

Smart

Solutions Catalogue

Smart

Solutions Catalogue



**The Polish Chamber of Information Technology
and Telecommunications**

Al. Jerozolimskie 136 (IX piętro), Eurocentrum Alfa
02-305 Warszawa



Tel.: 22 628 22 60, 22 628 24 06

biuro@piit.org.pl

www.piit.org.pl

Dear Reader,

The intensive period of digital transformation forcing changes within each business, organization and administration has been additionally accelerated by the Covid-19 pandemic and the increased demand for security due to the war in Ukraine.

Modern technologies have become an indispensable element of everyday life which together with ever increasing tasks automation facilitate the introduction of new competencies. These changes affect both the public sector and private entrepreneurs. The technologies of industry 4.0 such as artificial intelligence, automation and robotization are changing enterprises and are reshaping the society. Regardless of whether we are talking about energy, industry, construction or transport, SMART solutions are becoming an important aspect in modern economy. They enable better understanding and management of almost all processes taking place in our ecosystem. However, the use of new technologies is also associated with risks that must be considered. The demand for ensuring security affects all areas of the economy, social life and administration, thus only proven and secure implementations of SMART technologies will be implemented.

This SMART Catalogue addresses the challenges related to the use of new innovations. It can serve as a starting point and a source of examples for everyone choosing the best digital solutions. This publication, prepared by PIIT member companies, is a list of SMART solutions along with a description of benefits and update on current implementations. We hope it will serve as an inspiration for those who want to benefit from the potential of modern innovations.

Sincerely,

Andrzej Dulka

The President of PIIT

Table of Contents

The importance of SMART solutions	4
Asseco Poland S.A. Capital Group	5
Atos Polska S.A.	13
Digital Teammates S.A.	17
Ericsson Sp. z o.o.	20
Globema Sp. z o.o.	22
Orange Polska S.A.	30
Polkomtel Sp. z o.o.	38

Introduction

The SMART Catalogue that was first published in Polish in October 2019, was updated in spring 2022 and enriched with several new available solutions. Now, we are pleased to present the English edition of the SMART Catalogue. The name of the catalogue is the result of the project led by the SMART Committee operating within the Polish Chamber of Information Technology and Telecommunications.

The coronavirus pandemic and the acceleration for the digital transformation that took place contributed to the expansion of the Catalogue with new SMART product solutions. Besides the new challenges that emerged, new opportunities to the function of social life in the era of digitization have also shown up. The need for efficiently conducted education online, as well as the operations of business sector and the public administration helped fast-track the development of effective remote signage of documents, online meetings due to the limitations in large group meetings and online operations of many organizations have forced new procedures as well as automation of many processes.

The SMART Catalogue contains solutions primarily from the broadly understood market for SMART Urban and agglomeration solutions that will be used or already work well in Poland and on other markets. This publication is for everyone interested in the development of regions and business who want to use useful tools, as well as creating new contacts and getting new source of information when it comes to available SMART solutions. PIIT believes that this information must be available in English due to the global circulation of information.

Cooperation with Polish companies providing solutions presented in the SMART Catalogue can become an opportunity, an inspiration, and a chance to improve the functioning of enterprises, institutions, and local governments around the world. The activities aimed at modernizing and increasing efficiency should be of particular interest to the representatives of central and local government administration, management staff, as well as organizations looking for reliable and proven suppliers of intelligent solutions.

The English version of the SMART Catalogue is a condensed offer addressed to all foreign companies and institutions. The offer is directed to both, those organizations that had contact with the achievements of Polish ICT companies, as well as to those who will do it for the first time. We are convinced that the Catalogue made available today will facilitate the promotion of Polish achievements in the field of ICT technology to numerous institutions active in the sector in many countries. The solutions presented in this Catalogue primarily focus on topics related to smart cities, intelligent transport systems, energy, electromobility, education and health.

We highly encourage you to read the Catalogue and contact the authors of proposed products, therefore advancing the process of digital transformation in many areas of economic and social life in a world without borders.

Sławomir Cieśliński

The Chairman of the SMART
Committee

Paweł Sokołowski

The Deputy Chairman of the
SMART Committee

Piotr Strzelec

The Deputy Chairman of the
SMART Committee

Jacek Falkiewicz

The Vicepresident of PIIT

Asseco Poland S.A.

info@asseco.pl
+48 58 740 40 00

*Asseco is the largest Polish IT company listed on the Warsaw Stock Exchange and the sixth largest software producer in Europe.
The company leads the international Asseco Group, which operates in over 50 countries and employs over 24,000 people.*

SOLUTION ①

Metropolis - digital Urban Infrastructure Management Platform

WHAT IS THE SOLUTION FOR

The Metropolis platform from Asseco Data Systems helps to meet the contemporary challenges facing urban centers and supports them in achieving the status of a Smart City. It allows building a smart city which, thanks to modern technologies, takes care of the comfort of its inhabitants, as well as sustainable development and environmental protection.

The central Metropolis system automates the complex and multifaceted process of managing an urban organization by integrating and coordinating various domain systems and services.

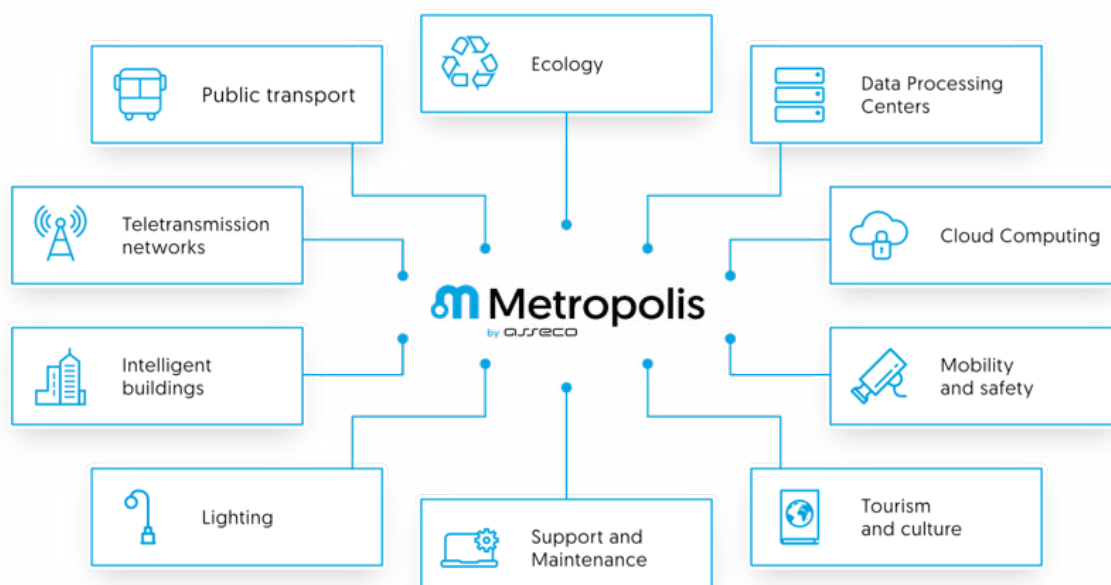
Metropolis implements tasks in accordance with the ISO371 standard for Smart City, which defines a comprehensive set of 100 indicators necessary to measure and control the level of development of cities in social, economic and environmental terms. It supports IoT, GIS, BigData, OpenDataAPI

HOW DOES THE SOLUTION WORK

Dedicated functionalities are used to provide key municipal services related to the functioning and financing of public transport, measurements of individual environmental parameters, monitoring and managing of paid parking zones, planning of video monitoring, city lighting, services for tourist (mobile applications using beacons).

BENEFITS OF IMPLEMENTATION

- optimization of city management costs through automation of activities (e.g. energy consumption, maintenance of multiple, separate systems, etc.);
- easier cooperation and coordination of investments between city units thanks to a single central system, enabling a strategic global approach to all activities for the development of the agglomeration;
- increasing the attractiveness of a well-managed city for investors;
- safer streets and neighborhoods through active monitoring and improvement of compliance;
- involvement and useful knowledge to optimize urban activities;
- improving the quality of life of residents in terms of safety, ecology, public transport and many other aspects of the city's life.

