



## PHILIPPINE TELECOMMUNICATIONS INFRASTRUCTURE INDUSTRY

### I. OVERVIEW

With the advent of the Information and Communication Technology era, the world had been reshaped. Everything has become fast paced. There has been a growing need for telecommunications and Internet services. People from all walks of life including businesses want to experience limitless capacity to cross borders in just a few clicks.

Telecommunication infrastructure refers to the backbone of the communication system upon which various broadcasting and telecom services are operated. This can be built from copper cable, fiber or wireless technologies. The word infrastructure added into it implies that it is a core component connecting upstream production such as voice, data and audiovisual services with downstream consumers.<sup>1</sup> Telecommunications can establish all forms of access points for a community and supports the deployment of powerful broadband networks to transport data and content.<sup>2</sup>

No other industry touches as many technology-related business sectors as telecommunication, which, by definition, encompasses not only the traditional areas of local and long-distance telephone service, but also advanced technology-based services including wireless communications, the Internet, fiber optics and satellites.<sup>3</sup> Telecom is also intertwined with entertainment of all types.

Similar to public utilities such as electricity and water, communication is vital to the development of a country as it empowers the people by connecting them across borders. By doing so, it creates multiple benefits that can be felt by the economy as a whole. A modern telecommunication infrastructure is not only important for domestic growth but also to connect domestic market of commodities as well as credit with international commodity and financial markets, this would develop the smooth flow of foreign investment, positive value of net exports, increase the value addition in GDP of an economy, etc.<sup>4</sup>

Even in a developing country like the Philippines, the telecommunication industry has grown rapidly. The infrastructure component of the industry serves a vital role in the economic progress of the country. It provides convenient and efficient way of dealing with different business transactions either locally or internationally. In only a few years, the industry has evolved from an inefficient public utility to a sector with an improved competition, providing consumers lower cost of communicating at home or abroad.<sup>5</sup> Mobile phones have outnumbered landline phones in the Philippines. The Philippines, called the text message capital of the world, is the world leader in Short Messaging Service (SMS) with almost one billion daily messages. It has also emerged as one of the top off-shoring destinations for IT-enabled services (ITES).

---

<sup>1</sup> *Communication Infrastructure Definition*, <http://www.communicationencyclopedia.com>

<sup>2</sup> Winston Conrad Padojinog, "The Philippine Information and Community Technology Sector: Evolving Structure and Emerging Policy Issues" (PIDS, 2005)

<sup>3</sup> *Introduction to the E-Commerce & Internet Business*, <http://www.plunkettresearch.com/ecommerce-internet-technology-market-research/industry-and-business-data>; retrieved on 26 January 2016

<sup>4</sup> Kanwal Zahra et. al, "Telecommunication Infrastructure Development and Economic Growth: A Panel Data Approach" (The Pakistan Development Review 47: 4 Part II, 2008), 711-726

<sup>5</sup> *Background (Telecommunications)*, [www.investphilippines.info/arangkada/seven-winners/infrastructure/telecommunications/background/](http://www.investphilippines.info/arangkada/seven-winners/infrastructure/telecommunications/background/); retrieved on 26 January 2016



## Global Scenario

The world is currently forming a so-called global village in which there are widely spread economic activities utilizing advance technology to communicate. The world is integrating to an economic system based on the continuous availability of information. Even developing countries try to develop their technologies to be able to catch up and be a part of this global village. Recent developments in telecommunication technology have been important tools to exchange the information to develop a sharp and valuable commodity market. <sup>6</sup>

The **International Telecommunication Union (ITU)**, a specialized agency of the United Nations that is responsible for issues that concern information and communication technology, creates report and updates on world ICT indicators every year.

The table below shows important ICT indicators globally from 2010-2015. Although, all indicators increased through the years, it should be noted that mobile cellular subscriptions and mobile broadband subscriptions have increased dramatically because of the recent innovations like 3G and 4G mobile phones. Internet subscriptions also exhibited growth because of the increasing web transactions/ e-commerce.

**Table 1: Key Global ICT Indicators (Millions)**

ICT Indicator	2010	2011	2012	2013	2014	2015	2016*
Fixed Telephone Subscription	1,229	1,201	1,178	1,138	1,090	1,049	1,013
Fixed Telephone Subscription per 100 Inhabitants	17.8	17.2	16.7	15.9	15.1	14.3	13.7
Mobile Cellular Subscriptions	5,290	5,863	6,232	6,666	7,006	7,216	7,377
Mobile Cellular Subscription per 100 Inhabitants	76.6	83.8	88.1	93.1	96.8	98.6	99.7
Active Mobile Broadband Subscriptions	807	1,182	1,554	1,953	2,658	3,232	3,654
Active Mobile Broadband Subscriptions per 100 Inhabitants	11.5	16.7	21.7	27.3	36.7	44.2	49.4
Fixed Broadband Subscriptions	526	588	635	710	730	820	884

<sup>6</sup> Kanwal Zahra et. al, "Telecommunication Infrastructure Development and Economic Growth: A Panel Data Approach" (The Pakistan Development Review 47: 4 Part II, 2008), 711-726



Fixed Broadband Subscriptions per 100 Inhabitants	7.6	8.4	9.0	9.9	10.1	11.2	11.9
Percentage of Households with Computer	35.9	37.9	40.1	42.4	44.0	45.6	47.5
Percentage of Households with Internet Access at Home	30.0	33.4	37.9	41.8	45.1	49.0	52.3
Individuals Using the Internet	2,014	2,216	2,459	2,660	2,931	3,207	3,488
Individuals Using the Internet per 100 Inhabitants	29.2	31.7	34.8	37.2	40.5	43.8	47.1

\* Estimate

Source: International Telecommunication Union World Telecommunications Database 2015

### Telecommunication Infrastructure Carrier/ Sources

- **Satellites**- In the earlier times, satellite use was limited to long distance telephony and to the transport of television signals between studios. To compensate for this, very large ground stations with dish antennas more than 20 meters in diameter were put up to establish links with them. By 1990, two out of every three intercontinental telephone calls were transmitted by telecommunication satellites. It was particularly helpful in facilitating communication to the less developed parts of the world. <sup>7</sup>

Although satellite carry less than 5% of the international traffic, they play an essential role in providing telecom services to remote or disaster- prone areas of the world. <sup>8</sup>

