

## PROTEI Company Profile

Protei is a leading Telecom Solutions provider for a wide variety of products including Core network, Roaming, Messaging, VAS, and customer service.

Operating in Europe, Central Asia, Latin America, Russia, the Middle East, and North Africa; Protei has extensive know-how and a proven track record from 2002 in the telecommunication market.

More than 400 customers are relying on our innovative platforms, which provide Reliability, Scalability, Flexibility, and Adaptability with the highest perspective of tailor-made flexibility that increases revenue improves customer experience and reduces costs. Headquartered in Tallinn Estonia, Protei has global office in Amman—the Hashemite Kingdom of Jordan.

The Jordan-based Protei MENA branch was founded in 2009 to better support Protei's Regional clients. Protei MENA is the base of Protei's high caliber and well-trained Arabic-speaking professionals.

MENA branch Delivered 100+ New/Replacement projects in several MENA operators within the last eleven years.

PROTEI serves more than 400 renowned customers in over 35 countries to cater+ 300 million subscribers worldwide. PROTEI employs more than 600 highly skilled professionals of whom approximately 70% are involved in research and development.

PROTEI specializes in creating solutions that take full advantage of the most advanced available technologies, designed in-house with strict quality control based on ISO9001:2001 and ISO14001:2004, rigorous testing for stability and reliability with the maximum compatibility with all our existing product range.

PROTEI product line includes:

- ▣ Mobile solutions (CS and PS Core solutions, EPC, Messaging Solutions, Roaming Solutions, Location Based Services,
- ▣ IN&CAMEL solutions, VAS platforms).
- ▣ Customer Care and Call center solutions (IVR based services, IP Call center).
- ▣ NGN/IMS solutions.
- ▣ Traffic Management and Policy Control Solutions (DPI, PCRF).
- ▣ Billing System, Online/Offline Charging System (OCS/OFCS), CRM.
- ▣ IOT, Private LTE and Safe City.



## Integrated Safety and Security platform



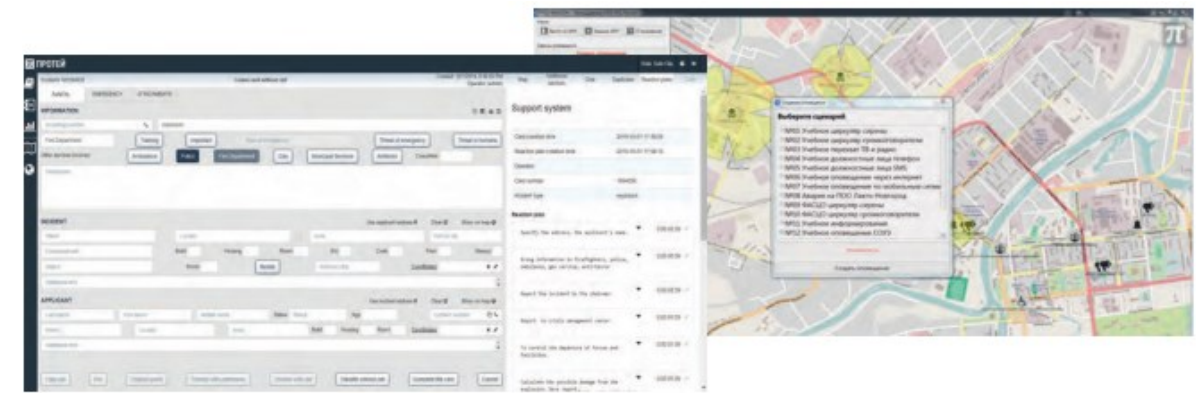
# Protei Integrated Safety and Security platform

## Public Warning Alert

PROTEI Public Warning Alert system is intended to enable alerts to be aggregated over a network and distributed to the appropriate system for public dissemination. It delivers emergency alerts to the civilian population and to regional emergency services officials through municipal, local and site-based automatic warning systems using different delivery channels.

Functions and features:

- π May be deployed as a new component or for modernization of the existing emergency alert systems.
- π Allows to build/upgrade public warning alert systems at all levels to use up-to-date hardware and software technologies and communication channels.
- π Connecting all existing alert systems to the single management platform.
- π Minimizing public warning alert delivery time and optimizing delivering efficiency for any and all individuals located in the affected area by using different alert channels and centralized management system.
- π Integration with external monitoring systems (e.g. ecological monitoring or radiation monitoring) for automatic or automated triggering of emergency alert broadcast.
- π Use of Cell Broadcast, SMS, payphone, intercom, digital billboards and other modern communication (alert delivery)channels.
- π Outdoor and indoor terminal units for acoustic/speech alerts delivery.
- π Fast, easy and flexible deployment.
- π Public alert simultaneously by multiple channels.
- π Integrated GIS for fast and convenient definition of geographic areas for localized emergency alerts.



