**Korea Agency for Digital Opportunity and Promotion (KADO)**

# Digital Opportunity Index Indicators (DOI) in Perú

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# Situation with regards to ICTS in Peru

❖ Peru began reforming its telecommunications sector in 1992, privatizing the state-owned ENTEL by Telefónica del Peru .

❖OSIPTEL began collecting a 1 % levy charged on gross operating revenues of TCS companies in order to fund rural service, the amount of the tariff is unique within Departments, and the market has been opened gradually to competition.

❖Telephony services were so expensive, then Peruvian congress tried to eliminate basic rent, however after some discussions Telefónica submitted one way of solution and this was approved.

## Main plans submitted by Telefónica

| Plans | Monthly Tariff | Free minutes | Cost per minute Normal time | Cost per Minute Reduc. time |
|---|---|---|---|---|
| Clasic Line | 57.77 | 60 | 0.092 | 0.042 |
| Plan 1 | 39.90 | 60 | 0.140 | 0.070 |
| Plan 2 | 64.90 | 270 | 0.128 | 0.064 |
| Plan 3 | 74.90 | 365 | 0.116 | 0.058 |
| Plan 4 | 84.90 | 470 | 0.1006 | 0.053 |
| Plan 5 | 94.90 | 580 | 0.092 | 0.042 |
| Plan Low Consume | 39.90 | 60 | 0.1398 | 0.0702 |

**Source: Telefónica**

# Situation with regards to ICTS in Peru

**Number of Public cabin**

| Year | Internet Public cabin | Telephony Public cabin |
|------|------------------------|-------------------------|
| 2001 | 1974 | 96036 |
| 2002 | 2904 | 113834 |
| 2003 | 10785 | 129416 |
| 2004 | 17629 | 139923 |
| 2005 | 33635 | 147746 |

**Source: Telefónica S.A and others.**

# Concept of DOI

Digital Opportunity Index is a new indicator that measures mainly the level of access to ICT means in a country in a period of time.

It is a composite indicator and weight a combination of three important components.

Opportunity

Infrastructure

Utilization

# *Opportunity Indicators*

**Percentage of population covered by mobile Cellular Telephony**

**Definition**  Percentage is a  part considered in relation to a whole, in this case shows both sides who has access to the service and the lack of it.

**Calculation method:**  Urban population is divided by the total population and multiplied by 100.

**Data source:** Censuses of Population and housing conducted in 2005 by National Institute of Statistics and Informatics.

**Periodicity of Measurement:** Annual

**Population by areas**

28,6%

71,4%

- ☐ Urban
- ■ Rural
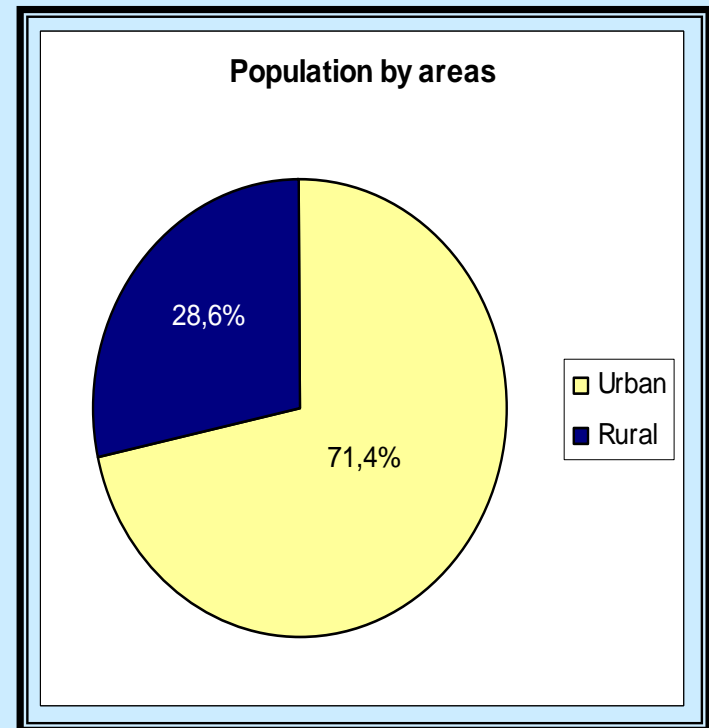
# *Opportunity Indicators*

**Internet access tariffs as a percentage of per capita income**

Calculation Method :  The amount of Internet access tariffs (20 hours per month) is divided by Gross Domestic Product (G.D.P) per capita monthly .