- **Submarine Cable Systems**- Submarine fibre-optic cables & the Internet-based World-Wide Web (WWW) are innovations that started to change the infrastructure of global telecommunications less than 25 years ago. Submarine cables carry more than 97% of the worldwide data traffic, leaving satellites with just a 3% share. <sup>9</sup> In the Philippines, there are seven submarine cable systems landing, which includes APCN, APCN-2, C2C, EAC, TGN-IA, AAG and Guam-Philippines, distributed in five cable landing stations in Batangas, Ballesteros, Caepisa, La Union and Nasugbu. <sup>10</sup>

<sup>7</sup> Telecommunications Satellites,

[http://www.esa.int/Our\\_Activities/Telecommunications\\_Integrated\\_Applications/Telecommunications\\_satellites](http://www.esa.int/Our_Activities/Telecommunications_Integrated_Applications/Telecommunications_satellites); retrieved on

<sup>8</sup> Critical Infrastructure Submarine Telecommunications Cable, [www.iscpc.org](http://www.iscpc.org)

<sup>9</sup> Economic Impact of Submarine Cable Disruptions,

<http://www.suboptic.org/uploads/Economic%20Impact%20of%20Submarine%20Cable%20Disruptions.pdf>; retrieved on 15 July 2015

<sup>10</sup> Submarine Cable Systems in the Philippines, <http://submarinenetworks.com/stations/asia/philippines>; retrieved on 26 January 2016



Fibre- optic submarine cables: <sup>11</sup>

1. transfer large volumes of telecom traffic with speed, reliability and security,
  2. are very cost effective; and
  3. provide quality communications without delays unlike the satellite systems
- Radio Mast and Towers- are tall towers built to support antennas for telecommunications and broadcasting, including television. Often, cell sites are placed on these towers to create cells in cellular network. <sup>12</sup>

Passive Infrastructure sharing or tower sharing has become popular in the Americas and Europe because of its efficiency and practicality. In India, the tower sharing business model has asserted its value proposition in the delivery chain of telecommunications even in the emerging markets. <sup>13</sup>

## Local Scenario

At the time of the Marcos administration, four (4) private companies held government-protected monopolies over all the key areas of telecommunication. The largest was the Philippine Long Distance Telephone (PLDT) Company, having a monopoly over international and domestic calls. Two other companies had monopolies over domestic and international satellite services and the fourth concentrated on international telex and data communications. Investment and service levels were low. <sup>14</sup>

The former president Corazon Aquino made the first steps toward competition in the industry. New licenses were issued for operations of international gateways, cellular mobile services, and cable television. However, liberalization heightened under President Fidel Ramos in 1993, with the issuance of EO 109, otherwise known as *Policy to Improve the Provision of Local Exchange Carrier Service*, which forced the creation of several vertically integrated multi-service firms and made the industry effectively demonopolized. Together with the **EO 59**, otherwise known as *Prescribing the Policy Guidelines for Compulsory Interconnection of Authorized Public Telecommunications Carriers in order to Create a Universally Accessible and Fully Integrated Nationwide Telecommunications Network and thereby Encourage Greater Private Sector Investment in Telecommunications*, it drafted a new law to promote a better climate for growth and investments, granted licenses for international gateway facilities (IGF) and cellular mobile telephone systems (CMTS), and radio paging; and opened the local exchange to competition. In general, the said laws increased investments because of the free competition and entry into the telecommunications market. However, the issue of ownership still hindered foreign investments to enter the industry. Then, in 1995, the *Public Telecommunications Policy Act (RA 7925)* was enacted. The Act declares that “A healthy and competitive environment shall be fostered, one in which telecommunications carriers are free to make business decisions and to interact with one another in providing telecommunications services, with the end view of encouraging their financial viability while maintaining affordable rates” [Article II. Sec 4f].<sup>15</sup>

<sup>11</sup> *Critical Infrastructure Submarine Telecommunications Cable*, [www.iscpc.org](http://www.iscpc.org)

<sup>12</sup> *Radio Masts and Towers*, [http://en.wikipedia.org/wiki/Radio\\_masts\\_and\\_towers](http://en.wikipedia.org/wiki/Radio_masts_and_towers); retrieved on 26 January 2016

<sup>13</sup> *Passive Infrastructure Sharing in Telecommunications*,

<http://www.kpmg.com/BE/en/IssuesAndInsights/ArticlesPublications/Documents/Passive-Infrastructure-Sharing-in-Telecommunications.pdf>; retrieved on 26 January 2016

<sup>14</sup> Donyaprueth Krairit, “Liberalizing Development: Effects of Telecommunication Liberalization in Thailand and the Philippines” (PhD Thesis, Massachusetts Institute of Technology, 2001), 62.

<sup>15</sup> Ramonette Serafica, “Competition in Philippine Telecommunications: A Survey of the Critical Issues” (CBERD Working Paper Series, De La Salle University, Philippines, 2001).



Despite the privatization of the telecom industry, it has still to offer public services and for this reason, it needs to be regulated. The **National Telecommunications Commission (NTC)** is the government agency in charge in regulating the telecommunications sector in the country and ensuring that carriers do not engage in biased trade practices. It is under the administrative supervision of the newly created Department of Information and Communications Technology (DICT). It has also the authority to issue additional licenses to firms engaged in telecom if the roll out goal is not met.

The private sector has also been supportive with the government in enabling telecommunications in the entire archipelago. The industry associations dedicated to improve the telecom sector in the country are the **Philippine Association of Private Telephone Companies (PAPTELCO)**, **Philippine Chamber of Telecom Operators (PCTO)** and **Philippine Electronics and Telecommunications Federation (PETEF)**.

## STRUCTURE OF THE INDUSTRY <sup>16</sup>

The issuance of the Executive Order 109 effectively demonopolized the telecom industry. This, however, did not mean that no single operator is able to exercise considerable market power but rather, that there are now at least two operators permitted to compete in a similar geographic market for a certain service category. Only value- added service has been deregulated of all the service categories that even registration with NTC is not being strictly enforced.

There are two stages before a firm can enter into the regulated segments of the industry. The first step requires a congressional franchise to operate a telecommunications service in all or some parts of the country. The second stage involves application for Certificate of Public Convenience and Necessity (CPCN) or a Provisional Authority (PA) issued by NTC, which requires the carriers to prove that they are technically and financially able to execute the operations and that a significant demand exists. The PA contains the description of the service, specific rate to be charged for the service and the regulations.

**Table 2: Telecom Industry Structure (as of 2017)**

TELECOM SERVICE	2017
Local Exchange Carrier Service	73
Inter-exchange Carrier Service	12
International Service Providers	11
Cellular Mobile Radio Service Providers	10
Radio Paging Service Providers	0
Value Added Service Providers	625

Source: NTC

The table above reflects the structure of the industry, which has exhibited slow progress throughout the years. This may be attributed to the nature of the sector, requiring high capital and transactions cost.