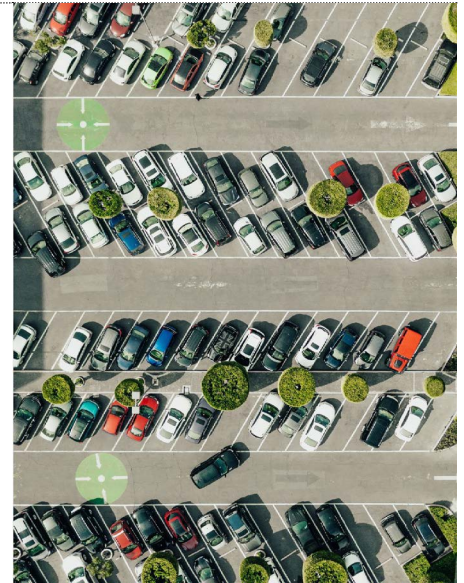


SOLUTION 2

Metropolis.ISPP Smart System for Paid Parking Zones

Metropolis.ISPP Smart System for Paid Parking Zones was designed for large, medium, and small cities that want to increase the efficiency of parking zone management, while reducing costs of infrastructure maintenance and maintaining a balanced rotation of vehicles using parking spaces.

Metropolis.ISPP will prove useful in places where the issue of parking fees versus the possibility of finding a free parking space is the cause of motorist frustration and contributes to the increase of air pollution caused by unnecessary traffic. It is a comprehensive and flexible tool that can be very easily adapted to the city's current and future needs.



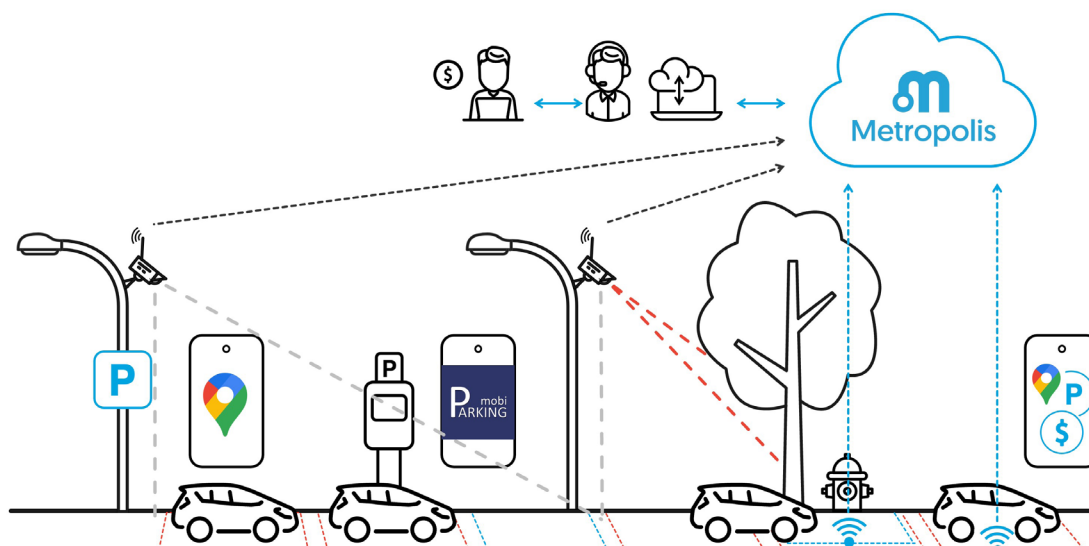
WHAT IS THE SOLUTION FOR

Metropolis.ISPP combines the benefits of systems based on video analytics, inductive sensors, and a mobile app that allows users to navigate to a vacant parking space and make payments. It is a hybrid solution that can be efficiently adapted to the requirements of individual zones, which often use different technologies and have different options for installing detection devices.

The advantage of systems based on inductive sensors is easy and quick installation, requiring no cable connections. They can be used on certain types of pavement, and their effectiveness is dependent on the vehicle being parked correctly. Video analytics-based solutions, on the other hand, require power, better connectivity, and mounting infrastructure (such as poles or gantries). However, it is only when these two systems are used together that detection devices can be properly tailored to the needs of individual parking zones, as well as standard city monitoring to enhance citizen safety.

Metropolis.ISPP uses neural network technology for video analytics with up to 99% efficiency. Its architecture provides data processing in a central system, which, when used with cloud-computing, gives tremendous scalability and virtually unlimited possibilities for incorporating new analytics, such as detecting abnormal behavior in the traffic lane. Metropolis.ISPP offers a high level of flexibility, allowing it to meet the requirements of small parking zones as well as large metropolitan zones. It uses the Kubernetes technology, which allows for seamless migration between local and cloud infrastructure, which is very important if the parking zone is to be expanded.

The solution consists of a central system, designed for the manager of the paid parking zone, and a mobile app that can be used by the city's residents.



HOW DOES THE SOLUTION WORK



Key functionalities of the central system:

- The system features functionalities and technologies that fully meet your city's needs.
- It uses video analytics combined with machine learning (neural network).
- It is characterized by very high efficiency of vehicle recognition at low image resolution and difficult weather conditions.
- It features advanced analytical algorithms to correctly identify free parking spaces along the roadway, even unmarked ones.
- It works in a hybrid model: it combines video analysis with inductive and laser sensor technology.
- It allows new analytics functionality to be added depending on the computing power of the data processing center (CPD) or the cloud service purchased.
- It enables the presentation of occupancy of parking spaces both in the mobile app and on VMS variable message boards.
- It can be installed as an on-premises software as well as a cloud-based software.
- It allows to optimize controllers' tasks in the parking zone.
- It handles citizen requests from the mobile app.

BENEFITS OF IMPLEMENTATION

Key functionalities of the mobile app:

The app was developed using the latest and safest technology

- It allows you to search for space and filter parking options for multiple sub-zones.
- It indicates specific parking along with fees and additional information.
- It guides users to the selected parking lot and provides information on the number of other users headed there.
- It allows to send citizen reports of improper parking, damaged road infrastructure, etc.
- It provides information about available parking time paid for at a traditional parking meter.
- It allows payment in parking operators' mobile apps, as well as in the "virtual parking meter" app.
- It is available for iOS and Android.

BENEFITS OF IMPLEMENTATION

For the user:

- It reduces the time for searching for a vacant parking space, resulting in fuel savings and reduced emissions.
- It allows for remote payment for a specific parking time, which eliminates the need to pay at a stationary parking meter.
- It allows redirection from the mobile app to apps of 5 mobile parking operators present in Poland (Skycash, MPay, Pango, moBilet, ePark).
- It provides quick access to information on zone costs and hours of operation.
- It provides up-to-date data on the number of system users heading to a selected location.
- It improves security and makes the parking zone a monitored parking lot.

For the manager of a paid parking zone:

- It allows to use existing infrastructure for monitoring, which significantly reduces investment costs.
- It provides accurate information on parking space occupancy and fees, thereby increasing the efficiency of inspection activities while reducing staff involvement.
- It provides the lowest cost of service by using mobile (online) payments.
- It enables remote operation, which increases user safety during a pandemic threat.
- It facilitates debt collection with access to multi-faceted video evidence.
- It allows for independent change of parking space configuration or adding new parking zones in case of, e.g., changes in traffic organization, renovations, or organized events.

SOLUTION ③

Passenger Transfer Node - Smart Management System

WHAT IS THE SOLUTION FOR



HOW DOES THE SOLUTION WORK

A modern and comprehensive tool for city transport authorities and passenger transfer node management units.

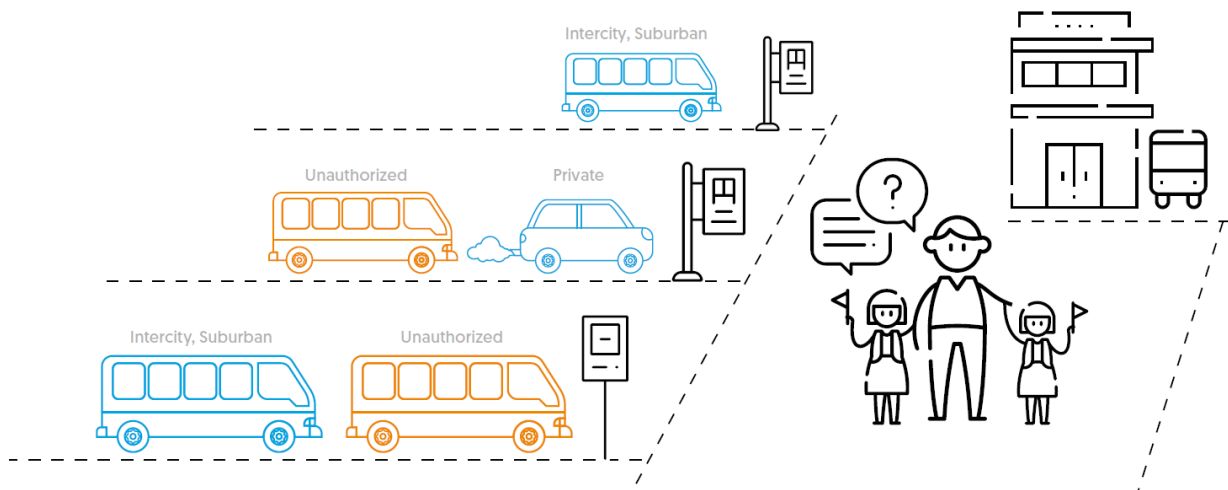
The solution supports the elimination of the most common problems related to Passenger Transfer Nodes:

- Numerous passenger transport providers not adhering to timetables;
- Residents complaining about passenger service at the station;
- Buses are delayed;
- Bus bays are used by foreign passenger transport providers and cars as parking spaces;
- Station infrastructure is vandalized;
- Drivers exceed the allowed stopping time and stop at the wrong platforms;
- Residents do not know where to wait for the bus;
- Excessive exhaust emissions emitted in the bus station area.

