EMERGENCY COMMUNICATIONS REFORMS IN PORTUGAL

EENA Webinar 01-JUN-2021

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Introduction

PSAP Deployment Strategy

Completed and Ongoing Projects

Future Projects
Chapter 1
Portugal in figures

Population
10 300 000

Terrestrial Area
92 212 Km²

Emergency Number
112

PSAP
Stage 1 4
Stage 2 59

Calls/Year
7 475 000

Answering Time
6 s
Introduction

Governance framework / National legislation

Decree-Law 73/97 3rd Apr
https://anacom.pt/render.jsp?contentId=976026&languageId=1

Regulation no. 99/2009, 23th Feb
https://www.anacom.pt/render.jsp?contentId=975622

Council of Ministers Resolution nr 164/2007
12th Oct
https://www.anacom.pt/render.jsp?contentId=956625

State Secretary of Home Affairs Order n.º 8591-D/2016
Portugal's Security and Emergency Network

- Tetra (Terrestrial Trunk Radio)
- 170 user entities
- Allows encrypted communication throughout the Portuguese territory
- + 33 Million Calls in 2020
- Not used by 112 PSAP

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Stage-1 PSAP procedures

1. Call is answered by a human call taker
2. Relevant data is collected
3. Data is dispatched to Emergency Response Organization (in case of a medical emergency data is sent to the ambulance service and voice call is also transferred).
4. The Emergency Response Organization dispatch the most appropriate resources for dealing with the reported emergency.

Note: Stage-1 PSAP does not manage or dispatch emergency resources.
Implemented Features

Fully integrated
- PSAP Call Taking
- CAD/GIS
- Voice/Video
- Geolocation

Other Services
- eCall
- AML – (SMS & HTTPS)
- App for Deaf

Call Taking Options
- Intelligent Routing
- Remote Call Taking
- Overflow capability
- IVR
Chapter 2
Increasing efficiency

<table>
<thead>
<tr>
<th>Year</th>
<th>PSAP Deployment Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>20 PSAP</td>
</tr>
<tr>
<td>2009</td>
<td>17 PSAP</td>
</tr>
<tr>
<td>2010</td>
<td>14 PSAP</td>
</tr>
<tr>
<td>2018</td>
<td>2 PSAP +2 PSAP Fully Integrated</td>
</tr>
<tr>
<td>2020</td>
<td>4 PSAP Fully Integrated</td>
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PSAP Deployment Strategy

Implementation Model

2020 - Call taking is done, locally, at each centre through the use of ISDN trunks and internal circuits for Voice and Data.

Total redundancy for:
- IP networks
- Voice & eCall (ISDN)
- CAD/GIS
- Databases
- Data Centres

Nationwide coverage
- Emergency calls
- eCalls
- Deaf App service
- AML

Through this solution, the operation can deviate the call taking service, in case of need, between the 112 operational centres without the Telco intervention.

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PSAP Deployment Strategy

112 Emergency Communications Chain

Access Network Public Service Providers Data Centres

Landline PSTN ISDN-based SMSC

eCall Internet HTTPS/WebRTC

Mobile phone eCall

Smart Device SMS Web RTC

Mobile Device Smartphone, Tablet

Data Centre #1

ACD Telephony Recording

eCall Dashboard

SMSC Reporting

Web RTC Monitoring

Data Centre #2

Stage 1 PSAP

PSAP #1 PSAP #2

PSAP #3 PSAP #4

Stage 2 PSAP

VDI #57

Civil Prot

Ambulance

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Chapter 3
Geolocation

**CELL ID**
- Deployed in 2009
- Method – “Push”

**AML**
- Deployed in 2Q 2020
- Android / IOS

**SMS / HTTPS POST**

**100% Coverage**
- National territory
- All MNO’s
- All terminals

**Fully deployed in**
- mainland Portugal, Azores and Madeira

**Activated for**
- 112 and 911 - Android
- 112 - IOS

Not yet available for roamers (on going)

**AML Success Rate**

**AML Radius**

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eCall

Completed & Ongoing Projects

**eCall**

- Final tests and successful Conformity Assessment: 3Q 2017
- Deployed in Portugal: 28th Sept 2017
- Ghost Calls issue: Solved Aug 2017
- 17 Digit Numbering issue: Solved in Aug 2017

No Special Agreements with TPSP

112 eCalls

<table>
<thead>
<tr>
<th>Year</th>
<th>Manual</th>
<th>Automatic</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>423</td>
<td>31</td>
</tr>
<tr>
<td>2020</td>
<td>863</td>
<td>178</td>
</tr>
</tbody>
</table>

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SGMAI is an Associate Partner of this European project and and offered the 112-eCall infrastructure installed in Portugal to test and validate the sAFE proposals.

sAFE aims to define the standards and specifications to pave the way for deployment of aftermarket systems for eCall.