<sup>16</sup> Ibid.



## II. INDUSTRY PERFORMANCE AND FORECASTS

### A. Industry Performance

As of October 2016, two large companies - the Philippine Long Distance Telephone Company (PLDT) and Globe Telecom, Inc. (Globe) are leading in the local telecommunications market. Both companies provide mobile and landline telephone services as well as Internet broadband. Each holds a public utility franchise granted by Congress in pursuant to Public Utilities Act. Their foreign partners have invested substantial equity in the sector.

The increased competition, consumer choice and the rapid technological change contributed to the improvement of the telecommunication infrastructure. Landlines were outnumbered by mobile phones and Filipinos now have twenty times as many mobile subscriptions as landlines. The Philippines, known as the text message capital of the world, is the world leader in Short Messaging Service (SMS) with almost one billion daily messages.

Further, in the 2013 Annual Survey of Philippine Business and Industry (ASPBI) released on 15 April, 2016; the Information and Communications sector employs 128,543 workers in 2013 of which **33,150 or 25.79%** belong to the telecom sector. A total of 10,942 workers are engaged in wired telecom activities; 14,399 workers serve the wireless subsector; 5,410 workers are employed in satellite telecom activities; and 2,399 more are employed on other telecom activities. The telecom sector also posted a Php157.3 billion gross value added. <sup>17</sup>

**Table 3: Philippine Telecom Industry Growth Indicators for 2012-2016**

Indicator	2012	2013	2014	2015	2016
Total Fixed Line Subscription	3.1 million	3.5 million	3.1 million	3.2 million	3.8 million
Fixed-Telephone Subscriptions per 100 Inhabitants	3.6	3.2	3.1	3.2	3.0
Total mobile Phone Subscription	102.0 million	102.8 million	111.3 million	120.3 million	126.5 million
Mobile Phone Users per 100 Inhabitants	105.45	104.50	111.22	115.75	109.17
Fixed Broadband Subscriptions	2.15 million	2.57 million	2.90 million	3.46 million	2.6 million
Fixed Broadband Subscription per 100 Inhabitants	2.22	2.61	2.90	3.40	8.0
Percentage of	36.24	48.10	49.60	53.70	55.50

<sup>17</sup> 2010 Annual Survey of Philippine Business and Industry – Information and Communication: Final Results; [http://www.census.gov.ph/sites/default/files/attachments/itsd/specialrelease/2010%20aspbi\\_ssectJTb1\\_0.pdf](http://www.census.gov.ph/sites/default/files/attachments/itsd/specialrelease/2010%20aspbi_ssectJTb1_0.pdf); retrieved on 26 January 2016



Individuals using the Internet					
--------------------------------	--	--	--	--	--

Source: <http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>

The table above provides information on the growth of the industry in the country. It may be observed that there is a shift in demand from fixed line to mobile phone subscription as there is a soaring demand for the latter amidst the decline in demand of the former. The table also reflects the improving access and dependency of Filipinos to internet connectivity.

In addition, based on a study conducted by Rappler in partnership with Globe in 2016, 55% of the mobile phone subscribers in the Philippines have a mobile broadband subscription, although some 80% subscribe to speed tier plans between 1 and 3 Mbps, indicating that a large majority of broadband users either cannot afford a premium broadband service or their activities does not require higher connection speeds. The demand for cheaper but slower broadband service by most Filipinos results in an average revenue per user (ARPU) of PhP101 and PhP1,029 for prepaid and postpaid, respectively.

Furthermore, based on a study conducted by Rappler in partnership with Globe, the mobile internet penetration rate in the Philippines is growing at a rate of 1.5x or 30 million users every year. Filipinos consume about 150k of terabytes of data annually. On the average, they spend 3.2 hours and 5.2 hours on mobile and on desktop and tablet, respectively.

**Table 4: First Quarter 2017 Average Connection Speed in Asia Pacific Region<sup>18</sup>**

Global Rank	Country/Region	Q1 2017 Avg. Mbps	QoQ Change	YoY Change
1	South Korea	28.6	9.3%	-1.7%
4	Hong Kong	21.9	-0.2%	10%
7	Singapore	20.3	0.8%	23%
8	Japan	20.2	3.1%	11%
16	Taiwan	16.9	7.9%	14%
21	Thailand	16.0	20%	49%
27	New Zealand	14.7	14%	40%
50	Australia	11.1	9.6%	26%
58	Vietnam	9.5	15%	89%
62	Malaysia	8.9	9.1%	40%
68	Sri Lanka	8.5	17%	58%
74	China	7.6	20%	78%
77	Indonesia	7.2	6.7%	59%
89	India	6.5	17%	87%
100	Philippines	5.5	20%	57%

The table above shows the average connection speed of selected countries in Asia Pacific in Q1 2017 for fixed broadband. The Philippines is ranked 100<sup>th</sup> globally with an average connection speed of 5.5 Mbps, the lowest average connection in Asia Pacific Region.

<sup>18</sup> Source: <https://www.akamai.com/fr/fr/multimedia/documents/state-of-the-internet/q1-2017-state-of-the-internet-connectivity-report.pdf>; retrieved on 09 January 2018



## B. Market Segments <sup>19</sup>

### 1. Mobile Market

The Philippine wireless market is rapidly expanding with a total industry SIM base of 119 million and wireless industry penetration rate of 117% in 2015. Ninety-five percent (95%) of the total population prefer prepaid services and 55% have a mobile broadband subscription. The growth in subscription is propelled by the rise in the demand for more non-traditional services especially in the form of mobile internet browsing. It was also induced by the prevalence of prepaid subscribers, which have multiple SIM ownership. <sup>20</sup>

**Table 5: Penetration Rates and Growth Rates of the Mobile Market**

Year	Mobile Subscriptions (Mn)	Penetration Rates (%)	Growth Rate (%)
2010	83.2	89.0	10.1
2011	94.2	99.1	13.2
2012	102.0	105.5	8.3
2013	102.8	104.5	1.0
2014	111.3	111.2	26.5
2015	120.3	115.8	8.1
2016	126.5	109.2	5.6

\* Source: NTC

Source: <http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>

**Table 6: Estimated Cellular Mobile Telephone (CMTS) Subscribers (As of 31 December 2016)<sup>21</sup>**

Type of Plan/ Subscription	Number of Subscribers
Post-Paid	5,326,970
Pre-Paid	121,138,639
<b>TOTAL</b>	<b>126,465,609</b>

