EUROPEAN COMMISSION
Directorate-General for Communications Networks, Content and Technology

Electronic Communications Networks and Services
Implementation of the Regulatory Framework

Brussels, 10 February 2017
DG CONNECT/B2

COCOM 17-01

COMMUNICATIONS COMMITTEE

Working Document

Subject: **Implementation of the European emergency number 112 – Results of the tenth data-gathering round**

This is a Committee working document which does not necessarily reflect the official position of the Commission. No inferences should be drawn from this document as to the precise form or content of future measures to be submitted by the Commission. The Commission accepts no responsibility or liability whatsoever with regard to any information or data referred to in this document.

Commission européenne, B-1049 Bruxelles/ Europese Commissie, B-1049 Brussel –Belgium. Telephone: (32-2) 299 11 11.
Office: BU33 7/39 Telephone: direct line (32-2)296 85 00. Fax: (32-2) 296 88 75.

E-mail: cnect-cocom@ec.europa.eu

EXECUTIVE SUMMARY

The data-gathering exercise based on Key Performance Indicators was introduced with a view to implement performance measurements in order to get reliable data which would allow the assessment and optimisation of the access to emergency services at national level.

Quality of the data

Member States were invited to follow the definitions of the measurements provided in the KPI reporting table. This year all Member States responded to the KPI questionnaire. Several of the responses received, however, were not complete or indicated explicitly that certain data was not available.

The quality of the reported data allows to have a good overview of the 112 implementation in the EU. Some Member States reported new handset based caller location accuracy solutions implemented. Therefore the KPI6 on caller location will be adapted in the next exercise to reflect the complementarity between the network based and handset based caller location. Member States, which are not yet in the position to perform KPI measurements, are encouraged to follow best practice in this area to progressively introduce the necessary capabilities, thus further increasing the quality of their data.

Main findings

- There is an appreciable growth in interest and efforts in Member States to provide better quality emergency access for the sake of the health, safety and security of EU citizens.
- Notable improvement is reported with regard to caller location in some Member States. Lithuania upgraded its network based caller location solution to ensure a significantly more accurate location. UK and Estonia deployed the Advanced Mobile Location (AML) handset based caller location solution to provide below 100m accuracy. Thanks to the HELP 112 project financed by the Commission the handset based caller location was implemented in Lithuania and parts of Austria. Currently AML handset based caller location for emergency services is available only on Android phones.
- Access to 112 for disabled end-users did not improve significantly. 24 Member States reported the implementation of an alternative access to emergency service, one up from last year. SMS as emergency communication is implemented in 19 Member States.
- 22 Member States reported less than 10 seconds for the answering time needed to get in contact with emergency services. Of those which reported the time needed to receive the caller location, the longest periods were in Malta and Greece. Austria, Luxembourg and the Slovak Republic did not report relevant data for this Key Performance Indicator.

These performance indicators were agreed by emergency experts to reflect the efficiency and effectiveness of access to 112 calls. Member States are called on to develop their measuring tools for monitoring these indicators in order to optimise their 112 systems.

Table of Contents

INTRODUCTION

This Report provides an analysis of the replies submitted by Member States on the Key Performance Indicators (KPI) reporting on the Implementation of 112. This is the tenth data gathering exercise following the previous exercises that are published on:

http://ec.europa.eu/digital-agenda/en/eu-actions-112

This Report is based on the KPI reporting table which was submitted to Member States on 8 September 2016 with a deadline for response on 2 December 2016 (COCOM 16-09). In order to provide the most recent data for the Key Performance Indicators, the reporting period was set for 1 July 2015 till 31 June 2016.

The current KPIs were established on the basis of the cooperation with Member States experts. COCOM delegations were also consulted on these indicators in 2013.

The current Report follows the structure of the KPI reporting table and it is accompanied by the Annex providing a more detailed overview on the information submitted by the responding Member States, in a harmonised manner. The KPIs reflect the provisions of Article 26 of the amended Universal Service Directive concerning the access to 112 for disabled users, provision of caller location and the accuracy and reliability of caller location information. The report covers the information submitted by all Member States. As agreed, the COCOM observer delegations from Candidate and EEA Countries were also invited to submit replies to the questionnaire. Of these countries, relevant replies were received from Iceland.