The main functions of the System:

- static timetable management,
- dynamic and automatic response to changes in the courses implemented through information obtained from vehicles,
- displaying dynamic passenger information on platform boards
- displaying dynamic passenger information on monitors in the waiting room,
- automatic voice announcements broadcast both in the waiting room and on the platforms,
- informing about current events in the area,
- registration of vehicles entering and leaving the station,
- registration of vehicles and monitoring of the time of their use of the stop platforms,
- automatic ticket sale,
- monitoring of the station building and square.

The system functions are implemented, among others, by the installed cameras with recorders and analytical software for recognition of license plates and layover time analysis. The system enables recognition of vehicles by category and generates reports for the use of the station and unauthorized entry and parking.



BENEFITS OF IMPLEMENTATION

- Increasing the safety of travelers;
- Introduction of a new standard of passenger information - easily accessible, comprehensive, updated in real time and tailored to your needs disabled people;
- Introducing the possibility of buying tickets from vending machines 24 hours a day;
- Monitoring of vehicles using the station infrastructure, including verification of entitlements and the possibility of reporting irregularities;
- Possibility of smooth updating of the timetable and compliance with it by drivers;
- Enabling central supervision of the station's functioning;
- Integration of all used ICT solutions with others systems supporting public transport operating in the city;
- Security and analytics of collected data.

SOLUTION

4

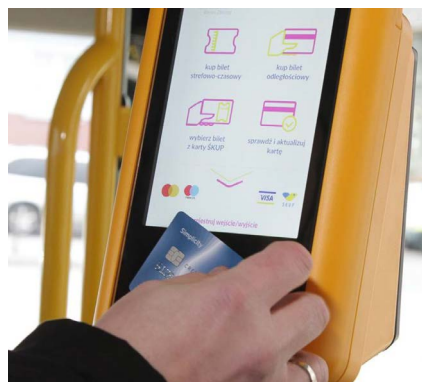
Metropolis - Integrated Mobility Services Platform

Integration Platform for Multimodal Public Transport with Fare Collection functionality - using the most modern payment models and channels, including contactless payment cards (with full implementation of the MTT model in accordance with guidelines of payment organizations VISA / Mastercard) and modern mobile applications. Ready to be implemented for customers with advanced and complicated ticket tariffs (including distance and time) and multi-carrier services with a dynamic model of settlements for the provided services.

WHAT IS THE SOLUTION FOR

The solution provides comprehensive support for the collection and settlement of city tolls. Providing the modern, most convenient and secure methods of identification and financial settlements.

HOW DOES THE SOLUTION WORK



The architecture of the solution includes functional modules such as:

- **Applications for users** - software supporting the user in the implementation of the ongoing processes using various System's access channels, such as: Customer Service Point, Sales Terminal, Smartphone or Validator. Providing a modern graphical user interface. Launched solution is configurable based on the parameters expected by the customer, it is possible to personalize selected elements of the solution on basis of the client's requirements (mobile application, client portal).
- **Central services** - a set of interoperable modules that delivers the necessary and required functionalities and uniform data processing logic for of the entire System, Available as a service from the level of cloud computing.
- **Infrastructure** - elements necessary for the operation of the system, such as: servers, cloud services, readers and terminals, validators, electronic cards. On basis of the pre-implementation analysis, which takes into account, inter alia, the scope of implementation, users and transactions volume and budget. Depending on the implementation variant, there is recommended an optimal set of components that can be configured to work in the solution.

BENEFITS OF IMPLEMENTATION**Benefits for the Resident:**

- Convenient purchase of tickets and other city services through a modern, mobile application or resident's portal, with electronic payment and access to an on-line account;
- Convenience of using the ticket on the phone or on a modern, multi-application city card, which can also be used as a secure ID of the resident;
- Intuitive purchase of tickets with a contactless payment card, also directly in the vehicle, with the possibility of traveling at the distance tariff;
- Easier travel and less wasted time thanks to dynamic passenger information available on the phone or on the customer portal;
- Availability of a favorable ticket tariff, which is dynamically created by the transport organizer and enables the promotion of city residents with discounts;
- New standard of communication with municipal services via the passenger portal and mobile application - the possibility of reporting noticed problems, defects, complaints online, which can be handled electronically;
- Possibility to pay an additional fee directly to the Inspector, also by means of a payment card;
- Integrated identifier entitling to discounts on other municipal and local government-supported services (functions of the Resident Card, Senior Card, Family Card, etc.).

Benefits for the City:

- Efficient launch of a modern and lightweight solution for the City Card, connecting public transport and the loyalty system, giving an effective tool for active implementation of transport / social policy;
- Launching a CRM solution, increasing satisfaction of the residents from the level of services provided to them by the city;
- Providing residents with an efficient, automated system, using the latest technologies for the purchase and the use of city services / tickets;
- Providing tools activating both residents and entrepreneurs in using the city's services;
- Reducing the cost of development and maintenance of the fare collection system thanks to eliminating the dependence on the hardware infrastructure provider and cost optimization of the traditional paper tickets distribution model (eliminates the usage of paper);
- Provision of modern interfaces enabling the implementation of the "OpenData" concept for data in the area of urban transport, opening up the city for entrepreneurs who can create new services for residents;
- Possibility to optimize the layout of communication routes, timetables and transport offer based on the analysis of data on the actual load of local communication lines;
- Ongoing control of the operation of the rolling stock, its filling and the possibility of reporting and handling emergency / dangerous situations with the contact: driver - dispatcher or relevant services of the region (police, municipal guard, ambulance);
- Ensuring the expandability of the payment and settlement system, allowing easy inclusion of other entities related to intermodality of city transport (e.g. Taxi, Car-sharing, City bike).

SOLUTION 5

Asseco Demand Side Management (ADSM)

ADSM from Asseco Poland helps you adapt electric power usage to the needs and capacity of the power system.

ADSM is a solution for companies whose priority is to engage customers in energy efficiency processes. ADSM – system for those whom energy efficiency and flexibility services matter.

WHAT IS THE SOLUTION FOR

It also allows you to remotely control client-side smart devices.

With it, you can also instantly respond to shifting market trends and power network incidents.

By introducing an energy demand management process, the system increases network management effectiveness. With consent of the end recipient, it can control end devices, enabling soft limiting of several of their functionalities. This is made possible thanks to IoT control protocols, building and industrial automation systems.

HOW DOES THE SOLUTION WORK

The system handles communication and control using various receiver control device protocols, including:

- receivers located in places equipped with AMI
- systems for controlling HVAC system power using building automation systems
- systems for managing energy in households (HEM) using IoT communication
- systems provided by companies offering energy efficiency services (ESCO)
- systems for controlling large recipients using industrial automation
- generation control systems
- energy storage systems

BENEFITS OF IMPLEMENTATION

Key benefits:

- Reduces system balancing costs
- Supports energy efficiency systems
- Enables successful integration of scattered energy sources
- Ensures continued delivery and energy balance
- Helps eliminate distribution system overloads
- Ensures flexible service delivery for energy market companies
- Supports energy and power purchase cost optimization for end users

SOLUTION 6

AUMS ELMO

AUMS Elmo from Asseco Poland is an electric vehicle charging station management and billing platform.

WHAT IS THE SOLUTION FOR

Who uses the system?

AUMS Elmo is used by charging station operators and charging service providers, as well as by end customers and owners of electric cars. It is a single platform for managing charging stations, making them available, remote running, stopping the charging process, and billing the charging session after its completion.