### 2. Broadband Market

For the local telecom industry, the broadband market has been a major contributor. The aggressive network roll-out of the various operators, wider availability of affordable prepaid broadband packages, alongside lower USB internet sticks, PC and tablet prices were the primary motivators of subscriber growth. Both wired and wireless technologies are being provided by operators to serve the growing demand for Internet connectivity. <sup>22</sup>

<sup>19</sup> Background (Telecommunications), [www.investphilippines.info/arangkada/seven-winners/infrastructure/telecommunications/background/](http://www.investphilippines.info/arangkada/seven-winners/infrastructure/telecommunications/background/); retrieved on 26 January 2016

<sup>20</sup> Source: <http://www.rappler.com/brandrap/profile-internet-users-ph>; retrieved on 11 October 2016

<sup>21</sup> Latest data provided by NTC in November 2017

<sup>22</sup> Source: <http://www.pds.com.ph/wp-content/uploads/2015/04/Disclosure-No.-718-2015-Annual-Report-for-Fiscal-Year-Ended-December-31-2014-SEC-FORM-17-A.pdf>; retrieved on 26 January 2016



Wireless technology connects computers to Internet without wires or cables. A wireless network makes this easy by using radio waves to let mobile devices within a certain area to connect and communicate. It has two kinds:

- a. Wi-Max- The advent of Wi-Max Technology in 2009 created a remarkable development in the ICT world. Wi-Max is a wireless wide area network that provides the high speed of DSL while also providing connectivity in every corner of its coverage area, and provides the suitability of Wi-Fi while not requiring hotspots and not having distance limitations. WiMAX gives to wireless Internet connectivity what GSM has given to phones. The technology allows the following:
  - Portable mobile broadband connectivity across cities and countries through a variety of devices
  - Wireless alternative to cable and digital subscriber line (DSL) for "last mile" broadband access
  - Providing data, telecommunications (VoIP) and IPTV services (triple play)
  - Source of Internet connectivity as part of a business continuity plan
  - Smart grids and metering
- b. WiFi- It provides short-range, wireless broadband connectivity mostly within an office or home. Wi-Fi can work in a less controlled environment; it works in an unlicensed environment and is less controlled. Moreover, the end users have to buy the devices.

### 3. Fixed Line Market

- a. Fixed Line Voice - In the Philippines, there are at least eight (8) major local exchange carriers (LEC) with licenses to provide local and domestic long distance services. Each LEC operator is assigned service areas in which it must install the required number of fixed lines and provide service. The NTC has created 15 such service areas in the Philippines. Rates for local exchange and domestic long distance services are deregulated and operators are allowed to have metered as well as flat monthly fee tariff plans for the services provided.

Competition in the fixed line voice market has intensified in the previous years as major players introduced fixed wireless voice services with limited mobile phone capabilities to take advantage of the increasing preference for mobile services.

- b. Fixed Line Data Market - This business is a growing segment of the fixed line industry. As the Philippine economy booms, businesses are increasingly using new networking technologies and the Internet for critical business needs such as sales and marketing and database management. The expansion of the local IT Enabled Service (ITES) industry which includes call centers and Business Process Outsourcing (BPO) companies has also helped induce growth of the corporate data business.

### 6. International Long Distance Market

Consistent with global trends where international traffic is migrated to alternative means of communication, particularly over-the-top (OTT) applications like Skype, Viber, among others, total inbound international long distance (ILD) traffic exhibited declining levels. ILD providers in the Philippines generate revenues from both inbound and outbound



international call traffic whereby the pricing of calls is based on agreed international settlement rates. These settlement rates for ILD traffic are based on bilateral negotiations. Commercial negotiations for these settlement rates are settled using a termination rate system where the termination rate is determined by the terminating carrier in negotiation with the originating foreign correspondent.

As of 2017, there are 11 licensed ILD operators. Operators offer ILD services which cover international calls between the Philippines and over 200 calling destinations. To drive growth in this segment, the Company offers discounted call rates to popular calling destinations, sustains its usage campaigns and marketing efforts for OFW SIM packs, and ensures the availability of popular prepaid load denominations.

## 7. Hybrids

The hybridization of mobile phones with computers has induced consumers to rapidly shift towards reading digital books, magazines and newspapers. Financial transactions are similarly facilitated over the Internet. Investing in such infrastructure is one of the most important actions in the near-term to increase Philippine competitiveness and move towards a knowledge-based service economy.<sup>23</sup>

In the Philippines, mobile subscriptions increase massively each year because Filipinos are heavily dependent on text messaging and calls. The new Voice over Internet Protocol (VoIP) telephone service via computers has brought the cost of communicating on the Internet almost to zero. This caused Filipinos to be attached to social networking sites and online shopping.

## III. MARKET OPPORTUNITIES

### ▪ Increasing Global Demand for Telecommunication Service

The global telecom market is anticipated to show substantial growth over 2015-2022 owing to technological development and increasing disposable incomes. The market augmentation is expected to be driven by increasing preference for bundled services such as data and voice. The growing adoption of advanced infrastructure such as LTE is also predicted to fuel the sector.

The following undertakings/ developments are also forecasted to be realized which may favor market growth worldwide:

- a. Various government initiatives such as nationwide mobile number portability;
- b. Deployment of WiMAX services for increased speed;
- c. Infrastructure sharing;
- d. Increasing Mobile Value-Added Services (MVAS) demand;
- e. Data and Over-The-Top (OTT);
- f. Media/entertainment (including advertisement), cloud computing, Machine-to-Machine (M2M) services, and IT services;

<sup>23</sup> *Background (Telecommunications)*, <http://www.investphilippines.info/arangkada/seven-winners/infrastructure/telecommunications/background/>; retrieved on 26 January 2016



- g. Growing use of smartphones and tablets; and
- h. Strategic alliance of handset manufacturer and service providers, which may increase customer base through long-term contracts.

For 2015-2022, fixed services are expected to show decline as mobile services increase. Global market players are expected to invest in the next generation Operating Support System (OSS) and Business Support System (BSS) solutions to remain competitive. An increase in preference of internet services such as IPTV and VOIP is also foreseen. Asia Pacific is anticipated to be the key regional market. <sup>24</sup>

- **Industry 4.0 and the Growing Concept of Internet of Things (IoT)**

During the last decade, the use and evolution of Information and Communication Technologies (ICT) in industries have become unavoidable<sup>25</sup>. Industry 4.0 arose and it is believed to be the new industrial revolution fueled by the advancement of digital technologies. It is dramatically changing how companies engage in business activities, hence, its disruptive nature demands reassessment of the requirements for ICT.