This Report was published on 10 February 2017, (more information on the Commission's '112' website: www.112.eu). On the '112' website country-specific information is also published.

TENTH REPORT ON THE IMPLEMENTATION OF 112

1. Calls to 112

In total 158.605.429 calls were made to 112[1] (taking 2015 data from Luxemburg and Malta).

112 is the single emergency number in Denmark, Estonia, Finland, Malta, the Netherlands, Portugal, Romania, Sweden and Iceland. In some Member States where 112 is not the single emergency number (such as Bulgaria, Germany, Hungary, Italy, Latvia, Lithuania, Luxembourg, Poland and Spain) more than 50% of the emergency calls were initiated by dialling 112.

There were only 20 Member States that provided information on false calls[2]. In the 2016 Questionnaire Member States were asked to provide a national interpretation of false calls. Only Bulgaria and Hungary provided such explanation. The ratio of false calls to the total number of calls still appears to vary considerably among the Member States: whereas in Cyprus the number of such calls is approximated at 8%, Greece reported 96,93%. The following Member States are between these two extremes: Belgium (37%), Bulgaria (36,4%), Croatia (42,2%), Cyprus (8%), Finland (19%), France (16%), Greece (96,93%), Hungary (49,26%), Ireland (50,6%), Italy[3] (44,43%), Lithuania (60%), Luxembourg[4] (37,83%), Malta (29,21%), the Netherlands (38%), Poland (44,86%), Portugal (63%), Romania (60,87%), Spain (24,78%), Sweden (32,1%) and the United Kingdom (34,3%). Norway reported 45% of calls to be false under the condition that a call shorter than 30 seconds is considered as being a false call.

2. Access to 112 for disabled end-users

The question on access to 112 by other means than voice communication reflects the requirements of the regulatory framework, which provides for the obligations of Member States to ensure that disabled end-users enjoy equivalent access to 112. Member States were invited to provide information on their measures, which ensure that disabled end-users enjoy tailored solutions for equal access to 112 taking into account aspects such as speed, mobility, reliability, coverage or language handling.

Out of the 29 replies received, 26 (with Norway and Iceland[5]) mentioned the existence of alternative means[6] to voice as measures to provide access to emergency services.

---

[1] Belgium, Cyprus and UK did not differentiate between the 112 and national emergency numbers

[2] False calls are calls which are not followed up with intervention or assistance from the PSAP or the emergency services. Calls that report an emergency event which has already triggered intervention or assistance from the part of the PSAP, therefore not triggering separate intervention or assistance, will not be considered false calls. Abandoned calls, as defined in KPI no. 4 are excluded from the category of false calls.

[3] for the 112 NUE service in the Lombardia Region and Rome province

[4] Reported only by the Police

[5] In 2015

[6] Alternative means of access is a non-voice access, or voice access assisted by other type of non-voice service in order to permit the effective conveyance of a request for emergency relief. Examples: real-time text, sms, video streaming, relay services.

SMS as an alternative means of access to emergency services is available in 19 Member states and Iceland. The Member States concerned are: Austria, Belgium, Croatia[7], Czech Republic, Denmark, Estonia, Finland, France, Ireland, Italy, Latvia, Lithuania, Luxembourg, Portugal, Romania, Slovenia, Spain, Sweden and United Kingdom. Croatia introduced the SMS facility since the last report. Poland reported plans to introduce 112 SMS as well as last year. Hungary is reporting that SMS, MMS, email and smartphone app is in testing phase.

Total conversation[8] is available in the Netherlands, Sweden. Applications ensuring access to emergency services are available in Italy (Where ARE U App[9]) and Lithuania (GPIS 112 App). Text relay services are available in the Netherlands, Slovenia, Spain, Sweden, United Kingdom. Fax is used in Belgium, Cyprus, Germany, Luxembourg. Minicom is deployed in Ireland in addition to 112SMS.