Data source: Tariffs comes from Administrative Records provided by Telefónica del Perú and G.D.P comes from National Institute of Statistics and Informatics- National Accounts Division.

Periodicity of Measurement: Annual

Example :

$$\text{Internet access tariff} = \frac{\$\ 32.84}{\$\ 179.16} \times 100 = 18.33$$

# *Opportunity Indicators*

**Mobile cellular tariffs as a percentage of per capita income**

Calculation Method : The amount of mobile cellular pre-paid tariff basquet low user is divided by Gross Domestic Product (G.D.P) per capita monthly .

Data source: Tariffs comes from Administrative Records provided by Telefónica del Perú and G.D.P comes from National Institute of Statistics and Informatics- National Accounts Division.

Periodicity of Measurement: Annual

Example :

$$\text{Mobile cellular tariff} = \frac{\$\ 21.46}{\$\ 179.16} \times 100 = 11.97$$

# *Infrastructure Indicators*

**Proportion of households with a fixed line Telephone** ,

Refers to a proportion of the total number of households which have a fixed line at home in a Country.

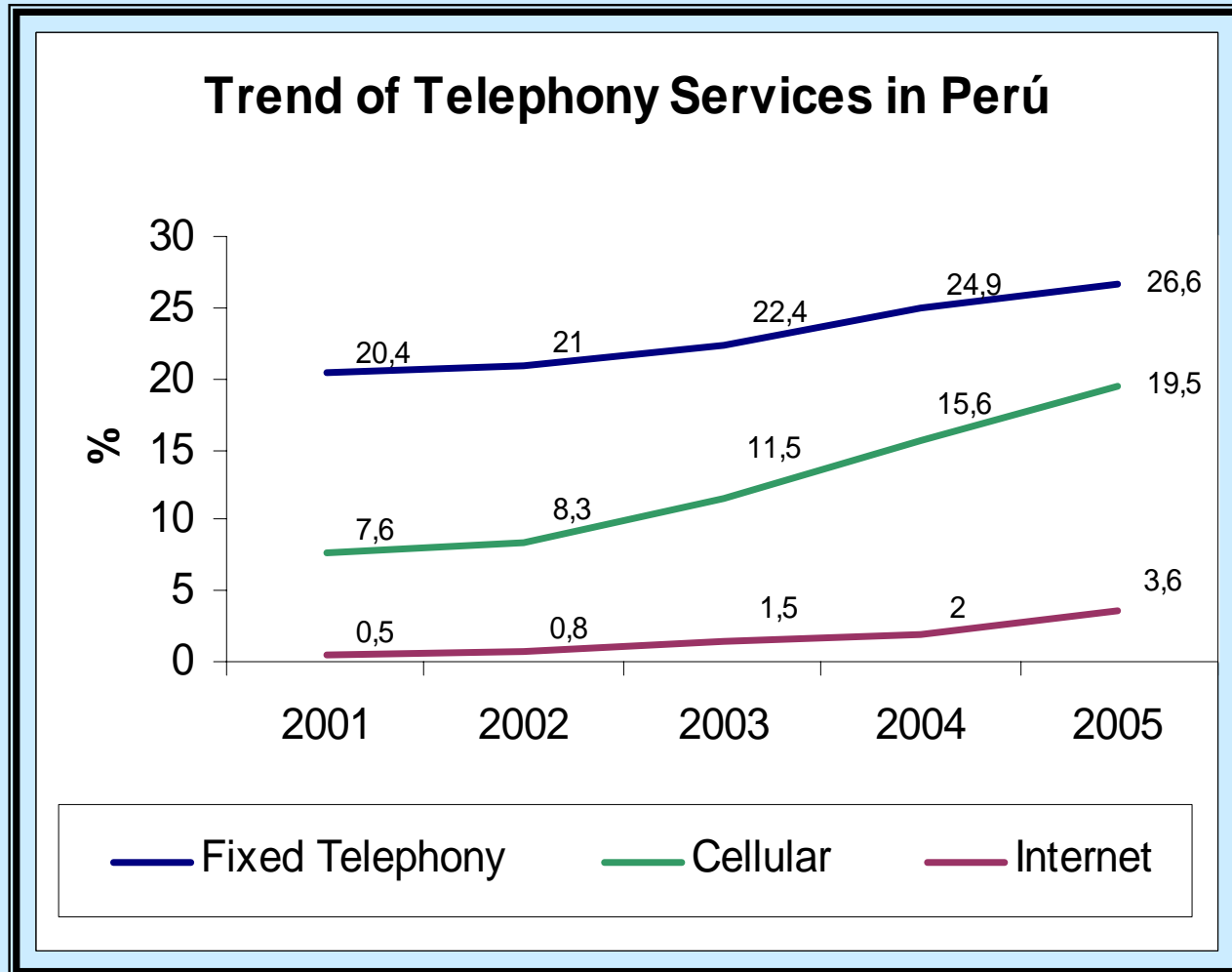**Proportion of households with Internet access**