Another promising recent development is the movement of nascent markets toward the consumer and enterprise mainstream with the IoT leading the way. IoT is the network of physical objects or things embedded with electronics, software, sensors, and network connectivity, which enables these objects to collect and exchange data. Several businesses have the potential to derive high value from IoT as high as about \$15 trillion in economic value. <sup>26</sup>

- **Consumer Demand for Electronic Devices<sup>27</sup>**

New types of mobile devices, such as smart phones and tablets, and new user behaviors have emerged increasing the demand for Internet access. Application stores for various mobile platforms have created a large new market. The use of mobile applications has increased mobile broadband traffic significantly.

The growth in demand for consumer electronics will also be driven by ongoing consumer obsession with devices. Approximately 90 percent of consumers check their smartphone within one hour of waking up, and about 25 percent check their phone more than 50 times a day. In addition, there is an upward trend of audio and video streaming among smartphone users, with most consumers now using more than a gigabyte of data per month.

---

<sup>24</sup> Source: <http://www.grandviewresearch.com/industry-analysis/global-telecom-services-market>; retrieved on 26 January 2016

<sup>25</sup> Source: <https://www.sciencedirect.com/science/article/pii/S2351978917306807>; retrieved on 28 December 2017

<sup>26</sup> Source: <http://www2.deloitte.com/us/en/pages/technology-media-and-telecommunications/articles/2015-telecommunications-outlook.html>; retrieved on 26 January 2016

<sup>27</sup> Source: <http://www2.deloitte.com/us/en/pages/technology-media-and-telecommunications/articles/2015-telecommunications-outlook.html>; retrieved on 26 January 2016



## IV. PHILIPPINE ADVANTAGE

### A. Geographic Location

- The Philippines, being surrounded by bodies of water makes it a strategic location to built in submarine cables intended to facilitate telecommunications in the country and in the Asia- Pacific Region.
- Critical entry point to over 550 million people in the ASEAN Market<sup>28</sup>
- Reachable within 4 hours by plane from Asian key cities <sup>29</sup>

### B. Natural Resources

The Telecommunications Industry relies on heavy metals to transmit data and facilitate communication. The Philippines is one of the world's richly endowed countries in terms of mineral resources. In 1994, the estimated levels of metallic and non-metallic mineral reserves stood at 7 billion metric tons and 50 billion metric tons, respectively. Copper accounted for the bulk of metallic mineral resources of about 72 percent; while nickel's share was estimated at 16 percent. In terms of chromite resources, the country's refractory chromite resource in Zambales is considered as one of the largest in the world. Gold reserves at the beginning of 1988 was estimated at 101.6 million metric tons (MT), equivalent to about 240 MT of gold metal. <sup>30</sup>

### C. Human Resources <sup>31</sup>

- Labor Productivity.<sup>32</sup> Value added per employee, a measure of labor productivity, was estimated at PhP1.8 million per employee in the Information and Communications sector.
- Competitive labor force
- The Philippines boasts of its high literacy rate, which is 94.6% of its population.
- An average of 500,000 graduates encompassing various fields adds up to the labor pool of the country every year. For 2014-2017, an average of 75,040 engineering and technology graduates and 77,795 IT-related graduates were added to the labor pool of the telecommunications sector.
- The Philippines is the third-largest English-speaking nation in the world with capability for some Asian languages. The Philippine government also asserts that 75 percent of the population is fluent in English. Thus, Philippine workers are well suited to doing business with the United States as their ability to adopt accent and level of understandability by Brits of Filipino workers can be considered comparatively better than India and significantly better than China or Eastern Europeans. <sup>33</sup>

<sup>28</sup> *Investment Opportunities in the Philippines*, [http://www.scp-ph.com/download/IGAF\\_PHILS\\_PRESENTATION.pdf](http://www.scp-ph.com/download/IGAF_PHILS_PRESENTATION.pdf)

<sup>29</sup> *Ibid.*

<sup>30</sup> *The Philippine Mineral Resources Account*, <http://www.nscb.gov.ph/peenra/results/mineral/default.asp>

<sup>31</sup> *Investment Opportunities in the Philippines*, [http://www.scp-ph.com/download/IGAF\\_PHILS\\_PRESENTATION.pdf](http://www.scp-ph.com/download/IGAF_PHILS_PRESENTATION.pdf)

<sup>32</sup> Source: 2013 ASPBI Information and Communications

<sup>33</sup> *History of BPO in the Philippines*, <http://www.bpoc.uk.com/research.html>



- Fast learning curve (needs only 6-8 weeks to learn technical skills)
- Strong work ethics and customer orientation
- Long tradition of excellence in the professions
- Universal cultural adaptation
- Hospitable lifestyle
- Based on the Bureau of Labor Employment Statistics (BLES), as of January 2017, the average daily salary of workers by major occupation group related to telecommunications are as follows:

Job Title	Average Daily Salary (in PhP)
Managers	980.25
Professionals	898.45
Technicians and Associate Professionals	601.23
Clerical Support Workers	522.55
Service and Sales Workers	336.82
Plant and Machine Operators and Assemblers	389.39

## V. DOING BUSINESS IN THE PHILIPPINES

### A. Equity Participation

- A telecom carrier is subject to the 60-40 rule wherein foreign ownership is restricted to only 40% and non- nationals are excluded from the top positions of a company.

### B. Costs and Revenues

- The 2013 Annual Survey of Philippine Business and Industry released last December 13, 2016 reports the following:
  - The aggregated Information and Communications sector generated an income of PhP542.1 billion in 2013. The top revenue generator are wireless telecommunications with PhP208.5 billion (38.5%) and wired telecommunication activities with PhP115.3 billion (21.3%).
  - The total expense of the Information and Communications industry account to PhP442.5 billion. About two-fifths of the this was spent by wireless telecommunications activities with PhP173.8 billion.
  - Income-expense ratio of Information and Communications sector stands at 1.23 with wired telecommunications garnering the highest ratio at 1.51.
- Taxes
  - 30% Corporate Tax
  - 12% Value Added Tax (VAT) on importation of capital equipment



### C. Permits/ Licenses

- Legislative Franchise – Pursuant to RA 7925, no person/ entity may conduct telecom business without obtaining a franchise. This franchise, as embedded in the Article XII of the Philippine Constitution, may only be granted to citizens of the Philippines or to corporations or associations organized under the Philippine laws and may only be granted by the Congress. However, the participation/ ownership of foreign investors in any public utility enterprise, in this case the telecom industry, is limited to 40% and all executive and managing officers of a certain telecom corporation must be citizens of the Philippines.
- Certificate of Public Convenience and Necessity (CPCN) – CPCN, as issued by the NTC, requires carriers to prove that they are technically and financially viable to operate. It contains the description of service, specific rate to be charged for the service and regulations, among others.

