Electoral Results Transmission

**Technology use, security mechanisms and training
of those responsible**

Ing. Franklin Frias

Technology and results transmission

THE CHALLENGE

- What time should the first bulletin be posted and what percentage?
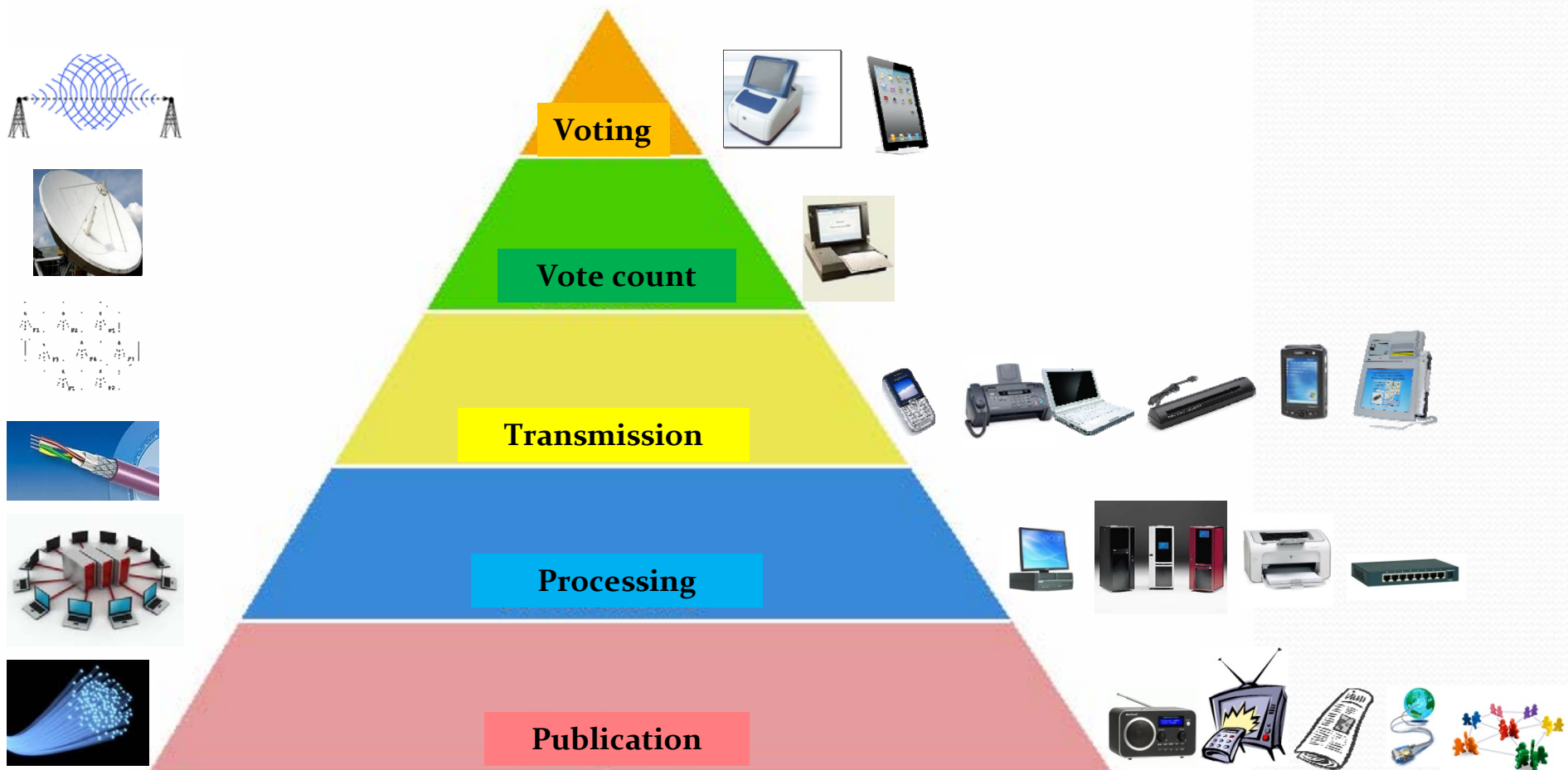
- How long will it take to get final results?

