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# Comparison of Emergency Notification Service and e-Poldi Public Space Surveillance System from the Point-of-View of Public Alert and Emergency Information

Public alert and emergency information have gone through considerable transformation due to the technical and technological development of recent years. Mobile tools and applications have become very popular in the civil sector in the past decade and its advantages have also been recognized by the defence sector. The Emergency Notification Service (ENS) – created by the disaster management – provides information for the application downloaders, while in case of e-poldi – applied at the local government of the 16th district – the inhabitants can make a report with the help of the application. The purpose of the article is to compare the basic functions and principles of operation of the two systems in emergency communication and to illustrate, when integrating their functions, that the effectiveness of alert and emergency information tasks can be intensified.

**Keywords:** ENS (Emergency Notification Service), public alert and notification, mobile application, e-poldi

## Introduction

The defence of civilization and nature-origin dangers is a basic national task. Their more and more frequent appearance, intensity and unexpected occurrence set a challenge to the intervening organizations. As a result of the suffered damages and losses, states are paying more and more attention to prevention and defence. The responsible authority to centrally control the prevention and defence tasks is the National Directorate General for Disaster Management of the Home Office. The purpose of the organization is to centrally control these tasks: to prevent emergency cases, to perform rescue, to organize defence, to handle consequences, to restore and reconstruct. The basic functions are to defend the safety of life and property, to defend the secure operation of the national economy and the critical infrastructure elements. [1] Government regulations have a separate chapter on residential protection activities and one of the most emphasized parts of it is alert and emergency information.

There are also public administration and economic organizations which perform the planning, organizing and realizing tasks of certain defence projects with the cooperation of the residents. For instance, these are the local levels of the defence management. On the level of the settlements, the local governments are in charge. Separately from the state administration, as part of the local government administration, local governments also have emergency alert and information tasks which are stated in the disaster management law. [2] Apart from and before ENS, there were public protection applications which aimed to support the effectiveness of emergency communication at a local and not at central level, for example e-poldi. Chapter IV of the disaster management law regulates the prevention of major accident hazards involving dangerous substances. One of the main legal instruments of this regulation is the emergency information of the public on hazards raised from major accidents of dangerous establishments. [3]

As a basis of the improvements, the 21st century offers numerous opportunities and tools to inform the public about an emergency situation. One of the most important and fastest-improving segments is mobile communication which provides opportunities through several services to reach the inhabitants.

## Smartphone Applications and their Opportunities

Apart from the traditional communication tools, with Internet, new opportunities have arisen for the authorities such as websites, social networking sites and applications available on smartphones and other tools (like tablet PC, PC). I would mainly like to cover smartphones and their applications since mobile phones have become the most popular communication tool. In Hungary they appeared on the market at the end of 1990 and the predictions of the time were that the mobile penetration would reach 2.6% by 2000; actually, the number was tenfold, over 26%. [4] By 2015 this number increased to 117% which means that in this case some people own more than one device. Mobile phone systems and tools have gone through an enormous development, as a consequence, nowadays we live in the age of smartphones. In 2017 in Hungary the penetration of smartphones reaches 70% and even in 2015 50% of the population had mobile Internet access from their Internet service provider. [5]

The concept of 'smartphone' has not been totally clarified yet. This is a device which is capable of doing the same functions as a palmtop and even more. The phoning function, for which it was originally created, has become the most widely-spread one. [6] Smartphones have also reduced the use of computers as they are used for more and more purposes, for example Internet.

Smartphones are small computers and programs, so-called applications can be downloaded; these applications increase the number of the functions and services available.

Mobile phones have formed an integral part of our lives, they became a social necessity. Due to their mobility they enable us to get informed right away. This is the reason why the business sector and the defence sector have also recognized the opportunities hiding here.

On the mobile market we can find numerous applications which can be utilized in many areas of life, they support and make our everyday life easier, they are widely-spread because they are easy-to-use and easy-to-attain. The software developed by the defence sector tries to provide effective solutions to serious problems, such as increasing the safety of life, property and transport, easing disaster management; in given circumstances they might be life-savers. The various countries have created their own defence-purposed applications based on the features of the country.