In granting a CPCN, NTC may impose conditions such as the duration and termination of the privilege, concession, or standard or technical aspects of the equipment, rates, or services. The validity of the CPCN shall not be shorter than 5 years but not longer than the life of the franchise granted. Any expansion/ upgrading/ financing of networks and services aimed at providing additional services to cater to the demand which utilizes equipment compatible to or homologous to previously approved plant and facilities, shall not require any approval by the Commission.

## VI. INDUSTRY POTENTIAL

### A. Major Philippine Players

#### 1. Philippine Long Distance Telephone Company (PLDT)

PLDT, the country's largest telecom company having three principal business segments: wireless, fixed line and BPO. It offers the largest and most diversified range of telecommunications services across the Philippines. In 2016, it recorded total service revenue of PhP165.26 billion and 63.03 million subscriber base since data and broadband services combined with domestic voice businesses compensated for declines in revenues from text messaging and toll traffic. <sup>34</sup> PLDT is one of the largest BPO providers in the Philippines, with smaller operations in China, Europe, India, USA, and Vietnam. <sup>35</sup>

PLDT's original franchise was granted in 1928 and was last amended in 1991, extending its effectiveness until 2028 and broadening PLDT's franchise permitting PLDT to provide virtually every type of telecommunications service. PLDT's franchise covers the business of providing basic and enhanced telecommunications services in and between the provinces, cities and municipalities in the Philippines and between the Philippines and other countries and territories including mobile, cellular, wired or wireless telecommunications system, fiber optics, multi-channel transmission distribution systems

---

<sup>34</sup> PLDT Annual Report 2016

<sup>35</sup> Background (Telecommunications), [www.investphilippines.info/arangkada/seven-winners/infrastructure/telecommunications/background/](http://www.investphilippines.info/arangkada/seven-winners/infrastructure/telecommunications/background/)



and their VAS such as but not limited to transmission of voice, data, facsimile, control signals, audio and video, information services bureau and all other telecommunications systems technologies, as are at present available or can be made available through technical advances or innovations in the future. <sup>36</sup>

Over a half-century, ownership of PLDT has changed from majority American then Filipino and now Filipino-Hong Kong-Japanese. Its shares have been traded on the New York Stock Exchange (NYSE) since before WWII. The current principal owner, First Pacific Company Ltd (Hong Kong), whose shares trade separately on American stock exchanges, is principally owned by the Salim family, once Indonesia's largest business conglomerate. <sup>37</sup>

In 1999, PLDT forged strategic partnership with NTT Communications Corp (NTTCom), a wholly-owned subsidiary of Nippon Telegraph and Telephone Corp. of Japan, the world's leading telecom company in terms of revenues. In that same year, PLDT acquired the country's largest mobile phone operator – the Smart Communications, Inc. (Smart).<sup>38</sup>

In October 26, 2011, PLDT completed the acquisition of Digitel. Digitel, through its Sun Cellular Brand was the first to introduce 24/7 unlimited calls and SMS set price for Sun-to-Sun connections. The acquisition of Digitel dwarfed the other telecom companies in the country.

## 2. Globe Telecom Inc.

Globe is a major provider of telecommunications services in the Philippines. The company operates one of the largest and most technologically advanced mobile, fixed line, and broadband networks in the country, and maintains a large distributor and over-the-air reload network of retailers, distributors, suppliers, and business partners nationwide.

Globe is a joint venture between Ayala Corporation and Singapore Telecommunications (SingTel). Like PLDT, its franchise originated before WWII, in a 1928 law which granted a California-based American investor a franchise to operate wireless long distance message services. It was first named Globe Wireless Limited and later Globe Mackay Cable and Radio Corporation. In 2000, Globe merged with Islacom, and its principal foreign shareholder, a subsidiary of Deutsche Telekom AG, exited the country. <sup>39</sup>

For the year 2016, Globe reached consolidated service revenues of PhP120 billion, the highest ever service revenue of the said company. Globe posted 62.8-million subscriber base. The incidence of multi-SIMming remained high, as customers shifted usage depending on the attractiveness of voice and SMS intra-network offers. <sup>40</sup>

In July 2015, the NTC, in its 19-page decision, approved the joint application filed by Globe and Bayan Telecommunications (Bayantel) for a debt to equity transaction allowing the Ayala-led Globe to acquire controlling stake in Bayantel. Bayan Telecommunications' existing nationwide network is composed of satellite, terrestrial and land/submarine based

<sup>36</sup> *Background (Telecommunications)*, [www.investphilippines.info/arangkada/seven-winners/infrastructure/telecommunications/background/](http://www.investphilippines.info/arangkada/seven-winners/infrastructure/telecommunications/background/)

<sup>37</sup> *Ibid.*

<sup>38</sup> *PLDT Company Timeline*, <http://pldt.com/about-us/company-timeline>

<sup>39</sup> *Background (Telecommunications)*, [www.investphilippines.info/arangkada/seven-winners/infrastructure/telecommunications/background/](http://www.investphilippines.info/arangkada/seven-winners/infrastructure/telecommunications/background/)

<sup>40</sup> Source: Globe



cable facilities. The network includes capacities in the National Digital Transmission Network (NDTN), a joint project of six Philippine telecommunications carriers. It is franchised to provide the following major telecommunications services<sup>41</sup>:

- a. LEC service;
- b. IGF service;
- c. Leased line service (domestic and international);
- d. Public Trunk Radio service; and
- e. Public Calling Office service

The said acquisition has resulted to a one-time gain which boosted Globe's income in 2015<sup>42</sup>.

**Table 7: Revenues and Subscribers of PLDT vs. Globe**

	2012	2013	2014	2015	2016
<b>PLDT</b> <sup>43</sup>					
Revenues (Php B)	159.7	164.1	165.1	162.9	165.26
Mobile Subscribers (M)	69.9	70	70	64.9	63.0
<b>Globe</b> <sup>44</sup>					
Revenues (Php M)	40.8	90.5	99.0	137.1	120.0
Mobile Subscribers (M)	31.7	38.5	44	52.9	62.8

### 3. ABS-CBN Mobile

ABS-CBN Mobile, a new competitor in the telco business, is a mobile virtual network operator in the country owned and operated by ABS-CBN Convergence, Inc., a subsidiary of Filipino entertainment and media conglomerate ABS-CBN Corporation. ABS-CBN mobile uses the network infrastructure of Globe Telecom to enable the two companies to share frequencies, switches, servers, and transmitters. It was on 28 May 2013 that the ABS-CBN and Globe signed the historic network-sharing agreement. ABS-CBN will then pay Globe based on the amount of bandwidth used and for other technical and support expenses. Also part of the deal was the sale of Lopez Holding's Bayantel to Globe through a debt purchase agreement<sup>45</sup>.