HOW DOES THE SOLUTION WORK

It ensures integration in regards to managing charging stations, user authentication, payments and invoicing.

Compatible with all business models.

The system enables electric vehicle charging station operators the ability to control all aspects of the service. Public utility companies, vehicle fleet operators, fueling station operators and municipalities can adapt particular modules to their business model. The system enables users to adapt particular modules as to how their company operates on the e-mobility market. It is openly available in the cloud via a web browser for users and dispatchers.

BENEFITS OF IMPLEMENTATION**Key benefits:**

- constant monitoring of charging station status and availability
- only two clicks required to register a station in the system
- quickly enables car charging by any customer
- enables multiple charging service providers to use a charging station
- flexible rate management by operators
- efficient settlements and invoicing of multiple charging service providers

SOLUTION

AUMS Meter Data Management (AUMS MDM)

AUMS MDM is a system with functionalities which encompass the entire process of metering data management – from reading data management to validation as well as transformation and usage of data calculation in accordance with business rules required by internal and external IT systems.

WHAT IS THE SOLUTION FOR

AUMS MDM integrates all sources of metering data.

The system enables efficient data collection and management, regardless of whether the data comes from smart or traditional electricity and gas meters. AUMS MDM automates the entire process, ensuring data quality, coherence and credibility.

HOW DOES THE SOLUTION WORK**With AUMS MDM, you can:**

- See the full picture of how your network functions
- Better balance and monitor your network
- Eliminate illegal energy consumption
- Motivate your users to save resources
- Streamline your company's reporting processes
- Improve customer service and network maintenance quality
- More easily prepare new products and services for recipients

The system can be launched in the cloud or installed on your hardware

BENEFITS OF IMPLEMENTATION**Key benefits:**

- Handles multiple types of utilities using one system instance
- Decreased infrastructure, integration and support cost
- Single, central source of metering and settlement data
- High quality and coherence of cross-system data transfers
- Error elimination thanks to automatic data correction
- Support for manual and remote acquisition enables flexible transitory period planning and execution regarding remote reading solution implementation processes
- Smooth integration with other IT systems

Atos Polska S.A.

Paweł Sokołowski
Sales Director for Public Sector
Atos Poland
M: +48 508 999 456
pawel.2.sokolowski@atos.net
ul. Królewska 16, 00-103 Warszawa

Atos is a world leader in digital transformation with 105,000 employees and annual revenues of EUR 11 billion. Atos Group is the European No. 1 player in areas such as cybersecurity, cloud and high-performance computing, providing comprehensive, individually tailored solutions for all market sectors in 71 countries. As a pioneer in decarbonisation and SmartCity related services and products, Atos is committed to providing its customers with secure and decarbonised digital solutions.

SOLUTION 1

Citizen ID

City services built on e-ID – city card / portal / mobile application

WHAT IS THE SOLUTION FOR

The solution is designed for the cities wanting to offer their citizens the system of the city enabling electronic services, mainly public transport. The solution promotes the citizens of the city by granting several incentives and reductions, the loyalty programmes as well.

HOW DOES THE SOLUTION WORK

The business information can be stored on the card or only in the cloud.
Multiple bodies can be independent operators of the system presenting & selling their specific offer with own tariffs. Every operator uses separate data structure including users, access rights, tariffs and transactions.
The passenger portal is the main access of the passenger to his/her individual account with personal data, transaction history, current account balance and to the e-shop, which can be integrated with whatever internet payments operator.
Whole offer of the operators can be sold on the portal, including coupons, singular tickets and t-purse top-up
The system supports several methods for the communication of the operators to their clients including mass mails and push messages.
Mobile application can be used as a client identifier and a mobile access to the citizen services
Multiple institutions can provide their input to events distribution – their logo can be presented on the passenger portal along with the event description
Loyalty module can grant awards for the specific actions executed by the Citizen.
The system was successfully integrated with several external systems to exchange tariffs, collect financial information (transaction, invoices), distribute tickets or to serve as SSO.

BENEFITS OF IMPLEMENTATION

- Suitable tool for the cities aiming in granting special services/benefits for their citizens
- Electronic transport tickets save the money for printing paper tickets
- Accessibility of the sales network

REFERENCES

CITY OF POZNAŃ

Local government

PEKA (Poznańska Elektroniczna Karta Aglomeracyjna – Electronic Agglomeration Card in Poznań), delivered by Bull Polska sp. z o.o., 2012-2014

Central system, about 4000 validators and 700 autocomputers, 200 sales terminals, 90 inspector readers, personalization line.

BENEFITS OF IMPLEMENTATION

Modern city card making it possible to use degressive bus-stop tariff. Integration with city bikes and P&R parkings with reductions for the citizens. Lower journey cost for the passenger with the same level of the income for the city.

SOLUTION 2

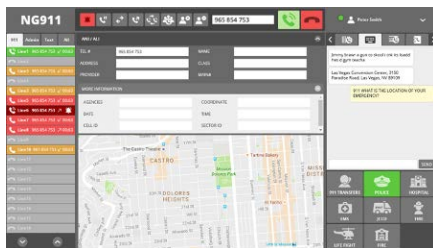
GEMMA - Global Emergency Management System

WHAT IS THE SOLUTION FOR

GEMMA system was created with the idea that all positions responsible for the safety are able to quickly locate and filter incoming events, regardless of their origin (telephone calls, SMS, alarms, messages from sensors, etc.), and after classification, transfer them to the appropriate crisis response unit.

Dispatchers must, with the support of standard operating procedures, be able to quickly allocate the closest and most appropriate resource to adequately respond to a crisis situation and escalate the event, if necessary. It also requires interoperability and multi-stakeholder coordination, including call desks and emergency response units.

HOW DOES THE SOLUTION WORK



The crisis management platform is designed to handle the entire chain of events at all operational and management levels. A web application environment is used, which offers the best flexibility to adapt to any process or roles required for emergency operations. Among the functions supporting the work of operators, it is worth mentioning:

- Smart contextual hints for standard procedures
- Support for any mobile devices
- Modular structure and possibility of wide integration
- Advanced event classification and personalization
- Automation of the allocation of resources (forces and resources)
- Concurrent work of many operators
- Visualization of information about forces and resources

BENEFITS OF IMPLEMENTATION

Any modern emergency management system, such as GEMMA, must meet the requirements of both the general market for solutions and industry standards, ensuring:

- Full integration of communication systems such as wired and wireless telephony, radio, text communication, incoming and outgoing communication, including new communication channels based on visual elements and social media
- Map and geographic information (GIS) systems, including location and positioning solutions such as deployment and location of forces and resources, vehicle positioning and tracking, the ability to add multiple layers of information from a variety of sources including 3D views, CCTV, traffic events and weather information
- A solution for all operational phases, from receipt of inquiry, disposition of resources and event management to completion and evaluation of operations
- Reporting and analysis, support for the visualization of reports, statistics and analysis of operations, including management panels (dashboard)
- Planning tools - personnel, vehicles and other resources bases and equipment needed for emergency response units
- The highest guaranteed security standards - including backup, business continuity (BCP) and disaster planning (DRP)

REFERENCE

POLICE PREFECTURE - PARIS

Police forces, emergency services (fire brigades) and administrative services for Paris and the surrounding area

Crisis Management System GEMMA – year 2020

Controlling the flow of inquiries, filtering information noise, managing waves of events and redirecting them to the appropriate response units, both the police and the fire brigade. Defining a new solution architecture to guarantee maximum reliability, faster information exchange, modularity and scalability as well as integration of multiple technologies and services.

- A metropolitan area with a population of 6.4 million and 15 million visitors annually.
- 46,000 users, including 30,000 policemen and 8,500 firefighters. Over 6,000 vehicles.
- Over 1.2 million accident reports and 500,000 interventions.