Technology in results transmission

Elements to transmit:

- Voice
- Facts
- Images
- Facts+ Images
- Books of results sheets

Tecnología en la transmisión de Resultados

Components

- Voting
- Vote count
- Transmission
- Processing
- Publication
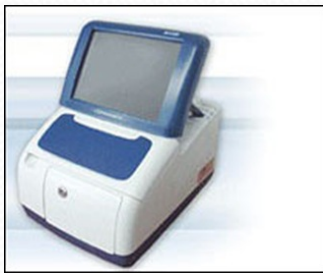
Technology in results transmission

Strategy I

- **Voting**

- **Fact transmission**
- **Summarization**
- **Publicaction**

- **Direct Electronic Registry(RED)**

Technology in results transmission

Strategy II

- **Vote count**

- **Optical Reading of Votes**
- **Fact Transmission**
- **Summarization**
- **Publication**

Technology in results transmission

Strategy III

- **Voting tables**

  - **Cell phones for voice transmission of results**
    - Calls to a Call Center, in which results are transmitted

  - **PDA (Pocket computers)**
    - Through the development of applications, they allow the transmission of preliminary results.

  - **Smart phones with cameras**
    - They allow through an application the capture of a high quality image of tally sheets and their transmission to a processing center

Technology in results transmission

Strategy IV

- **Voting centers**

  - **Fax**
    - Transmission of images of tally sheets through analog telephones

  - **Laptop**
    - These devices allow the transmission of the results in tally sheets.

  - **"E and T" Units**
    - Touch-screen equipment with a printer and scanner incorporated, which allows for the simultaneous transmission of facts and images.

  - Portable and self-sufficient scanners

  - Tablets

Technology in results transmission

Strategy V

- Processing and Distribution Centers

- Fax

- Personal Computers

- Printers

- Scanner

Technology in results transmission

Strategy VI

- **Regional and Municipal Committees**

  - Personal Computers

  - Servers

  - Laptop

  - Printers

  - Scanner

Methods of results transmission

The methods used for transmitting electoral results play an important role within the electoral process, as the determining factors of a good or bad handling of the process.

In the implementation of a results transmission system, it is important to observe the following characteristics:

- High availability
- Auditability
- Network management
- High output
- Security

Methods of results transmission

•**High availability**

Wireless methods of transmission have allowed for electoral results to be transmitted from any place or region, but at the same time the redundancy and continuity of the service must be guaranteed.

Methods of results transmission

• **Auditability**

Although transparency is always fundamental, it holds particular importance during the stage in which preliminary results are transmitted and made public. It is important that candidates and political party representatives sign and obtain a copy of the voting account and that they have the opportunity to witness the transmission of results to electoral organisms.
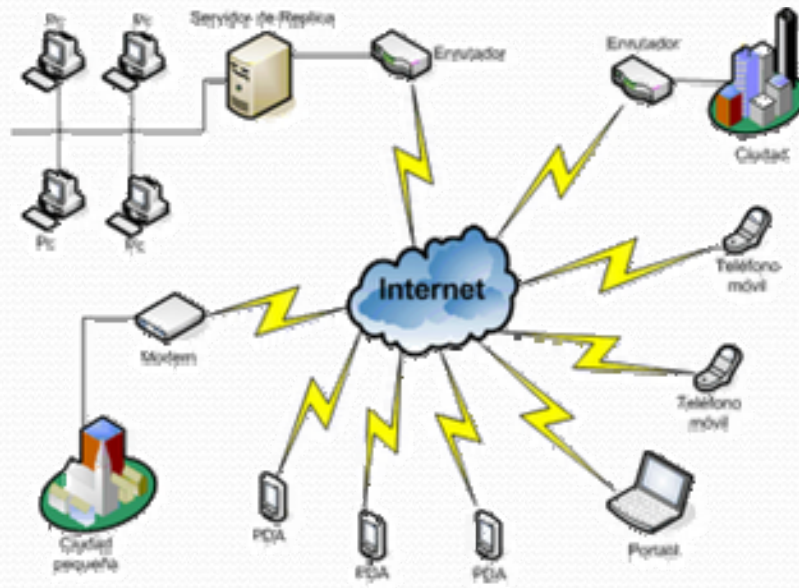
Methods of results transmission