Thirteen, Member States, can monitor the uptake of access to emergency services through alternative means. Member States that reported the number of communications through these means to 112 or other dedicated numbers are: Austria, Croatia, Estonia, France, Ireland, Italy, Latvia, Lithuania, Malta, Slovenia, Spain, Sweden, United Kingdom. It is to be noted that Slovenia reported the number of eCalls received.

3. Answering time[10]

People in distress are often in desperate need to get in contact with the emergency services operator. 22 Member States reported less than 10 seconds for the average answering time needed to get in contact with the emergency services. The best performing Member States where more than 90% of the calls are answered in 10 seconds are: Croatia, Czech Republic, Estonia, Finland, Ireland, Latvia, the Netherlands, Poland, Portugal, Romania, Slovenia, Spain, United Kingdom.

A pre-recorded message is played before getting in contact with an operator in Cyprus, France, Greece, Poland and Spain.

4. Call abandon rate

The respondents were also invited to report on the calls that are presented to the PSAP switches but terminate prior to an answer by a human operator. 23 Member States and Norway could report on this data. Call abandons may be caused by network problems, call congestion, etc.

A call abandon rate of more than 20% was reported in Bulgaria, Czech Republic, France, Latvia, Malta, Poland and Portugal.

[7] Available as of June 2016

[8] Total Conversation means a standardised concept where you can use video, text and speech at the same time in a call. It can be seen as an extension of the videophone concept by consistent addition of the real-time text medium.

[9] Available in Lombardia and Rome province

[10] The time period between the moment the emergency call is presented to the stage 1 PSAP switch and the moment the call is being answered by a PSAP human operator.

5. Lack of availability of caller location

The provision of caller location by undertakings concerned is an obligation under Article 26(5) of the Universal Service Directive. However, there are cases, where due to technical problems in the networks or on the PSAP side, the caller location information cannot be determined automatically or on request in both "push" and "pull" systems.

Only 17 Member States reported this data. In most Member States the lack of availability of caller location occurs in less than 10% of the calls. Higher rates of failure to provide caller location were reported for Italy (13%), Poland (18,6%), Slovak Republic (16,03%). In the Slovak Republic the request for caller location is repeated, usually with a positive result while in Poland short/false calls are included.

6. Caller location accuracy and reliability

Member States were asked to provide the level of accuracy and reliability provided by network operators to the PSAP. However, a number of Member States reported handset based location solutions as well, that are deployed. In order to document the feasibility and effectiveness of handset based location, in particular through GNSS[11], the EU Commission launched the HELP 112 pilot project on the design, implementation and execution of the transfer of GNSS (Global Navigation Satellite System) data during an E112 call to the Public Service Answering Point (PSAP). The project confirmed that handset based location, using GNSS or WiFi location, can bring about critical improvements to the accuracy of the caller location. The handset based location solutions already deployed in Member States are used as a complement to network based location data. Therefore our analysis will include all reported caller location solutions as well as the reported performance.

In 24 Member States the accuracy for the location of the caller from fixed networks is given by the installation address, street/mailing/billing address of the calling party, STD Code match or county match. This location technology is deemed reliable by the respondents.

25 Member States reported that for the location of the caller from mobile networks the accuracy is given by the Cell/sector ID providing a high reliability of the data transmitted to the PSAP operator. However, there is no information on the usefulness of the data transmitted, the accuracy reported being from 70 to 5000 meters.

As of 1st January 2017 Lithuania deployed Cell ID timing advance or Cell ID Round trip time methods. This positioning method substantially improves the accuracy of network based location.

Portugal provided a very useful breakdown of the accuracy/reliability of Cell ID technology:

Radius (m)	**%**
100	1,00%
250	0,50%

[11] Global Satellite Navigation System

500	1,00%
750	4,50%
1000	10,00%
2000	22,50%
4000	34,00%
10000	21,50%
20000	5,50%
40000	0,50%

In terms of handset based location solutions Member States reported two types of implementations:

1) Implementation of the HELP112/Advanced Mobile Location (AML)[12] solution

In 2015 the UK was the first Member State to deploy AML, improving accuracy levels to up to 4000 times. The solution does not ignore the Cell-Id information that already existed but rather supplements it with either GNSS information (GPS) or Wifi information taken from the handset. AML was subsequently implemented in Estonia where the accuracy is less than 50 meters in 80% of the cases. As part of the HELP 112 project financed by the European Commission, the HELP112 solution, that is based on the AML architecture, was tested in UK, Lithuania, Austria and Italy. As a result the handset based location solution was deployed in Lithuania[13] and parts of Austria[14]. It is to be noted that the Advanced Mobile Location solution is available only on smartphones using the Android operational system. On the PSAP side the cost of implementation of the solution is low, especially in Member States where the capability to receive SMS already exists (see KPI 2). Latvia and Norway are planning to deploy AML location in 2017.