THE SCOPE OF IMPLEMENTATION

- Receipt and registration of events; tracking and control of all notifications.
- Integrated communication (TCL, telephony, SMS, alarms, multimedia) and integrated telephone functions at the dispatcher's desk.
- Managing all notifications related to a given event among different units
- Location and classification of events and proposing actions based on the instructions for action (standard operation procedures)
- System notification between users handling the same accidents (accident response team)
- Mobilization activities combined with the allocation of resources and activation of funds (with a differentiated status presentation)
- Communication activities: sending messages (SMS, SDS, email, voice) to one or more recipients (with escalation to competent authorities)
- Support checkpoints and instructions (e.g. check closed circuit TV or social media post) and record management activities

BENEFITS OF IMPLEMENTATION

- Improving services for citizens, better information flow and securing the business process.
- Sharing situation assessments between the police and the fire department during emergency interventions.
- Instantly integrate human and equipment information into daily operations.
- Integration of all information channels as well as reports and their handling in one place
- Individual and flexible view configuration for each user. Possibility to change the order of panels, sizes, priorities and layout of windows thanks to the panel catalog
- Maintaining a uniform structure regardless of the stage of the incident reporting and management process
- Information can be displayed in many places; data is where it is needed
- User can collapse and expand information according to suitability. The most important ones are always displayed as a "floating" header
- GIS is integrated such that each report also includes geolocation

SOLUTION**3**

Urban Data Platform - UDP - Urban data and IoT device management platform

The Urban Data Platform (UDP) is an open, interoperable solution designed for intelligent applications in various areas of life: smart cities, intelligent buildings, intelligent industry 4.0, etc.

UDP collects information from sensors, existing silo and historical data sets, standardizes information and processes, and aggregates data, presenting it in intelligent operational dashboards supporting city managers in making strategic investment decisions.

UDP uses the NGSI (Next Generation Service Interface) standard to exchange contextual information through available components in a given ecosystem. The UDP design approach is based on the FIWARE reference architecture guidelines and the OASC (Open and Agile Smart Cities) Synchronicity project.

WHAT IS THE SOLUTION FOR

The UDP platform acts as a bridge in IoT environments, where it bridges the gap between IoT devices, external systems (most often silo) and end users who want to extract the data necessary easily and flexibly for decision-making. UDP is the answer for those who need a solution that will help better and more clearly understand the data generated by machines, such as IoT components, already widely present in the urban ecosystems.

HOW DOES THE SOLUTION WORK

Basic functionalities of the platform:

- Data Download: Collect data from IoT sensors, open silo data sources, mobile devices and other sources (both real-time and batch mode)
- Data normalization: Translation and homogenization of various data sources and protocols to the NGSI standard.

- Building modular structures: Provides the ability to integrate with various service providers to use or share generic data sources.
- Analysis and Monitoring: Supports real-time monitoring and analysis. UDP provides the ability to create alarms and perform specific actions based on specific types of alarms and events.
- Open data sharing: UDP can integrate and share a standardized dataset with third party applications and open city data.
- Data presentation: UDP provides a front-end where it visualizes the collected data in an advanced and graphical way.

UDP supports a replicable and configurable environment to meet different customer requirements and is easy to deploy both in the cloud and on-premises.

BENEFITS OF IMPLEMENTATION

Cities want to offer citizens the best possible living conditions in their place of residence and provide the right infrastructure for businesses to stimulate local economic development. Leveraging all the data generated by a broad ecosystem of applications and devices is key for these authorities to make the right investment decisions and fulfill their public service mission.

This means that cities, territories, and regions must be connected in order to collect, combine and use different data from different sources.

Advanced, hyper-connected technologies provided by UDP (including the Internet of Things (IoT) and artificial intelligence (AI)) give public administration and local communities an ideal tool for:

- Breaking down silos to improve decision-making efficiency and optimize investment costs
- Supporting sustainable and green development in cities
- Improving local services
- Provide a better quality of life in the city
- Use the collective intelligence of the local ecosystem (citizens, businesses, local authorities) by creating networks and permanent communication between them.

REFERENCE

CITY OF TRENTO

Local government

QROWD Project (H2020 GA 732194)

Duration 01/12/2016 - 30/11/2019

Project participants: Atos, TomTom, University of Southampton, InfAI, ai4bd.

A public-private project involving cross-sector and cross-language integration and processing of data from existing data sources, IoT sensors and crowdsourcing.

THE SCOPE OF IMPLEMENTATION

Implementation of FIWARE platform components: Orion context broker managing the entire life cycle of contextual information, including updates, inquiries, registrations, and subscriptions.

CKAN module Web-based open-source management system for open data storage and distribution.

Data captured from the open data portal, existing silo systems and IoT sensors have been standardized and made available for analysis in web-based dashboards.

BENEFITS OF IMPLEMENTATION

Thanks to this project, real-time data processing is helping the city and the people of Trento to make better decisions faster.

The system helps to understand how the city functions, gives knowledge about the quality and availability of services and provides information on where to improve.

It provides information on how city residents use different modes of transport, enabling the municipality to make informed investment and operational decisions regarding mobility. It uses crowdsourcing tools to reduce the costs of verification and revision of the existing city infrastructure.

„We automate boredom at work“ – with this mission in mind Digital Teammates builds advanced solutions to automate office work. It delivers Robotic Process Automation robots in the Rent-a-Robot model, similarly to a temporary job agency. Clients don't pay any up-front costs - Digital Teammates implements, develops, maintains and also reconfigures robots when processes change.

SOLUTION ①

Digital Teammates

Digital Teammates are software robots. They are a combination of technologies that allow automation of structured, repetitive and routine office activities performed by employees using a mouse and keyboard in any IT system.

WHAT IS THE SOLUTION FOR

The Digital Teammates do their job for their human colleagues performing tedious, repetitive and error-prone office activities, which allows humans to focus on the more creative part of their work.

HOW DOES THE SOLUTION WORK

Robots use existing applications to simulate human work in front of the computer with virtual keyboard and mouse. There is no need to make costly changes to IT systems and processes in the organization.

BENEFITS OF IMPLEMENTATION

- No upfront costs.
- Full robot maintenance throughout the cooperation.
- Fast and tangible results.
- Clients pay for robots only after the robots start actually doing their job.
- The first robots start working after around 6 weeks.
- Clients quickly benefit from automation.
- We make sure that robots are always ready to work.
- When a process or a system changes, we retrain robots accordingly.
- Clients don't need to develop in-house RPA skills.
- Robots allow employees to focus on the more creative part of their work.
- Robots work faster, are more accurate and never make mistakes.
- The robot never quits work.
- The robot does not need a desk, computer, suitable office space or ergonomic armchair.

REFERENCES

MLEASING

+48 605 414 140
Financial Institutions

Digital Teammates in mLeasing appeared in response to the expected increase in the volume of work. Our cooperation started in July 2019 and it is ongoing partnership.

THE SCOPE OF IMPLEMENTATION

mLeasing identified large number of business challenges that we helped them to overcome. Challenges we faced:

- Ensuring support for the planned increase in the volume of processes.
- Improving the flow of processes performed in MIDAS application.
- Introducing process improvements with very limited involvement of IT departments.
- Maintaining the continuity of the processes.

BENEFITS OF IMPLEMENTATION

- Monthly, the status is changed for up to 16,000 contracts.
- During a month, employees regained that much time to work with the client and handle exceptions.
- Every day, the robots close an average of 200 contracts.
- Robots in the Finance Department also work at night and deal with insurance instalments and VAT invoice corrections.

ATLAS GROUP

+48 800 168 083

Construction Industry

Digital Teammates in Atlas Group appeared in February 2019 and it is ongoing partnership. Our cooperation deals with the automation of processes from the accounting and marketing departments.

THE SCOPE OF IMPLEMENTATION

Atlas – the largest manufacturer of construction chemicals in Poland – identified large number of business challenges that we helped them to overcome. Challenges we faced:

- Increasing volume of data to be processed.
- Elimination of errors which occurred during entering data into the system.
- Maintaining the continuity of the processes.

BENEFITS OF IMPLEMENTATION

- The first digital teammate was delivered in 3 weeks.
- 32% of invoices is booked automatically.
- Digital teammates make up 15% of the accounting team.
- The work quality of digital teammates is 100% – they make no errors.
- A digital teammate settles 150 transactions daily while the employees who earlier handled this process can now dedicate this time to more value-added tasks.
- On average, twice a week an update is deployed.

SOLUTION 2**Digital Clerks**

Digital Clerks, “colleagues” of Digital Teammates, relieve administrative employees from monotonous, often frustrating activities and improve the quality of service of Public Administration Offices.

WHAT IS THE SOLUTION FOR

Robotization of processes in Public Administration is as effective as automation of business processes for private enterprises and works according to the same principles.

HOW DOES THE SOLUTION WORK

Robots use existing applications to simulate human work in front of the computer with virtual keyboard and mouse, so there is no need to make costly changes to IT systems and processes in the organization.