## Cell Broadcast Center

Cell Broadcast is a one-to-many geographically focused messaging service. PROTEI Cell Broadcast center helps emergency services to distribute geographically dependent information directly to subscribers' handsets across the networks using GSM/LTE Cell Broadcast technology.

### Key features:

- π Support of open JSON-based interface for content-providers and other services managing broadcast campaigns, including public alert agencies.
- π Broadcasting to all subscribers in the particular geographical segment of mobile network as determined in the system configuration.
- π Service architecture and commands are implemented in strict accordance with 3GPP 23.041 with extensions defined in ETSI TS 102 900 that allows to use the system as a part of public warning alert systems.
- π Integration with other PROTEI location and mass notification solutions to enable maximum flexibility and variety of broadcasting channels.

### PROTEI CBC advantages:

- π Advanced solution for public alert and mass broadcasting needs.
- π X.1303-based open API for integration with Public Warning Alert systems.
- π Scheduled messaging mode.
- π Fully compatible with ETSI regulations regarding cell broadcast-based emergency alerts (support of severity levels, warning message types, impacted areas and other specific parameters).
- π Convenient system administration.

# Protei Integrated Safety and Security platform

π Emergency indication.

π Integration with GIS and radio planning systems.

For the first time in history, there are more people around the world living in cities than in rural areas. While this global migration to urban areas is improving the living standards, health, and financial prosperity of these citizens; it also brings challenges to a city's infrastructure, resources, security procedures, and emergency response systems. Meeting these challenges will be critical to the success of cities in the decades that follow. The safe city concept has been developed precisely to help government stakeholders, city mayors, and police departments mitigate these challenges.

Leveraging the internet of things (IoT) and the connectivity now found in core security and safety technologies, safe city solutions are providing a range of systems including predictive analytics and big data, real-time response procedures and emergency response systems. These solutions are enabling governments and police departments to better protect their citizens from everything from terrorist attacks to natural disasters. They are also supporting wider city organizations, such as public health, fire and rescue, border control and social services to better serve their citizens.

PROTEI portfolio for safe cities includes a range of field proven products covering requirements of all safe city stakeholders and allowing creation of integrated safe city solution. The portfolio includes:

π '911/112' – Emergency Services Response System'.

π "Safe city" integrated information system and information exchange bus for emergency response unit.

π Solutions for public warning alerts supporting Cell Broadcast, and other alert technologies.

Being a player on the market during 10 years, PROTEI has earned a great experience in developing, deployment and maintenance of Safe City platforms in more than 40 cities/provinces in a few countries.

## Smart/Safe City

The Smart/Safe integrated information system and information exchange bus for emergency response unit is a turn-key solution to address public safety, law and environmental protection at municipal, regional and country-wide levels.

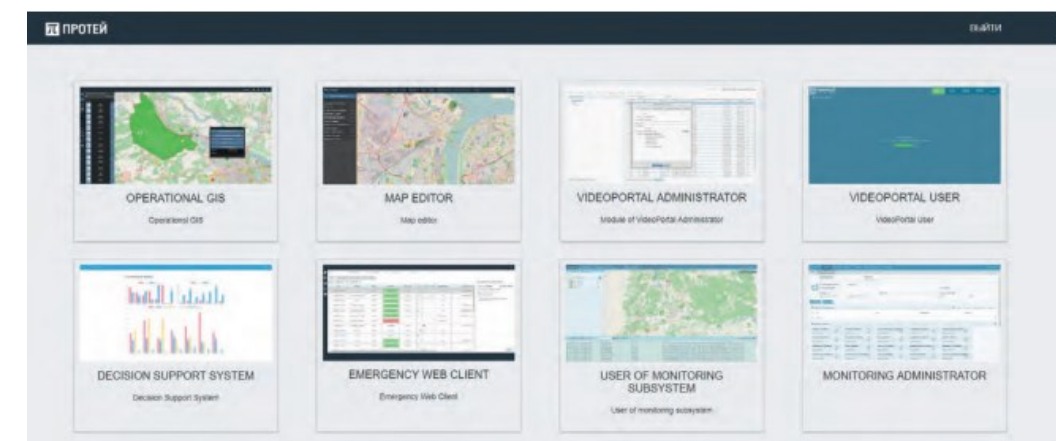
The solution includes the following main subsystems and modules

π Unified information system for emergency response unit allowing receiving, tracking and management of emergency tickets from the variety of systems (112/911, ecological monitoring, CCTV/video analytic system etc.).