- **Network management**

 In every network of results transmission, there should be adequate supervision and management for the monitoring of network data.
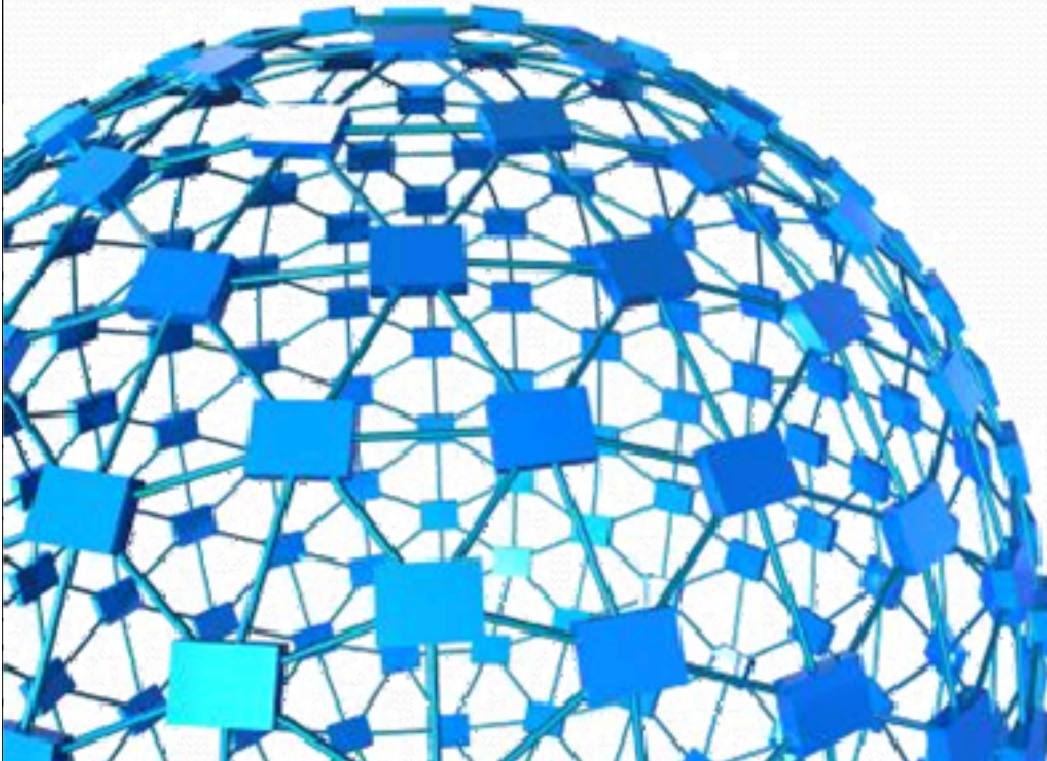
Methods of results transmission

- **High output**

Network capacity to manage high volumes of tally sheets transmitted simultaneously.

Methods for results transmission

- **Security**:
The guarantee that information will not be modified, or intercepted by external actors before arriving at its destination.

Components:

•**Cryptography (Coded data)**
Transposition and encrypting of data before it is sent, later to be decoded by the receptor.

•**Logic (Structure and sequence)**
Knowing how and when to send and receive information

•**Authentication**
User identification that establishes who is authorized to establish communcation with the receptor.

Technology in results transmission

Training

• It is necessary for technology user to receive training

• The level of training that is necessary depends on how complex the technology is and the level of interaction that the user has.

• Levels of training will vary ranging from having a university degree to having experience, to the completion of
an intensive course

Technology in results transmission

Facility with application of technology

- Clear and intuitive options.

- A minimum number of steps

- Automate the greatest number of processes

- Design of program options with a fluid logic.

Results Transmission from Polling Stations

Case : Dominican Republic

Results Transmission from Polling Stations

Characteristics

- Based on the digitization and transmission of tally sheets

- Digitization in Municipal Committees.