## The Aim and Operation of Emergency Notification Service

In Hungary at the end of 2013 the National Directorate General for Disaster Management (NDGDM), The Hungarian National Association of Radio Distress-Signalling and Info-communications (RSOE) and Microsoft Hungary Ltd together launched their own application: the Emergency Notification Service. The software applied by the disaster management got its name as a result of a public vote. Apart from the traditional communication platforms, the possibility of creating a new, web 2.0 based public notification system came into view as no officially operated Hungarian social networking sites and applications dealing with the notification of Hungarian emergency cases had been available before.

The incidents of the extreme snowfall of March 2013 obviously proved the necessity and importance of such a solution when there were no suitable technical systems to serve the increased need for information. According to the regulations, that time the degree of the snowfall did not reach the level when broadcast interruption had to be applied, however, the mobile communication services and the use of text messages could not provide the correct notification of the affected people. As a consequence, through social networking sites, a public self-organization was formed, which – notwithstanding its good intentions – helped false information spread fast in many cases. To prevent this, the launch of an official public information site and emergency case application was essential.

The Emergency Notification Service is a mobile-internet-based, PUSH-technology message-sending application supporting Microsoft Azure cloud service. It is available for Android and IOS operation systems, Windows Phones and Windows computers as well. The purpose of the application is to make notification more effective and to increase the number of tools used for informing and alerting the residents. With the help of the application we can get informed from a fast and official source, on the whole territory of the

country, 24 hours a day. The notifications brief the people mainly on the information of the disaster management, primarily fire department actions, fire cases, technical rescue cases. They also get other messages upon agreement, information coming from partner organizations, primarily meteorology alert, traffic incidents. The secondary purpose of the application is to support the application owners with important information affecting the public and also to maintain the interest – with the continuous information flow – in the news and notification so that in case of a serious emergency the use of the application is a routine. The main function of the application is, however, to supply the public with relevant information in case of an emergency or disaster affecting a larger region. [7]
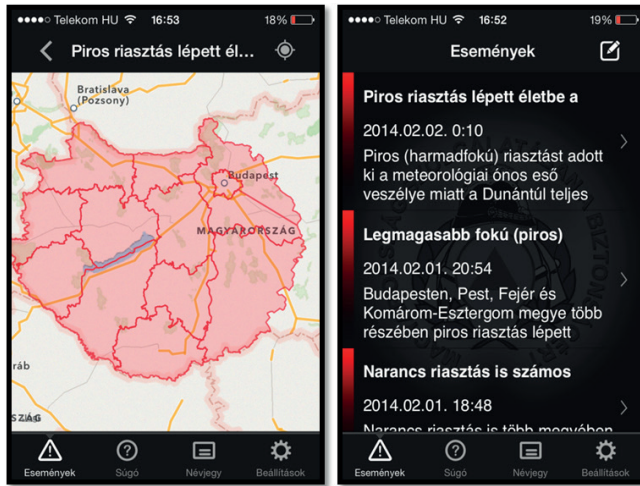


Image 1. ENS mobile platform. Source: Own image.

The Emergency Notification Service is suitable for sending information, warning and alert. The appropriate smartphone and application owners can get informed from the published briefing, warning and alert signals. The user decides which signal types he would like to get. It is possible to adjust whether to get information about the whole territory of the country, about chosen counties, about bigger lakes or – with the help of the GPS device – about the area closest to our position. [8]

The message delivery tasks are performed by the press department of the National Directorate General for Disaster Management 24 hours a day. The service providers inform, warn and alert the residents based on the information arriving at the SHIELD – the commanding software of disaster management – which is provided by the Fire Department, the Hungarian Meteorological Service, the Road Inform and other partner organizations. We get into the system after downloading the application and we get the appropriate messages by the related providers (Apple, Google, Microsoft). See the process of the message delivery and the connection of the participants in the 2nd illustration below.
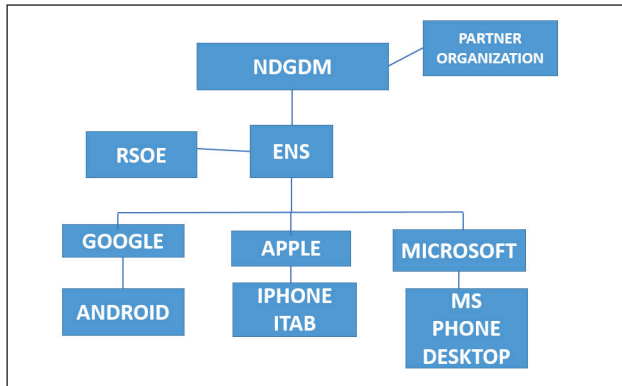
Image 2. Process of message sending. Source: Own graph.