BENEFITS OF IMPLEMENTATION

- No upfront costs.
- Full robot maintenance throughout the cooperation.
- Fast and tangible results.
- Clients pay for robots only after the robots start actually doing their job.
- The first robots starts working after around 6 weeks.
- Clients quickly benefit from automation.
- We make sure that robots are always ready to work.
- When a process or a system changes, we retrain robots accordingly.
- Clients don't need to develop in-house RPA skills.
- Robots allow employees to focus on the more creative part of their work.
- Robots work faster, are more accurate and never make mistakes.
- The robot never quits work.
- The robot does not need a desk, computer, suitable office space or ergonomic armchair.

REFERENCE

CITY OF BYDGOSZCZ OFFICE

Public Administration

Digital Clerks in City of Bydgoszcz Office appeared in June 2019 and it is ongoing partnership.

THE SCOPE OF IMPLEMENTATION

City of Bydgoszcz Office needed our help with:

- Increasing volume of data to be processed.
- Elimination of errors which occurred during entering data into the system.
- Handling of loan collection messages.

BENEFITS OF IMPLEMENTATION

- The task of downloading loan collection messages in the banking communication system has been handed over to Digital Teammates. The duration of a single query is approximately 10 seconds.
- The volume of loan collection messages handled by the robot on a monthly basis fluctuates around 2,500 items.

Ericsson is a global company founded in 1876 in Stockholm and operates in 175 countries. In Poland, Ericsson started operations in Warsaw in 1904. The company is a pioneer and active promoter of the 5G solutions in Poland - implemented the first commercial 5G network in Poland and many others. Ericsson Poland has 2200 employees with strong representation in R&D, services and sales. Ericsson also produces 5G equipment in Poland (in Tczew) and in 2022 produced already more than 1 million 5G modules in Polish factory.

SOLUTION

Ericsson Private 5G (EP5G)

Ericsson Private 5G is a wireless networking product including core and radio access components, providing high speed secure 4G and 5G connectivity to accelerate enterprises digital transformation.

WHAT IS THE SOLUTION FOR

The solution allows factories/warehouses to:

- eliminate cables (reduction of cabling costs)
- connecting machines to the network using a mobile network instead of Wi-Fi or cables
- implement augmented reality solutions (including functionalities like remote expert);
- save time and costs.

HOW DOES THE SOLUTION WORK

Ericsson Private 5G is the easy-to-order, -install and -manage private network for industrial use. It has a cloud-based network management portal and a troubleshooting app built to meet enterprise Information Technology (IT) and Operation Technology (OT) users' self-management needs, while keeping sensitive data safe on site. Ericsson Private 5G enables a wide variety of industrial use cases by providing 4G and 5G, both for indoor and outdoor. Management of Ericsson Private 5G is designed from ground up to enable organizations to manage their own networks but also integrate with operator management systems if so desired. Integration with IT and OT systems are easy with an open API.

BENEFITS OF IMPLEMENTATION**EASY**

- Managed and operated by the IT or Operations team. They are not required specific skills or competences

TURNKEY

- the time needed to implement the system is two weeks.

RELIABLE

- Provides reliable and secure wireless-based connectivity on proven 5G cellular technology
- full control over data, no data leaves the local network without permission.
- always runs the latest network software.

REFERENCES**NESTLÉ****September 2022**

Nestlé deploys first private 5G network in Latin America using Ericsson Private 5G. EP5G solution enables fast data processing – network data transfer speeds up to 25 times higher than 4G – and is particularly suited to supporting business-critical applications that require ultra-short response times in the millisecond range.

BECKER MINING SYSTEMS AG**October 2022**

Becker Mining Systems AG has signed a multi-country agreement with Ericsson to sell and deliver Private Network solution. Agreement covers many countries including Canada, US, Mexico, Chile, France, Germany and Poland.

**VODAFONE, FOXCONN
HUNGARY****August 2022**

Ericsson and Vodafone have launched a new preemptive support service for private 5G networks using artificial intelligence (AI) and machine learning (ML) to ensure efficient operations at the Foxconn factory in Komárom, Hungary.

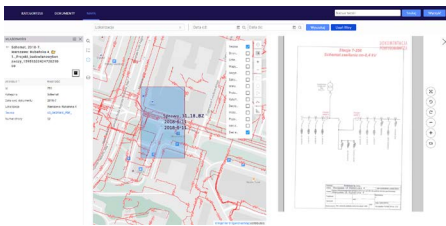
Globema is a dynamically growing Polish IT company with headquarters in Warsaw, Poland, and subsidiaries in Romania, Czechia, Serbia, and the USA. We are a leading provider of specialized geospatial solutions, IT products, and services for different industries, including telecommunications, energy, and district heating. We develop our apps mostly with Java, Oracle, GE, Google Maps, and Google Cloud technologies. In the 25 years of Globema's history, over 700 companies and institutions from all over the world have benefited from our solutions and services. Since 2012, we maintain the status of Research & Development Center granted by the Polish Ministry of Economy.

SOLUTION



LocDoc

WHAT IS THE SOLUTION FOR



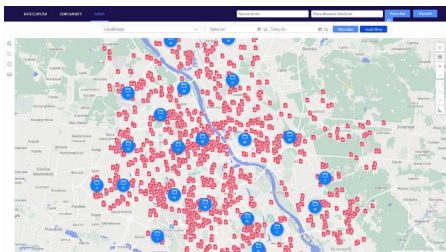
LocDoc is a spatial document database. The system automates the categorization of scanned documents and gives every employee fast and easy access to their content.

LocDoc automatically categorizes different papers, maps, decisions, protocols, and similar documents. The application analyzes the content of scanned documents and then creates a spatial database.

It allows users to:

- Quickly build a spatial document database
- Easily find a specific document by searching by its category, address, or date
- View the document content simultaneously with other users
- Improve the process of building object database based on technical paper documentation

HOW DOES THE SOLUTION WORK



LocDoc digitizes documents using Artificial Intelligence and Machine Learning algorithms. The LocDoc Categorization Module automatically analyzes and categorizes documents by giving them attributes such as Type, Date, and Location. Currently, it supports over dozen categories, for example, connection conditions, maps, internal schemes, field sketches, coordinates tables, decisions, or protocols. Categories are perfect for the energy operators but they are also well-suited for other network organizations, such as gas or district heating companies. The AI/ML model in the Categorization Module can be adjusted accordingly to our customers' needs.

The categorization module is based on machine learning tools that first "learn" by analyzing documentation samples and then use an optimally tuned model to categorize documents for the organization.

The next step in the LocDoc's process is document analysis and identifying the document attributes, such as Date and Location.

If the physical documentation loaded into LocDoc is stored in folders, the system also generates a digital folder for those documents in its database. Such documents may be related to different commissioned works in the field, such as repairs or maintenance work. Folders generated in the system contain fully categorized and sorted documentation. Each folder is assigned a location and date related to the work described in the documents inside.

Using the above methods, the application creates **a spatial document database**. Its users get an intuitive tool for efficiently querying specific documents, finding them on the map, and viewing their content.

BENEFITS OF IMPLEMENTATION

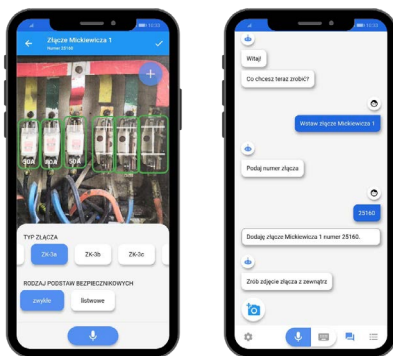
- Safety and lower costs of building and maintaining data archives
- Lower costs of document categorization
- Easy access to the documentation for the whole company
- Less time is needed for finding specific documents and information contained within them
- An option for both remote work and field work with documents
- An option to visualize documents on a map in the context of network objects
- Increased efficiency in key business processes
- Limited use of paper documents, less printing, and copying
- Support in the data entry process
- Ease of use – LocDoc is available as a cloud service

SOLUTION 2

LV Topology

An easy-to-use, voice-controlled mobile application that uses automatic acquisition of technical data from photos.

WHAT IS THE SOLUTION FOR



LV Topology builds the low voltage network topology in the field using a voice assistant and image analysis. The application covers both underground and aerial networks. It features an inventory mode (collecting data from the scratch) as well as a verification mode (adding and modifying existing data).