ABS-CBN mobile offers prepaid and postpaid SMS, voice, data, wireless landline connection, and access to premium and exclusive contents of the iWant TV app. As reported by ABS-CBN mobile, it has a total of 904,000 subscribers and has acquired Php3.5 billion income in 2016<sup>46</sup>. The newly established telco is creating exclusive

<sup>41</sup> [www.bayan.com.ph/article.aspx?aid=162](http://www.bayan.com.ph/article.aspx?aid=162)

<sup>42</sup> Source: <http://passthrough.fw-notify.net/download/784173/http://static.globe.com.ph.s3.amazonaws.com/Globe%20AR%20full.pdf>; retrieved on 11 October 2016

<sup>43</sup> Source: <http://pldt.com/news-center/article/2015/03/03/pldt-2014-full-year-financial-and-operating-results#.Va3hACGgqko>; retrieved on 26 January 2016

<sup>44</sup> Globe 2012 Annual and Sustainability Report

<sup>45</sup> ABS-CBN Annual Report 2014

<sup>46</sup> Source: <http://business.inquirer.net/213582/abs-cbn-mobile-trims-cost>; retrieved on 11 October 2016



contents for its subscribers through partnership with Kakao, Huawei, Cloudfone, among others<sup>47</sup>.

## B. Economic Contribution

According to leading economist Bernardo Villegas at the 2012 Asia CEO Forum, the country's strong telecommunications sector is a key infrastructure industry that will boost the Philippines' economic growth in the coming years. The sector is one of the major infrastructure industries that would help the economy grow by 7-10 percent in the next 10 years.<sup>48</sup>

- Contribution to GDP.<sup>49</sup> The Philippine Statistical Authority (PSA) reports that in Q3 2017, the communications sector has contributed PhP275,665 million (or 2.43%) to the country's gross domestic product of PhP11,335,786 million of the same period.
- Employment Generation.<sup>50</sup> As of July 2017, the information and communications sector employs a total of 408,000 which represents almost 1% of the total employment for the said period (40,170,000).

## VII. GOVERNMENT SUPPORT

The deregulation of the telecom industry has prompted the entry of foreign investments to the sector. The Philippine government has been also active in Public- Private Partnership projects to improve infrastructures in the country. Capital markets and the banking system were also strengthened and market oriented foreign exchange policy were set.

### A. Enabling Laws/ Policies

- Republic Act No. 7925- Public Telecommunications Policy Act of the Philippines. An Act stating that the fundamental objective of the government is to develop and sustain a viable, efficient and universal telecommunication infrastructure using the best available and affordable technologies for this could lead to nation building and development. Moreover, it encourages a healthy and competitive telecom industry wherein telecom operators could make decisions and interactions with each other in pursuit of providing quality service while maintaining affordable rates. The expansion of telecom infrastructure should give priority to rural or underserved areas.

The Act mandates NTC to take the necessary steps to implement policies and fulfill the objectives it set forth. It further reiterates the different telecom entities and their respective responsibilities and limitations. Article VIII of the said Act emphasizes public ownership, privatization of existing facilities and equality of treatment in the Telecommunications industry to facilitate the development of the industry.

---

<sup>47</sup> ABS-CBN Annual Report 2014

<sup>48</sup> Source: ABS CBN Mobile Annual Report

<sup>49</sup> Source: PSA

<sup>50</sup>Ibid.



To this end, the government, through the Department of Industry (DTI) and the newly created Department of Information Communications and Technology (DICT) have undertaken the following:

- *Memorandum Circular No. 07-08-2015* issued by NTC on 13 August 2015 states that broadband must have data connection speed of at least 256 kilobits per second (kbps) based on the standards set by the International Telecommunications Union (ITU). The circular covers fixed-line services, i.e., DSL, cable, fiber. With this newly issued regulation, the Internet service providers (ISPs) would have to specify the downstream and upstream data rates offered per area. A separate draft rules to measure Internet access through mobile broadband is released by NTC on 15 September 2015<sup>51</sup>.
- *Memorandum Circular No. 07-12-2014* issued on 17 December 2014 provides guidelines for the country's planned shift from analog to digital terrestrial television broadcast (DTTB). The Philippine government opt Japan's Integrated Service Digital Broadcasting-Terrestrial (ISDB-T). Under the new guidelines, analog very high frequency (VHF) TV services should neither be disrupted nor terminated until further orders from the NTC. Operators are required to simulcast DTTB services and analog TV services within one year upon the grant of authority to provide DTTB service. VHF TV operators that fail to simulcast DTTB and analog TV services within a year would lose their frequency to other qualified Ultra High Frequency (UHF) TV operators. The guidelines also require manufacturers and importers of brand new TV to indicate in each unit that it could receive analog signals only. It would also require a set top box or whether the unit could receive ISDB-T programs<sup>52</sup>.
- *Memorandum Circular No. 02-10-2011*, which mandated that the basic text rate should be, at most, 80 centavos and that SMS network providers guarantee that 90% of text messages sent are received within 30 seconds from the time of sending<sup>53</sup>.
- *Memorandum Order No. 07-07-2011*, which required broadband service providers to specify the minimum broadband/internet connection speed and service reliability and service rates in their offers to consumers, and that the minimum service reliability shall be 80%.
- Facilitating local interconnection which resulted in the resolution of the interconnection issues between PLDT and Globe in eight (8) priority provinces: Pampanga, Zamboanga, Bulacan, Quezon, Laguna, Nueva Ecija, La Union and Benguet<sup>54</sup>
- Streamlining of applications for permits and licenses.<sup>55</sup>
- Executive Order No. 893 series of 2010 on Promoting the Deployment and Use of Internet Protocol Version (IPV) 6 (a protocol currently used to direct internet

<sup>51</sup> Source: [http://www.ntc.gov.ph/laws/mc/1423792772\\_Draft%20MC%20Minimum%20Broadband%20Speed%20.pdf](http://www.ntc.gov.ph/laws/mc/1423792772_Draft%20MC%20Minimum%20Broadband%20Speed%20.pdf)

<sup>52</sup> Source: [http://www.ntc.gov.ph/laws/mc/1425524144\\_MC%2007-12-2014%20DTT-IRR.pdf](http://www.ntc.gov.ph/laws/mc/1425524144_MC%2007-12-2014%20DTT-IRR.pdf); retrieved on 26 January 2016

<sup>53</sup> Commissioner Gamaliel A. Cordoba, NTC, Inputs to the Mobile Network Modernization Program, 08 February 2012.