- Sending of Data and Images to the computing centers of political parties
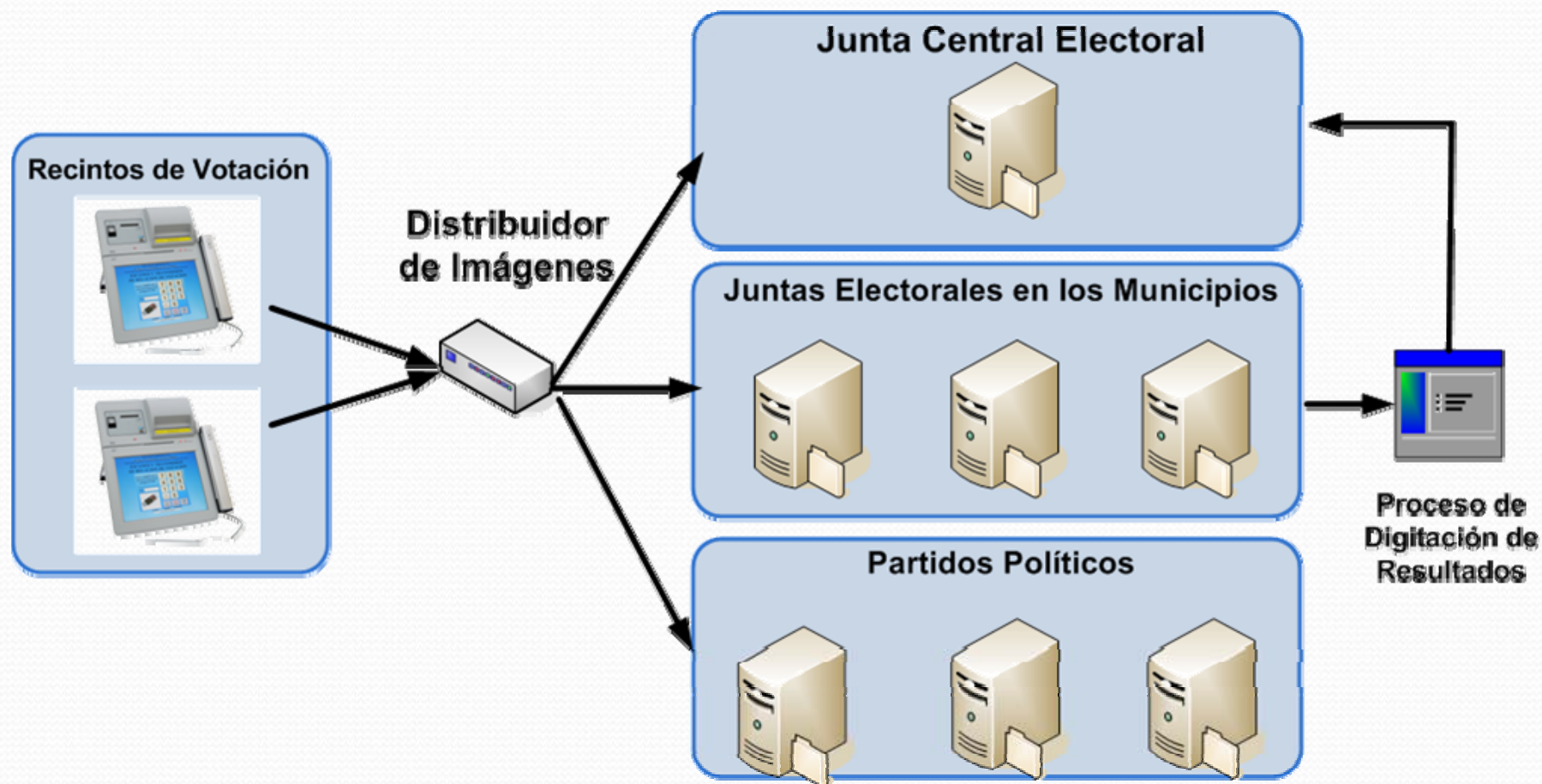
- Atomization of images for digitization

• "E and T" Units

- Touch screen

- Incorporated scanner

- Integrated printer

- 3G transmission

Results Transmission from Polling Stations

Transmission Scheme

Results Transmission from Polling Stations

Results Transmission

Type/Year of Election	Number of Collection Centers	Polling Stations	Tables per collection center
Presidential 2004	145 Municipal Boards	12,203	8 for 2,000 Voting Tables
Congressional 2006	151 Municipal Boards	12,371	8 for 2,000 Voting Tables
Presidential 2008	155 Municipal Boards and 742 Polling Centers **897 Collection Centers**	13,075	5 for 300 Voting Tables
Congressional 2010	155 Municipal Boards and 1,493 Polling Centers **1,648 Collection Centers**	13,250	4 for 300 Voting Tables

Results Transmission from Polling Stations

Coverage of "E and T" Units

Elections 2008

	Voting Centers	Tables	Electors
National Total	3,990	12,754	5,609,598
E and T Units	742	6,599	3,051,141
Percentage	**18.60%**	**51.70%**	**54.40%**

Elections 2010

	Voting Centers	Tables	Electors
National Total	3,898	13,250	6,116,250
E and T Units	1,493	9,093	4,494,211
Percentage	**38.30%**	**68.60%**	**73.50%**