Using the app will allow you to:

- Efficiently collect LV network data in the field
- Perform data verification in the field. This may include data already collected in the past but considered unreliable or low-quality
- Maintain information about your growing and changing network up-to-date
- Share the collected data so that they support your business processes as fast as possible

HOW DOES THE SOLUTION WORK

LV Topology leverages Artificial Intelligence mechanisms for image and voice recognition to support collecting and verifying/updating data about network objects. The voice assistant naturally communicates with users making it easier to work with the application. Thanks to image recognition technology, the application can automatically read terminal and pole parameters from pictures taken in the field. The application has built-in cabinet internal schemas. If necessary, they can be easily modified by dragging on a touchscreen. Moreover, industry dictionaries available in the app make work easier. To illustrate this with an example, a user may use voice commands to enter data such as cabinet type, amperage, or cable type. If the application needs clarification, it asks the user to choose the right word using a touchscreen. Another feature is the data updating mode: when updating data, the application suggests changes that occurred in real-life network objects.

BENEFITS OF IMPLEMENTATION

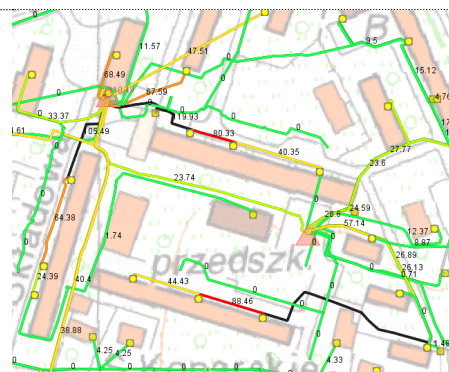
- Improved business process quality thanks to immediate reporting of changes implemented or noticed in the field which results in up-to-date data about infrastructure in the asset management system
- Improved effectiveness of data collection in the field. This is made possible by a user-friendly interface, the automated collection of data from images, voice assistance, and the elimination of paper documents from the fieldwork
- Improved quality of inventory management due to the systematization and enrichment by photographic documentation that's automatically included in objects in the application
- Some parts of office work are eliminated as the network topology is automatically built in the field

SOLUTION



ELGrid

It's an IT system that optimizes electric power network operations and the investment planning process. It supports dispersed power sources and energy storage. ELGrid features energy production and demand forecasts.



WHAT IS THE SOLUTION FOR

Network (kV)	Procedural time (min)	Storage efficiency (%)	Storage loss, average (kWh)	Storage loss, max (kWh)	Storage loss, min (kWh)
P 00	16.00000	100.00000	0.00000	0.00000	0.00000
P 10	16.13000	100.00000	0.00000	0.00000	0.00000
P 15	16.26000	100.00000	0.00000	0.00000	0.00000
P 20	16.39000	100.00000	0.00000	0.00000	0.00000
P 25	16.52000	100.00000	0.00000	0.00000	0.00000
P 30	16.65000	100.00000	0.00000	0.00000	0.00000
P 35	16.78000	100.00000	0.00000	0.00000	0.00000
P 40	16.91000	100.00000	0.00000	0.00000	0.00000
P 45	17.04000	100.00000	0.00000	0.00000	0.00000
P 50	17.17000	100.00000	0.00000	0.00000	0.00000
P 55	17.30000	100.00000	0.00000	0.00000	0.00000
P 60	17.43000	100.00000	0.00000	0.00000	0.00000
P 65	17.56000	100.00000	0.00000	0.00000	0.00000
P 70	17.69000	100.00000	0.00000	0.00000	0.00000
P 75	17.82000	100.00000	0.00000	0.00000	0.00000
P 80	17.95000	100.00000	0.00000	0.00000	0.00000
P 85	18.08000	100.00000	0.00000	0.00000	0.00000
P 90	18.21000	100.00000	0.00000	0.00000	0.00000
P 95	18.34000	100.00000	0.00000	0.00000	0.00000
P 100	18.47000	100.00000	0.00000	0.00000	0.00000

ELGrid is a decision support system that optimizes electric power network operation and investment planning. The solution also forecasts the electricity demand and energy production from renewable energy sources (RES), while also helping to optimize the strategy for energy storage. Developed analytical algorithms, in addition to basic power calculations, such as power flow and estimates of peak loads, are based on artificial intelligence methods and spatial analysis. The solution is primarily designed for Distribution System Operators (DSO).

The systems' main features include support for maintenance and optimization of electrical network exploitation, optimization of network configuration to minimize technical losses, as well as calculations and simulations based on network topology, meter readings, billing data, weather conditions, and production & demand forecasting.

HOW DOES THE SOLUTION WORK

The ELGrid system uses data exchange interfaces compliant with the CIM standard which gives computational modules access to a highly diverse spectrum of information (e.g. GIS, Billing, AMR, SCADA). The application uses the latest version of Oracle Database 11g which provides high efficiency, security, and availability. A distributed architecture ensures high scalability.

BENEFITS OF IMPLEMENTATION

- Forecasting energy demand in timeframes from 24 hours up to 1 year ahead
- Forecasting energy production for renewable energy sources in timeframes from several days up to over 10 days
- Supporting the process of medium- and long-term planning of network building by using forecast and optimization tools
- Minimizing technical and commercial losses
- Supporting ongoing network operations through designating technical network parameters and optimizing workflows
- Supporting the process of connecting new dispersed sources

REFERENCE

ENERGA OPERATOR SA

Sławomir Noske

slawomir.noske@energa.pl

An energy distribution network operator

Optimization of low- and medium-voltage networks in the Hel Peninsula in summer 2015. A service project.

The project included stages listed below:

- Modeling LV and MV networks in the Polish Hel Peninsula as well as consolidating data (Globema performed this with Energa's support)
- Theoretical calculations of energy flow and optimizing the LV network shares (Globema)
- Introducing the network division suggested by the system (Energa)
- Verifying calculations and defining the reduction in the energy loss (Globema together with Energa)

The estimated real reduction of technical losses is at 9-13%.

SOLUTION

4

4RES

4RES is an IT system providing forecasts for renewable energy production at dispersed energy generation units such as wind and solar power stations, biogas plants, and small water power plants. With 4RES's detailed meteorological and technical data as well as production history, you can easily predict optimal service windows and plan maintenance work on devices to minimize losses associated with reduced power availability.

WHAT IS THE SOLUTION FOR

4RES supports the trade of energy by:

- Forecasting RES energy production within timeframes from hours to several days ahead
- Creating schedules for the sale of energy based on production forecasts
- Creating optimal energy production schedules considering different generation units
- Supporting the optimal planning of the energy production in VPPs (Virtual Power Plants)
- Optimizing network shutdown schedules for maintenance and repair works

Due to the relatively high costs of forecasting related to specific locations of dispersed energy generation units, Globema also offers a solution with several innovative features:

- Area-based approach to forecasting the RES energy production with hourly or daily time horizons
- Including the constantly growing number of renewable energy sources in the production forecasts
- Combining wind and solar power plants to generate forecasts than include diverse production structures in the given area
- An option for assigning area-based forecasts to 110kV distribution network nodes and a transmission network for evaluating flows in the nodes and accurately managing network operations

4RES is a perfect solution for Distribution or Transmission System Operators (DSO/TSO), RES operators (power plant owners and prosumers) as well as energy producers and wholesale energy traders.

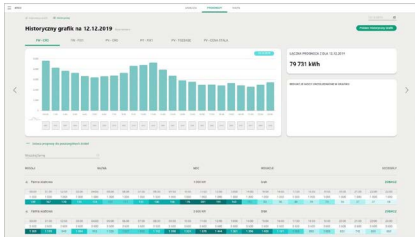
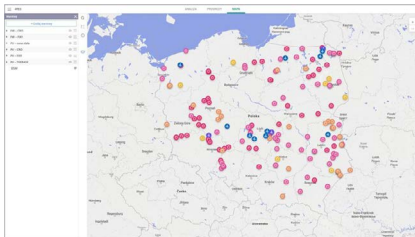
HOW DOES THE SOLUTION WORK

4RES created the RES energy production forecasts automatically, typically once per day. They are generated based on specialized weather forecasts, also in the automated mode. Users can use this to create sale schedules and manage their virtual power plants. RES energy production forecasts are based on artificial neural network models as well as statistical and hybrid models.

The area-based solution is powered by dedicated weather forecasts developed by ICM, the leading data science center in Warsaw, Poland. It offers lower weather forecast costs with insignificant accuracy reduction. Importantly, this approach isn't demanding when it comes to data needed for forecasting. It doesn't require network topology data. This allows you to quickly implement a system for a very large number of energy sources.