π Information exchange bus.

π Decision support subsystem.

π Emergency analytic/emergency forecasting system.



## Key tasks addressed by deployment of the solution are:

π creating full smart city ecosystem including assistance in building or upgrade IT infrastructure needed for the project;

π identifying potential vulnerabilities and threats, prediction of current and potential threats related to public safety of the municipality/city/province;

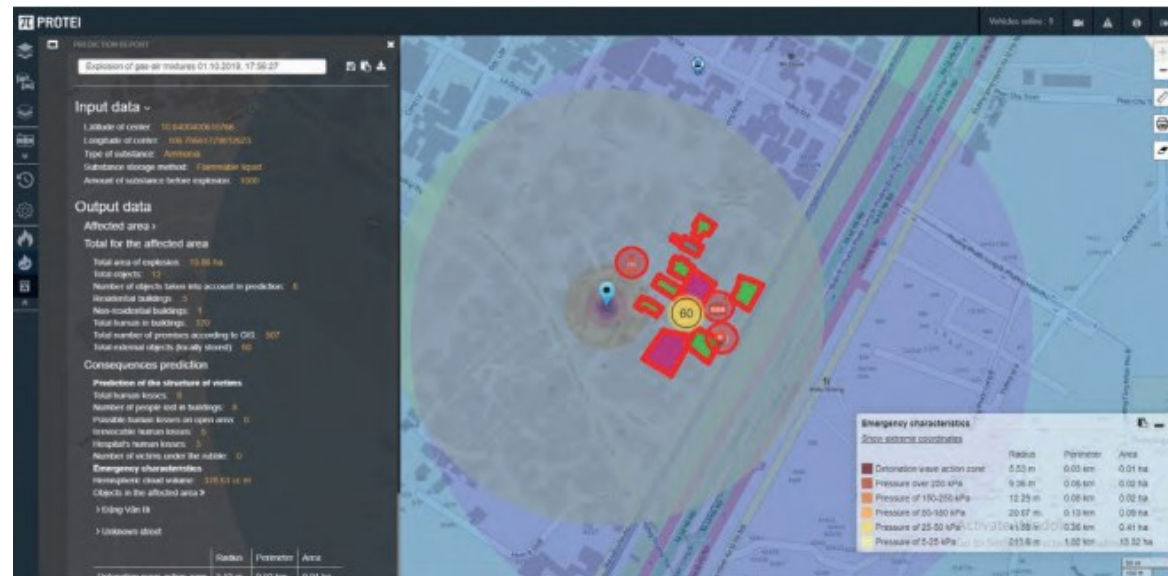
π optimization of the coordination between all participants during handling/elimination of emergencies;

π enabling communications between participants of all existing public safety initiatives through the unified bus.

# Protei Integrated Safety and Security platform

## PROTEI Smart/Safe City advantages:

- π Complete solution with wide and proven functionality.
- π Customizable APIs for easy integration with external systems (public warning alert, ecological monitoring etc.).
- π Easy adaptation to needs of specific public safety services and business processes already used by safe city stakeholders.
- π Powerful analytic and forecasting tools for emergency response services optimization based on big data analysis and mathematical models.
- π Full integration with the existing systems (112/911, CCTV, Public Warning Alert etc).
- π Highly flexible, scalable platform.



## 112/911 - Emergency Services Response System

The system provides a single point of contact for emergency calls, coupled to a unified emergency response coordination and monitoring system.

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## Key functions:

- π handling all calls addressed to the universal emergency number by the contact center and conveying incident reports to dispatch centers of proper emergency services / emergency response units;
- π monitoring (tracking) of incidents handling with the possibility to take over the control of incidents handling for complicated emergencies;
- π assisting emergency response units in coordination during incidents handling;
- π reporting to governmental authorities;
- π consolidating data from strategically important sources into a single system, gathering and analyzing statistical data on all emergencies.

## PROTEI solution's advantages:

- π All-inclusive solution for the emergency services
- π Proven track record solution, 30+ turn-key deployments
- π Full automation of emergency agents' working process
- π Specialization and adaptation to specific terms
- π Easy integration with the GIS, external applications and data bases
- π Pre-integrated subsystem for forces and assets management and API for integration with external systems implementing this functionality
- π Powerful statistics collection and reports generation tools
- π API for integration with mobile and fixed operators for automatic fetching of the caller location information during the call handling
- π API for integration with eCall solutions for automated car emergency information handling during the car accident

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