Results Transmission from Polling Stations
Progress of Image Transfers **Elections 2008**
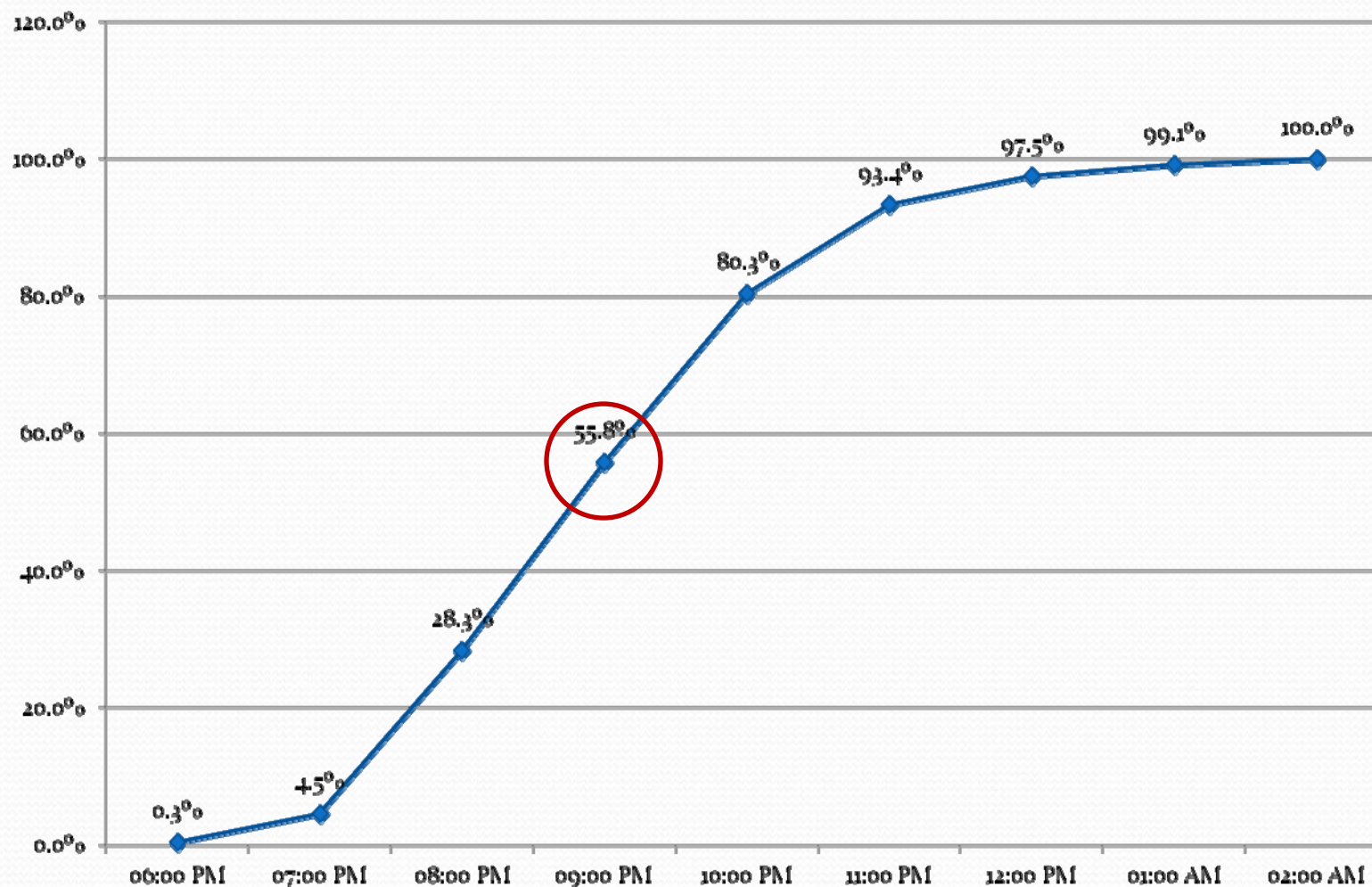
Results Transmission from Polling Stations

Security of E and T Units

1. Transmission de encrypted images.

2. Verification with MD5 of images received

3. Physical security keys for the access and sending of images.

4. Electonic verification and confirmation of total transmission of tally sheets from voting centers.

Electoral Results Transmission

CONCLUSIONS:

- The application of new technologies for the transmission of electoral results depends on the particular society. It is very important to consider the legal and political context of a country for the implementation of new technologies in electoral processes.

- The implementation of new technologies in the tranmission and processing of electoral results is only justified if it adds transparency, quality and speed to the electoral process.

- The dissemination of digitized images of the tally sheets together contained in them has been consolidated as a standard for ther auditibility, transparency and quality of electoral processes.

…**Thank you for listening!!**