<sup>54</sup> Commissioner Gamaliel A. Cordoba, NTC, Inputs to the Mobile Network Modernization Program, 08 February 2012.

<sup>55</sup> NTC, 08 February 2012, Op. cit.



traffic), which aims to enable a continued expansion of the internet in the country<sup>56</sup>.

- Executive Order 59- Prescribing the Policy Guidelines for Compulsory Interconnection of Authorized Public Telecommunications Carriers in order to Create a Universally Accessible and Fully Integrated Nationwide Telecommunications Network and thereby Encourage Greater Private Sector Investment in Telecommunications. It encourages development in interconnections among different regions to convey messages and accommodate the increasing demand for communications nationwide. The law paved the way for creating enterprises providing multiple services. It also permits rerouting of international gateway operators in event of strikes, lock-outs or disasters. NTC will supervise and monitor interconnection and revenue-sharing agreements between different carriers.
- Executive Order 109- Policy to Improve the Provision of Local Exchange Carrier Service. This law promoted the entry of investments and spurred growth by granting licenses for IGF, CMTS and radio paging and by liberalizing the LECs.
- Republic Act No. 6849- Municipal Telephone Act of 2000 (An Act Providing for the Installation, Operation, and Maintenance of Public Telephones in each and every Municipality in the Philippines, Appropriating Funds therefore and for Other Purposes). For the purpose of administering this act, Municipal Telephone Projects Office in the Department of Transportation and Communications (DOTC) is created.
- Republic Act No. 10844 – Department of Information and Communications Technology Act of 2015. The DICT was mandated to be the primary policy planning, coordinating, implementing and administrative entity of the Executive Branch of the Government that will plan, develop, and promote the national ICT development agenda. Among its powers and functions include the following:
  - a. Establishing a free internet service that can be accessed in government offices and public areas;
  - b. Assisting in the dissemination of vital information essential to disaster risk reduction through the use of ICT;
  - c. Ensuring and protecting the rights and welfare of consumers and business users to privacy, security and confidentiality in matters relating to ICT, among others.

The new law likewise abolishes agencies, which will be transferred to the newly created DICT: Information and Communications Technology Office (ICTO); National Computer Center (NCC); National Computer Institute (NCI); Telecommunications Office (TELOF); National Telecommunications Training Institute (NTTI); and all operating units of the Department of Transportation and Communications (DOTC) with functions and responsibilities dealing with communications.

The National Telecommunications Commission (NTC), National Privacy Commission, and the Cybercrime Investigation and Coordination Center (CICC), meanwhile, will be DICT attached agencies for policy and program coordination.

- Republic Act No. 10929 – An Act Establishing the Free Internet Access Program in Public Places in the Country and Appropriating Funds Therefor. As stated in the law, the

<sup>56</sup> Secretary Mario G. Montejo, DOST, Inputs to the Mobile Network Modernization Program, 14 February 2012.



DICT, as the lead agency, is ordered to ensure that there is free internet service in the following areas:

- a. National and local government offices
- b. Public basic education institutions
- c. Public hospitals, health centers and rural health units
- d. Public parks, plazas, libraries, and barangay reading centers
- e. Public airports and seaports
- f. Public transport terminals

## **B. Government Initiatives/ Challenges<sup>57</sup>**

- Amendment of the Public Service Act – Several Bills have been filed seeking to amend the statutory definitions of “public service” and “public utility” under the Public Service Act, or Commonwealth Act 146. When enacted, this measure will open the telecommunication, transport and power industries to 100 percent capitalization by foreign players. This will promote public welfare and will heighten the competitiveness of the said sectors in the Philippines.
- National Broadband Plan – President Rodrigo Duterte approved the National Broadband Plan (NBP) in March 2017. The Plan intends to accelerate the deployment of fiber optics cables and wireless technologies to improve internet speed. As stated in the plan, the DICT is expected to provide at least 10-Mbps connection to all households by 2020 at a much lower cost than today’s average of Php1,299 per month. The initial implementation of the NBP is expected on the first semester of 2018.
- The major challenges in the sector are the barriers to entry. Prior to operating as telco, a firm is subject to the following requirements and conditions<sup>58</sup>:
  - a. Franchise from Congress of the Philippines
  - b. CPCN from NTC
  - c. Foreign equity is permitted up to 40 percent only
  - d. Service suppliers must ne Filipino citizens

Other structural barriers present are as follows:

- a. the period and the cost of obtaining various permits and licenses (national and local)
- b. the period and the cost of obtaining rights of way
- c. the available spectrum or bandwidth

---

Note: Recent government initiatives and strategies of the new administration for the Telecom Industry are yet to be finalized in the Philippine Development Plan 2017-2022

<sup>58</sup> Source: NTC



## VIII. CONTACTS

### Board of Investments

#### ***CEFERINO S. RODOLFO***

Undersecretary of Industry Development Group  
BOI Managing Head  
Industry and Investment Building  
385 Sen. Gil J. Puyat Avenue, Makati City  
Trunkline: (+632) 897-6682, 890-9308  
Webpage: [www.boi.gov.ph](http://www.boi.gov.ph)  
Email: CeferinoRodolfo@dti.gov.ph

#### ***MA. CORAZON HALILI- DICHOSA***

Executive Director  
Industry Development Services  
Board of Investments  
Telefax: 8953978  
Tel: 8953983 / 8976682 (local 326/325)  
Email: MCHDichosa@boi.gov.ph

#### ***MARY ANN E. RAGANIT***

Chief, Infrastructure Division  
Infrastructure and Services Industries Service  
Tel./Telefax No.: (+632) 895-3997; 895-6617  
Email: MERaganit@boi.gov.ph

#### ***ENA DESSARIE O. SANCHEZ***

Senior Investments Specialist (Infrastructure Division)  
Infrastructure and Services Industries Service  
Tel./Telefax: (+632) 8976682 local 264; 8953997  
Email: EDOSanchez@boi.gov.ph

### Department of Information and Communications Technology (DICT)

#### ***ELISEO M. RIO JR.***

OIC-Secretary/ Undersecretary for Special Concerns  
Tel. No.: 426-1526  
Fax No.: 426-1525  
Email: eliseo.riojr@dict.gov.ph

### National Telecommunications Commission

#### ***GAMALIEL A. CORDOBA***

Commissioner  
Tel. No.: 924-4042  
Fax No.: 921-7128  
Email: commissioner@ntc.gov.ph