Refers to a proportion of the total number of households which have Internet access at home.

**Data source:** Data come from Peruvian National household Survey which is addressed to an important sample of 20000 households at national level.

**Method of Computation:** In household survey scientific techniques of random sampling are used, also they are used technical conventional of imputation for the case of covering the necessary lack of non answer and the expansion factors are derived for statistical methods .

**Periodicity of Measurement:** Annual

# Infrastructure Indicators



**Trend of Telephony Services in Perú**

Source: National Household Survey

# Infrastructure Indicators by region

Proportion of Households with thelepony services by region, 2001-2005
(% of the total households by region)

| Access to the telephony services | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|
| **Total country** | | | | | |
| **With telephony services** | | | | | |
| Fixed telephony | 20,4 | 21,0 | 22,4 | 24,9 | 26,6 |
| Cellular | 7,6 | 8,3 | 11,5 | 15,6 | 19,5 |
| Internet | 0,5 | 0,8 | 1,5 | 2,0 | 3,6 |
| **Without telephony** | 75,6 | 74,6 | 72,4 | 67,9 | 64,3 |
| **Area of residence** | | | | | |
| **With telephony services** | | | | | |
| **Urban  (Include Lima Metropolitana)** | | | | | |
| Fixed telephony | 31,1 | 31,9 | 34,3 | 38,2 | 40,8 |
| Cellular | 11,3 | 12,4 | 17,3 | 23,3 | 29,2 |
| Internet | 0,7 | 1,3 | 2,2 | 3,0 | 5,5 |
| **Without telephony** | 63,2 | 61,6 | 58,1 | 51,5 | 46,4 |
| **Urban  (Exclude Lima Metropolitana)** | | | | | |
| Fixed telephony | 20,3 | 21,6 | 23,1 | 25,8 | 26,9 |
| Cellular | 6,0 | 7,9 | 10,6 | 14,9 | 21,2 |
| Internet | 0,2 | 0,5 | 0,4 | 0,8 | 1,7 |
| **Without telephony** | 75,6 | 72,9 | 70,1 | 64,4 | 60,0 |
| **Rural** | | | | | |
| Fixed telephony | 0,3 | 0,4 | 0,2 | 0,5 | 0,5 |
| Cellular | 0,7 | 0,5 | 0,6 | 1,6 | 1,7 |
| Internet | - | - | - | - | - |
| **Without telephony** | 99,0 | 99,0 | 99,2 | 98,0 | 97,5 |

Source: INEI. National households Survey.

# Infrastructure Indicators

**Mobile Cellular subscribers per 100 inhabitants**

**Definition:** refers to users of cellular mobile who subscribe to operators which provides access to cellular technology.