2) Implementation of an emergency application

An emergency application is another handset based location solution that uses the GNSS or Wifi capability of the smartphone. Emergency applications are being deployed on a Member State or regional level. These applications require prior action from the citizen - as opposed to AML - who has to download the application. The transmission of the location data is possible only when an active data connection is available. These applications can provide a much more accurate location than network based location solutions.

Member states that reported the deployment of an emergency app are:

Denmark's 112 App can provide an accuracy of 10 to 60 meters within 12 s. In Italy, in Lombardia and Rome province, the "Where Are U" App uses the GNSS/Wifi location

[12] When an emergency call is made with a smartphone that is AML enabled, the phone automatically activates its location capability (GNSS or Wifi) during 20 seconds to establish its position and sends this information via a text message to the emergency services. The radius is of 50 meters or less for most calls in about 85% of locations. This is a life-saving improvement when compared with Cell ID location that can have a radius of tens of kilometres in rural areas.

[13] Accuracy of less than 100 meters in 63% of the cases

[14] The average GNSS or WIFI location has a radius of 37m

function of the smartphone. In Latvia the "My safety" App can provide an accuracy of 10 m. However, as mentioned above, Latvia is planning to deploy the AML caller location for a broader reach of citizens.

7. Average time needed for receiving the caller location by the 112 operator

The timely provision of caller location data is highlighted in Article 26(5) of the Universal Service Directive as amended by the "Citizens' Rights" Directive requiring Member States to ensure that undertakings concerned make caller location information available free of charge to the authority handling emergency calls as soon as the call reaches that authority.

Due to the implementation of the "push" system or the automatic "pull" system, near instant times (up to 10 seconds) were reported by Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, the Netherlands, Poland, Portugal, Romania, Slovenia, Spain, Sweden and the United Kingdom. Longer times were reported by Cyprus (20 s) and Croatia (10-50 s). Excessively long time is needed to receive the caller location in Malta (5-10 minutes reported in 2014) and Greece (23 min 47s). Austria, Luxembourg and the Slovak Republic did not report relevant data for this Key Performance Indicator.

8. Availability of EU roaming call to 112 and caller location by mobile network operators

25 Member States and Norway reported the availability of access to 112 and caller location in case of roaming calls.

Denmark and France (for caller location) did not provide relevant information. The United Kingdom (for some networks) reported that for intra EU roaming calls caller location is not available.

9. Awareness levels on 112

In the Annex to this document the awareness data of December 2015 on 112 is presented in point 9. New data will be gathered in 2017 through the E-communications household survey commissioned by the European Commission.

The following questions related to 112 awareness were asked in the 2015 survey:

1) Can you tell me what telephone number you would call in the event of an emergency in (OUR COUNTRY); for example, if someone needs urgent medical assistance or if you need to contact the police or the fire brigade?

Finding (December 2015): Most (61%) would call 112, while 26% would call the national emergency number. Just over one in ten (13%) would call another number, while 6% do not know what number they would call.

The proportion that would call 112 has increased slightly since 2014 (+3 percentage points), as has the proportion that would call the national number (+2 pp). The proportion mentioning other numbers has decreased by three points.

2) Can you tell me what telephone number enables you to call emergency services anywhere in the EU?

Finding (December 2015): Almost half (46%) correctly identified 112 as the single number to call throughout the EU.

Overall (48%) mentioned 112 (either alone, or along with another number), while 13% mentioned other numbers. Four in ten (40%) could not say what number to call.

Awareness of 112 as the single number to call has increased by six percentage points since 2014, and mentions of 112 along with another number have increased by seven points.