Within the eCall scope, SGMAI carried out from March 15th to May 12th, 2021 a large set of eCall tests with the new passenger bus service provider in the municipality of Cascais, to verify the conformity of the on-board equipment (IVS) in the new buses that will soon circulate in the municipality.


THE FOLLOWING EU MEMBERS ARE PARTICIPATING IN THE SAFE PROJECT

Locations of the actions:
- Austria, Cyprus, Czech Republic, Finland, France, Germany, Italy, Luxembourg, Netherlands, Portugal, Romania, Slovenia, Spain, United Kingdom

Buses fitted with eCall in a Portuguese Municipality
App MAI112 for Deaf

- Video / Chat App
- Pre-registration not required
- All Video calls are queued with Voice
- Service available 24X7
- Totally free of charge
- Calls are recorded (Video & Voice)

Completed & Ongoing Projects

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Public Warning

- **2017** - National DRR Strategy established the goal of “implementing a public warning system, using Electronic Communications”
- **2018** - Pilot-project of LB-SMS Warning System (applicable only to the risk of forest fires)
- **2019** - Adoption of a Legal Basis and full implementation (all-hazards) of LB-SMS Warning System
Public Warning

Number of activations

- 2018: 3
- 2019: 2
- 2020: 13
- 2021: 4

Number of SMS sent (Millions)

- 2018: 20,5
- 2019: 11,3
- 2020: 94,5
- 2021: 20,2

22 activations

146,5 Millions SMS sent

Completed & Ongoing Projects

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Completed & Ongoing Projects

**112 Awareness Campaign**

1. [https://www.youtube.com/watch?v=6-N-gF0dFl](https://www.youtube.com/watch?v=6-N-gF0dFl)
2. [https://www.youtube.com/watch?v=85vDK5jicZA](https://www.youtube.com/watch?v=85vDK5jicZA)
3. [https://www.youtube.com/watch?v=2xG2Ja9f0g](https://www.youtube.com/watch?v=2xG2Ja9f0g)

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Chapter 4
Future Projects

What’s in store?

Next steps

1. CEPT Transnational Long Number PSAP Database (under analysis)
2. Moving from ISDN to SIP
3. Deploying NG-112 ESINET
4. Implementing PEMEA
Moving from ISDN to SIP

SIP Migration

1. Mandatory condition to move to NG112
2. Required Legislation Change
3. ISDN call delivery will be soon discontinued
4. Migration to SIP Trunks is a top-urgent task
5. Easily Scalable
6. Expected Cost Reductions

Planned to start on Q2 2022
Future Projects

NG112 Emergency Call Chain

Access Network

Public Service Provider

Emergency Services IP Net Service Provider

SIP SP
IMS-based

BCF
Border Control Function

ECRF
Emergency Call Routing Function

ESRP
Emergency Service Proxy

ESInet
IMS-based

PSAP

Delivering the call to the appropriate PSAP

Azores

Madeira

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**Future Projects**

**Emergency Communications Chain – NG112**

**Access Network**
- Landline
- eCall
- Mobile phone
- Smart Device

**Public Service Providers**
- PSTN SP
- SIP SP

**Data Centres (NG112 Core Elements)**
- LNG: Legacy Network Gateway
- ECRF: Emergency Call Routing Function
- CAD/GIS: Control Room Applications

**Data Centres**
- Data Centre #1
- Data Centre #2

**PSAP**
- Stage 1
  - PSAP
  - PSAP #4
- Stage 2
  - VDI #57
  - Civil Prot.
  - Ambulance

**Networks**
- WebRTC-Gateway
- Voice & Video
- WebRTC-to-SIP Conversion

**Applications**
- Telephony
- SMS
- Video
- Other

**WebRTC**

**Planned to start on 2023**

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