**Data source:** Data come from Administrative records compiled by OSSIPTEL , national regulatory authority or telecommunication operators and tend to be timely and complete.
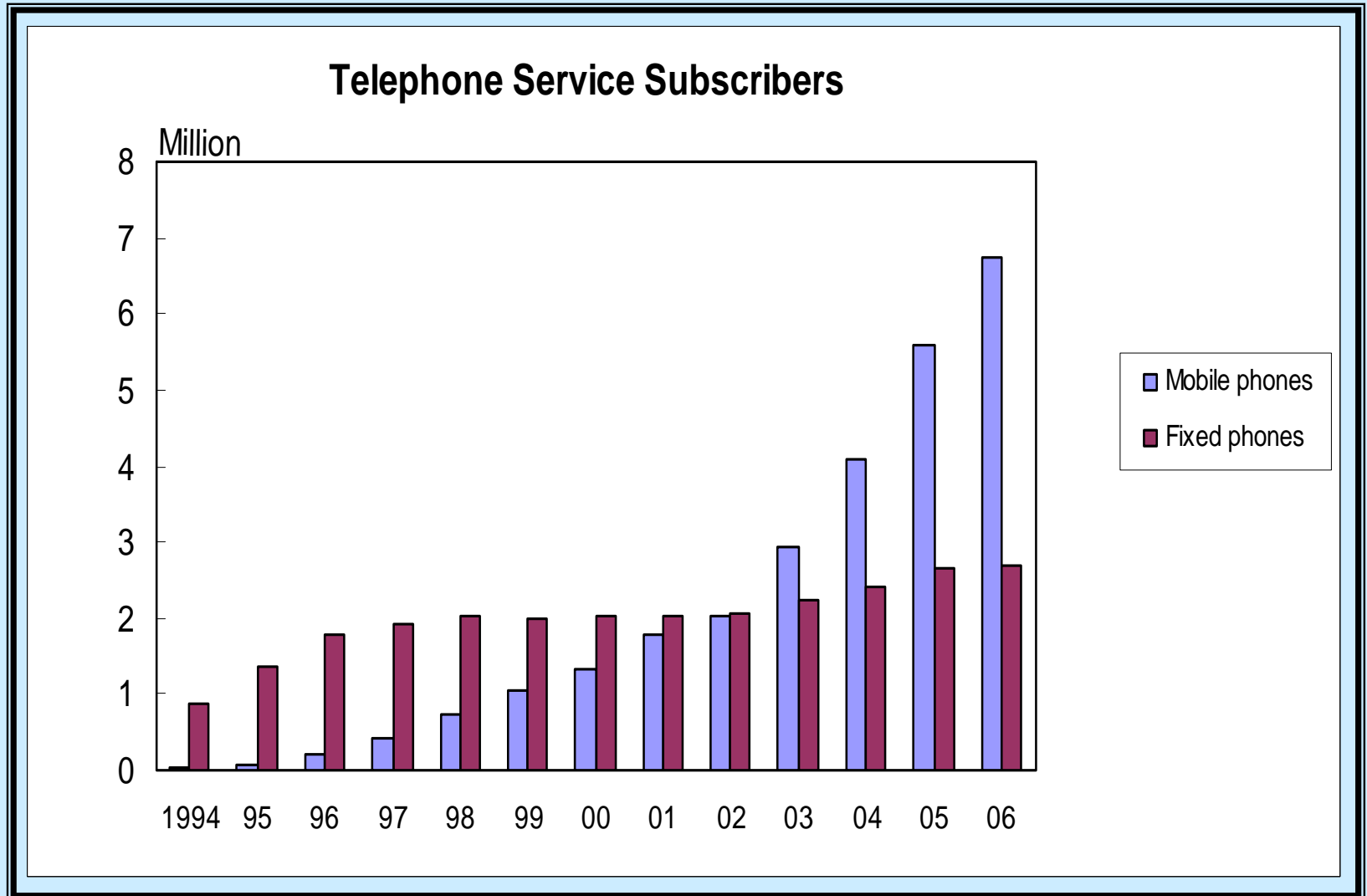
**Method of Computation:** Total mobile cellular subscribers are divided by the Population and multiplied by 100.

**Periodicity of Measurement:** Annual

**Mobile Internet subscribers per 100 inhabitants**

**Definition:** refers to users of cellular mobile who subscribe to operators which provides access to cellular technology.