The Emergency Notification Service (ENS) is a known software, and is also popularized by the media. Apart from the ENS there were other applications created, which were interesting from the public protection point of view and which supported defence tasks but we know little about them; an example to this is the e-poldi application.

## The Function and Operation of e-Poldi Public Space Surveillance System

The e-poldi mobile-based public space surveillance system was realized at the local government of the 16th district with the help of the 2008 E-public administration 2010 Strategy. The system used to be unique for a long time in Europe and it signified a great progress regarding defence tasks. It was named after an old man who used to wander through local parks enthusiastically for 40 years, taking care of their cleanliness and order. The basic function of the system is to support the work of public area inspectors. The basis of the operation is that with the help of the video camera of a palmtop we take photos of the perceived disorder or irregular activity and we can also attach a text message to it. The device attaches the given GPS coordinates, which the tool will transmit to the server of the local government.
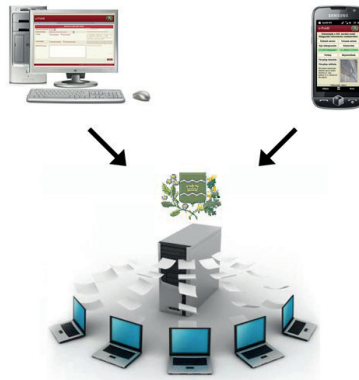
Image 3. E-poldi. Source1

With the help of the GPS coordinates the place of the perceived object or activity appears on the map of the district. Based on the received data, it can be defined who the competent authorities are in the given case and the further decision support systems of the local government can be involved immediately and the appropriate steps can be taken.

Beside public area inspectors, inhabitants can also make a report even with their mid-range phones, tablets and web-supported computers. The software is activated by down-loading the right application and it is followed by a registration process.

Registration is not necessary to be able to make a report, in which case we get into the system anonymously; however, as a registered user we have the possibility to view the status of our report, how it develops and also to view the reports of others. Making a report within e-poldi system takes maximum 1–1.5 minutes.

The report contains:
- brief facts
- exact GPS coordinates
- address
- high-quality photo

The inhabitant is connected to the e-poldi system and makes the report with the help of his telephone, shown in the 4th illustration. It can be seen in the report that the short text, address, GPS coordinates and photos are fast and primary data. Anybody can see the same data who has the access and has a look at it using a mobile tool. It can be very useful in a case when, for example, the person on duty wants to involve a person (a superior or an external expert) who is not staying on the spot.

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[1]   Web based space surveillance system– provided by the local government of the 16th discrict; www.govcenter.hu/epoldi.
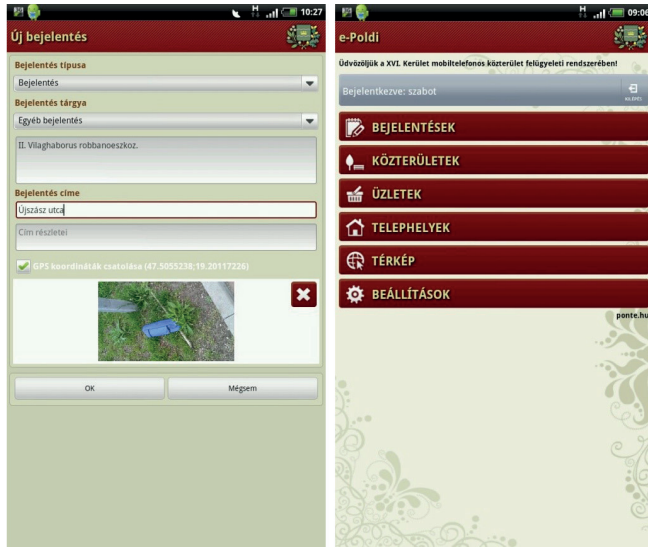
Image 4. E-poldi mobile platform. Source: Own image.

In the changed legal environment, after the 2012 amendments to the law, the role of the local governments in defence tasks were reduced, some of its responsibilities were taken over by the state that is why some parts of the further improvements have stopped.

