>
<tr>
<td>8</td>
<td>Al Behera Wireless Institute</td>
<td>P.O. Box: 176, Dammanhour, El Beheira</td>
</tr>
<tr>
<td>9</td>
<td>Al Yusuf Wireless Institute</td>
<td>10 Foway Fahmy Guindy St., behind Metro Cinema - Alex</td>
</tr>
<tr>
<td>10</td>
<td>Arab African Institute</td>
<td>86 Abbasya st., Cairo</td>
</tr>
<tr>
<td>11</td>
<td>Wireless Studies Institute in Zagazig</td>
<td>85 Extension of Mosheer Ahmed Ismail St., Zagazig</td>
</tr>
<tr>
<td>12</td>
<td>Technical Institute for Electronic and Wireless Sciences</td>
<td>12 Hassouna Al Nawawy St., Safi Square, Helalpolis, Cairo</td>
</tr>
<tr>
<td>13</td>
<td>The Standard Institute for Advanced Technological Studies</td>
<td>5 Hassan Muhammad street, Falai, al Haram</td>
</tr>
<tr>
<td>14</td>
<td>British Oxford Center for Information and Communication Technologies</td>
<td>Aswan</td>
</tr>
<tr>
<td>15</td>
<td>The Modern Institute for Computer Technologies and Languages</td>
<td>Al Badrasheen, Cairo/Ashyut Road</td>
</tr>
<tr>
<td>16</td>
<td>The Arab Institute for Wireless Sciences</td>
<td>Abou Bakr El Seddiq St., El Towafeedeya, Asuit</td>
</tr>
<tr>
<td>17</td>
<td>The Wireless and Electronics Institute</td>
<td>Sakyet Abou Shaara, Matnak Ashmon - El Monouteya</td>
</tr>
<tr>
<td>18</td>
<td>Cairo Wireless Educational Institute</td>
<td>15 Al Taawon st., Giza</td>
</tr>
<tr>
<td>19</td>
<td>International Business Institute (IBI)</td>
<td>20 Sharbagy St., Madkour, Al Haram, Giza</td>
</tr>
<tr>
<td>20</td>
<td>The National Institute for Information Technologies and Wireless Officers</td>
<td>Kafi Saad, Port Said St., Damietta</td>
</tr>
<tr>
<td>21</td>
<td>Arab Institute for Computer and Wireless Sciences</td>
<td>Highway, Madinet Al Jozka, Damietta</td>
</tr>
<tr>
<td>22</td>
<td>Cultural Institute for Computer and Wireless Studies</td>
<td>11 Maarini Al Sokar St., Garden City, Cairo</td>
</tr>
<tr>
<td>23</td>
<td>Wireless Officers Institute</td>
<td>Maahad Dobbat Allaselky St., Talkha, Sherbeen Road</td>
</tr>
<tr>
<td>24</td>
<td>The Arab African Institute-Zagazig</td>
<td>4 Muslim Zidan St., Ar D Henaawy, Qasem El Nahhal, El Zagazig, Al Sharqiyah</td>
</tr>
<tr>
<td>25</td>
<td>International Wireless Institute</td>
<td>19 El Nasr St., off El Masaleh Al Hokumeeya St., El Zagazig</td>
</tr>
<tr>
<td>26</td>
<td>The Oxford British Center</td>
<td>Road of Aswan Reservoir, Aswan</td>
</tr>
</tbody>
</table>

Masters and Captains who obtained a license of GOC must renew the license every five years after passing a refreshing course according to the Ministerial Decree No. 259/ 2003 and the amending Ministerial Decree No. 315/ 2011.

Table 2 shows the Statistical data for the No. of licenses and renewal licenses of refreshing courses for the Masters and Captains graduated from the Marine Academy for Science, Technology and Maritime Transport and the Higher Institute of Marine Naval Forces during the year 2016.

Table. 2 The Statistical data on the no. of licenses and renewal licenses

<table>
<thead>
<tr>
<th>No</th>
<th>Institute</th>
<th>Address</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Arab Academy for Science, Technology and Maritime Technology and Maritime</td>
<td>P.O.Box 1029, Abu Keer, Alexandria</td>
<td>438</td>
</tr>
<tr>
<td>2</td>
<td>Higher Institute for Maritime Studies of The Armed Forces</td>
<td>Abu Keer, Alexandria</td>
<td>36</td>
</tr>
<tr>
<td>3</td>
<td>The number of applicants for Activating courses</td>
<td></td>
<td>459</td>
</tr>
</tbody>
</table>

For more information about wireless institutes, please review our website: www.tra.gov.eg
The Domain Name System Entrepreneurship Center (DNS-EC) is the first of its kind regional center established as a partnership between the Internet Corporation for Assigned Names and Numbers (ICANN) and Egypt’s National Telecommunication Regulatory Authority (NTRA). The MOA was signed in June of 2014 during the ICANN 50 meeting in London. This important initiative supports the Internet growth in the communities of Africa and the Middle East. The Domain Name System has enormous potential to foster the development of new businesses, while delivering countless benefits to Internet users. DNS-EC, works on growing the domain name industry in the region through helping in the development of the domain name ecosystem, capacity building, providing expertise, acting as a network of resources to sustain the domain name market and working on advancing the DNS infrastructure and services in Egypt.

DNS-EC Phases

Phase I
- Foundation
  - July 14 - June 15
  - Develop the capacities necessary for the establishment of DNS-EC.
  - The programs cover various aspects of the DNS, technical, policy, and business.

Phase II
- Launch
  - July 16 - June 17
  - Develop DNS-EC business plan and seek partnership.
  - Start offering training and consultation services.

Phase II
- Operation
  - July 17 and beyond
  - Lend expertise and knowledge across Africa, the Middle East, and Egypt.
  - Possibility of assuming a DNS related operational role.

Project partners
- Governmental: NTRA, ITI, among others.
- Internet Technical Community: ICANN, ISOC, RIRs, Regional TLD orgs, ccTLDs, NSRC, among others.
- Academic Community: EUN, Zewail City, Nile University, among others.
- Business: IBM, Registries, Registrars, ISPs, Internet businesses, among others.

The NTRA has been taking all possible measures to reduce the sale of mobile lines without data or with incorrect data as this practice is sometimes caused by negligence and at other times it is made deliberately by some mobile lines vendors. The actions and measures taken by the National Telecom Regulatory Authority (NTRA) from 2014 to 2017 hindered this practice, and impeded the increase of mobile customer database from amounting to 178 million lines. The total customer mobile lines database of the three mobile operators has reached 99.6 million lines by end of May 2017. More than 78 million mobile lines were banned from operating in the markets. Moreover, the database of about 29.6 million lines were updated till the end of May 2017.

NTRA has drafted an agreement for the sale and activation of mobile phone lines and the audit of databases, including a regulation of disciplinary penalties for violations applicable to companies in case they commit any of the violations mentioned in the agreement. This agreement was signed by the executives of mobile companies and NTRA’s Executive President in order to commence the activation of the penalties mentioned in this regulation as of August 15, 2017. In addition, the agreement included almost all violations related to the sale of mobile lines with incomplete or incorrect data.

Moreover, NTRA is currently implementing the project of usage of the national ID card reader in the sale and trading of SIM cards within all licensed sales points. NTRA is coordinating with the Egyptian Company for Tracking Services and Information Technology (ETIT) to prepare for the launch of the Request for Information concerning the national ID card reader.