# Trend of mobile Cellular subscribers



Telephone Service Subscribers

# Infrastructure Indicators

**Proportion of household with a computer**

**Definition:** By definition personal computer (PCs) are computers designed to be operated by a single user at a time.

**Data source:** The Census of Resources Informatics was conducted at National level, after that sales data on PCs imports data are used.

**Method of Computation:** The total number of PCs in a country is divided by the population and multiplied by 100.

**Periodicity of Measurement:** Annual

# *Utilization Indicators*

## Internet users per 100 inhabitants

**Definition:** The Internet is a linked global network of computers in which users at one computer, if they have permission, get information from other computers in the network.

**Data source:** responses to an annual questionnaire that International Telecommunication Union (ITU) sends to telecommunication agencies.

**Method of Computation:** the total number of Internet users is divided by population and multiplied by 100

**Periodicity of Measurement:** Annual

# *Utilization Indicators*

**Percentage of fixed broadband in fixed Internet subscribers**

**Definition:** refer to the number of subscribers to fixed broadband access, the service should offers speeds of at least 256 kbit/s in at least one direction.

**Data source:** Data come from Administrative records provided by OSSIPTEL.

**Method of Computation:** Total broadband Internet subscribers (fixed) divided by the number of Internet subscribers and multiplied by 100.

**Periodicity of Measurement:** Annual

**Percentage of mobile broadband in fixed Internet subscribers**

# Results for Peru

**Digital Opportunity Index (DOI) for Peru in 2004**

| Components | 2004 |
| --- | --- |
| **Opportunity** | **0,86** |
| Percentage of population covered by mobile cellular telephony | 0,80 |
| Internet access tariffs as a percentage of per capita income | 0,89 |
| Mobile cellular  tariffs as a percentage of per capita income | 0,89 |
| **Infrastructure** | **0,11** |
| Proportion of households with a fixed line telephone | 0,25 |
| Mobile cellular suscribers per 100 inhabitants | 0,15 |
| Proportion of households with internet access at home | 0,06 |
| (Mobile) Internet subscribers per 100 inhabitants | 0,01 |
| Proportion of households with a computer | 0,07 |
| **Usage** | **0,21** |
| Number of individuals that used the Internet | 0,12 |
| Ratio of broadband in fixed Internet subscribers | 0,51 |
| Ratio of broadband in mobile Internet subscribers | |
| **DOI** | **0,39** |

Source: ITU/KADO

# International Comparison

**Rank in Latin America and World 2004/2005**

| Latin America Rank | Country | Opportunity | Infrastructure | Utilization | Digital Opportunity Index | World Rank |
|---|---|---|---|---|---|---|
| | **Latin America** | 0,89 | 0,19 | 0,13 | 0,40 | |
| 5 | Chile | 0,96 | 0,31 | 0,29 | 0,52 | 40 |
| 6 | Argentina | 0,96 | 0,30 | 0,15 | 0,47 | 51 |
| 13 | Uruguay | 0,96 | 0,24 | 0,09 | 0,43 | 64 |
| 16 | Venezuela | 0,93 | 0,18 | 0,18 | 0,43 | 67 |
| 19 | Brasil | 0,87 | 0,24 | 0,16 | 0,42 | 71 |
| **20** | **Peru** | **0,86** | **0,10** | **0,21** | **0,39** | **85** |
| 25 | Ecuador | 0,89 | 0,16 | 0,02 | 0,36 | 100 |
| 28 | Bolivia | 0,79 | 0,11 | 0,01 | 0,30 | 113 |
| 29 | Paraguay | 0,80 | 0,09 | 0,02 | 0,30 | 114 |

Source: ITU

# Conclusions

❖ **There is a big gap between access to ICT means between rural and Urban area within the Country.**

❖ **The level of indicators is low with regard to the goals established especially in Internet access at home service.**

❖ **Methods of computation show some limitations.**

❖ **A good application of DOI could help to get better education by making books available on line and can make government more transparent reducing corruption.**

If you truly love Nature, you will find beauty everywhere.

Vincent Van Gogh