## Analysis of the Opportunities of Emergency Notification Service and e-Poldi Public Space Surveillance System

During my visit to the local government of the 16th district it turned out that the improved version of e-poldi – which played a central role in emergency communication – was to be created for the local government but due to the transformation of disaster management, the combination of the different applications – mobile, geographic information system and data base – was not realized. The present organizational structure does not require local but urban and nation-wide application to be made and applied. E-poldi system – in its present state – is suitable for recording data on a basic level and can be the basis of any official procedure. Some of the recent improvements mainly aimed to broaden the tasks of public space surveillance activities. Nevertheless, the e-poldi report function has remained available for the residents of the district and despite the stopped improvements, the number of the incoming reports has not decreased. The local government – with the help of their supplementary systems – continues providing data to the competent authorities and to the mayors of the neighbouring districts when needed.

ENS has been declared upon experience a useful application by users. The biggest problems were the missing messages, or an unexpected system downtime after a smooth-working period, but others complained about the amount of messages as well. [9] The large amount of messages and continuous communication affects the number of downloaders negatively. However, after a remarkable incident, the number of downloaders increased significantly. According to the developer, Imre Pampuk, the improved version of ENS, ENS 2 can be expected; it also performs content filtering and we can set what sort of incidents we would like to get informed about (road info, meteorology etc.). Using this function, we can reduce the number of the received messages but at the same time we do not have to pass up important incidents. Besides classifying the messages, we can also get informed about international, European incidents in the future.

If we have a look at the functions of the two systems we get to the conclusion that while one of them was created to alert and inform the public, the other one accepts and handles public reports. Both systems are functioning separately in the field of emergency communication but by composing their features a much more effectively working integrated public information system would be available. The biggest advantage of the system would be that it would become interactive by involving the public and thus it would attract more users. Apart from central alert, information and warning, the public could make reports as well and also comment on the notes of others. Reports could be made after downloading the application and a registration process but the incoming messages are visible without registration. The text, picture and voice messages sent by the public would appear in the system at once and they would become visible for others; these messages would be confirmed by the people on duty to keep them official. The information coming from the same location set would appear as one signal in the system and thus would avoid confusion. By opening the first message, we would see all the other reports, comments and support requests related to that one. Based on the incoming requests the appropriate steps can be taken. The purpose of ENS is to – being well-known – provide life-saver information to as many affected people as possible in case of a large disaster; that is why the integration of the functions of the two different applications is highly recommended.

## Summary

The experience of the crisis of the recent years proved that it is essential for every state to flexibly react to the continuously changing environment and challenges. That is the reason why emergency communication is very important within population protecting activities. The aim to achieve is to provide the inhabitants the necessary information and beside that to give them opportunities to actively take part in public information. The achievement of effective communication lies in creating the appropriate channels and

systems. When realizing the communication systems, the information and technological achievements must be used as widely as possible, which can promote and strengthen the public sense of security and trust in the authorities and thus indirectly and also directly (through providing services) it can promote the improvement of life conditions and property safety. The combined application of the examined applications' different functions would give the basis of the two-way communication integrated public information system which could be a general part of our everyday lives.

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## A veszélyhelyzeti értesítési szolgáltatás és az e-poldi közterület felügyeleti rendszer összehasonlítása a lakossági riasztás és veszélyhelyzeti tájékoztatás szemszögéből

Balog Fatime

A lakossági riasztás és veszélyhelyzeti tájékoztatás az elmúlt évek technikai, technológiai fejlődésének hatására számottevő átalakuláson ment keresztül. A mobileszközök és -alkalmazások az elmúlt évtizedben nagy népszerűségre tettek szert a civil szférában, amelynek előnyeit a védelmi szektor is felismerte. A katasztrófavédelem által létrehozott Veszélyhelyzeti Értesítési Szolgáltatás (VÉSZ), az alkalmazást letöltők számára

biztosít információkat, míg a XVI. Kerületi Önkormányzatnál alkalmazott e-poldi esetében a lakók élhetnek bejelentéssel az alkalmazás segítségével. A közlemény célja, hogy összevesse a két rendszer alapvető rendeltetését, működési elvét a veszélyhelyzeti kommunikációban, és szemléltesse, hogy funkcióik integrálása esetén, a riasztási és veszélyhelyzeti tájékoztatás feladatának hatékonysága fokozható.

**Kulcsszavak:** VÉSZ, lakossági riasztás és tájékoztatás, mobil alkalmazás, e-poldi