BENEFITS OF IMPLEMENTATION

- Increasing profit margins by reducing the difference between forecasted and produced energy (balancing market costs)
- Lowering costs by automating the scheduling process
- Minimizing loss caused by maintenance and repair work by optimizing network shutdown schedules



The main benefits are related to defining the amount of energy generated from RES in particular balancing areas. This is mostly the case of small RES units that up to now were not included in production forecasts due to their costs. However, considering their number, they can bring a significant influx of energy to the network flows. Forecasts can include both large generation units (such as wind farms or individual wind sources) as well as smaller units such as photovoltaic installations or small prosumer stations. The area-based approach reduces the price of including such units in the forecasting process. This results in more precise predictions and control of changes in network flow caused by unstable, dispersed power sources. An additional benefit is an option for forecasting power demand in specific 110kV and/or LV nodes in the 72-hour timeframe. Such forecasts can be used for managing ongoing operations in 11kV and LV networks. With time, predicting and controlling the local energy production will become necessary for preventing blackouts and maintaining the stability and safety of network operations.

REFERENCE

TRADEA SP. Z O.O.

Radosław Bartnicki
radoslaw.bartnicki@tradea.pl
Energy trade

Since the beginning of 2021, Globema provides a service with regular, daily production forecasts for about 250 wind and solar farms. Forecasts enabled creating sale schedules at Tradea.

The implementation included:

- Collecting and analyzing data needed for building a predictive model based on historical and ongoing production data as well as different weather forecast models
- Building, training, and tuning the predictive model
- Initiating and maintaining the ongoing service

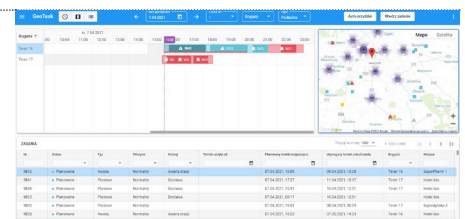
Reliable and accurate forecasts allow Tradea to increase the RES energy trade profit and reduce costs related to the forecasting process.

SOLUTION

5

GeoTask

A Workforce Management/Field Service Management software that uses Google Maps. GeoTask features communication tools between field technicians and dispatchers, scheduling tasks, and monitoring work progress in real time.



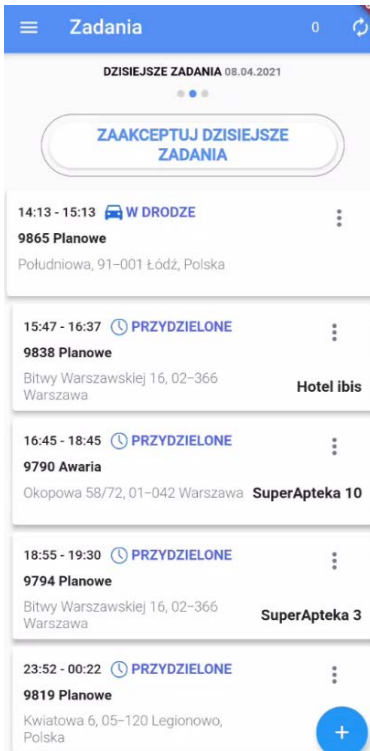
WHAT IS THE SOLUTION FOR

The **GeoTask** application helps to optimize technician routes using Google Maps. Dispatchers can monitor work progress in real time, which allows them to promptly adjust the plan if needed. **GeoTask** also supports collecting data in the field by taking pictures and filling out forms with voice commands.

HOW DOES THE SOLUTION WORK

The web app features automatic task scheduling and helps to assign work to technicians or teams according to availability and skills necessary to complete tasks. Schedules are also created most optimally based on deadlines and task locations. The system forwards schedules to the mobile app, which then allows technicians to manage their tasks.

BENEFITS OF IMPLEMENTATION



- Effective, automated scheduling and dispatching tasks
- Optimizing company resources
- Optimizing operational and transport costs
- Sustainable allocating tasks based on technician skills
- Improving the quality of customer service: shorter waiting time for appointments, fewer missed and failed appointments, notifications about the estimated arrival times of technicians
- Monitoring task progress in real time
- Direct communication between field workers and dispatchers via mobile app, automated notifications about task updates
- The system can be integrated with other systems using the REST API interface
- Optimizing system maintenance costs, either in the cloud model or using the company's architecture

REFERENCE

PERN S.A

+48 24 266 23 00
 pern@pern.pl,
 Polish leader of oil logistics

Implementing the GeoTask system and customizing it accordingly to the PERN's operations in the area of maintenance work (Globema, 2018)

Automation of distributing tasks between technician teams as well as monthly planning. Adjusting tasks, schedules, and data in forms by dispatchers. Integration module and work hours reporting features.

Achieved benefits include:

- A consistent format for inspection work repository
- Inspections are guaranteed to be completed with a frequency compliant with industry standards
- A radical reduction of costs related to using paper documents
- Improved control over fieldwork completion as well as location and performance of field teams
- Convenient access to task history from each device
- Improved process of laborious reporting between different departments at the company

J.S. HAMILTON POLAND

+48 58 766 99 00
 An accredited laboratory providing analyses of food, household chemistry, pharmaceuticals, packaging and industrial goods, fuels, and environmental samples (water, sewage, waste, soil).

Implementing the GeoTask system and adjusting it according to Hamilton's needs related to the processes of sampling planning and marking as well as delivering samples to laboratories (Globema, 2019).

Achieved benefits include:

- Improving the process of registering and managing samples and commissioned work at J.S. Hamilton
- Improving the planning process, scheduling completion dates at the time of registering the commission
- Ongoing control over tasks performed by the fieldworkers
- Improving the communication with field workers

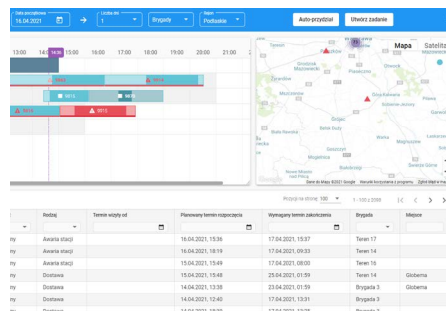
SOLUTION 6

GeoTraxx

WHAT IS THE SOLUTION FOR

An application based on Google Maps for automated planning of optimized routes to fieldwork locations.

GeoTraxx is made for companies of different sizes that use their own or third-party transport as well as logistics centers and departments. It helps to face challenges such as optimal route planning, loading trucks, and determining the order for delivery or collection of cargo. The GeoTraxx application automates the planning process and provides the shortest possible travel routes based on digital maps and navigation data.



HOW DOES THE SOLUTION WORK

GeoTraxx allows you to quickly work out a transport plan based on maps and navigation data from Google. GeoTraxx algorithms make the delivery plan realistic, accurate, and effective. Vehicle type, its maximum capacity, size of a truck's pallet space, driver's working hours and traffic based on Google Maps data are some of the parameters considered in route planning. Each delivery route is arranged in an order of scheduled delivery stops. The application navigates the driver to the next delivery stop. The driver reports a finished task so that the dispatcher can see the current status of the order.

BENEFITS OF IMPLEMENTATION

- Optimized delivery routes based on Google Maps and real-time traffic data. This results in a reduction in transport costs, completing more tasks using fewer vehicles, and timely deliveries
- Improved planning effectiveness – defining the routes and planning the vehicles' load is automated and takes less than an hour. Tasks can be planned multiple times a day
- Improved business flexibility – the current status of deliveries can be monitored without any additional GPS devices and necessary corrections can be promptly applied
- Direct communication between drivers and dispatchers via mobile app, automated notifications about task updates
- The system can be integrated with other systems using the REST API interface
- Optimizing system maintenance costs, either in the cloud model or using the company's architecture

REFERENCE

TRANSCATERING

+48 505 997 203

biuro@cateringtrans.pl

Services for companies providing daily catering

GeoTraxx, Globema, 2017

Standard GeoTraxx version. Currently, the system supports about 800 deliveries a day.

Achieved benefits include:

- Improving the process of planning deliveries
- Improving the process of communicating with the drivers

LIVRE SP. Z O.O.

+48 22 733 50 10

fk.wspolpraca@olesiejuk.pl

A delivery company providing furniture transport and assembly services.

GeoTraxx, Globema 2020

The GeoTraxx system with an expanded reporting module and an option for generating specialized transport documents. It supports planning and control over about 3500-4000 tasks a month.

Achieved benefits include:

- Improving the delivery planning process
- Providing accurate, real-time reports on the performed tasks required by Livre's customers
- Reducing the task registration times
- Improved communication between dispatchers and drivers

SOLUTION 1

The Municipal Management Platform

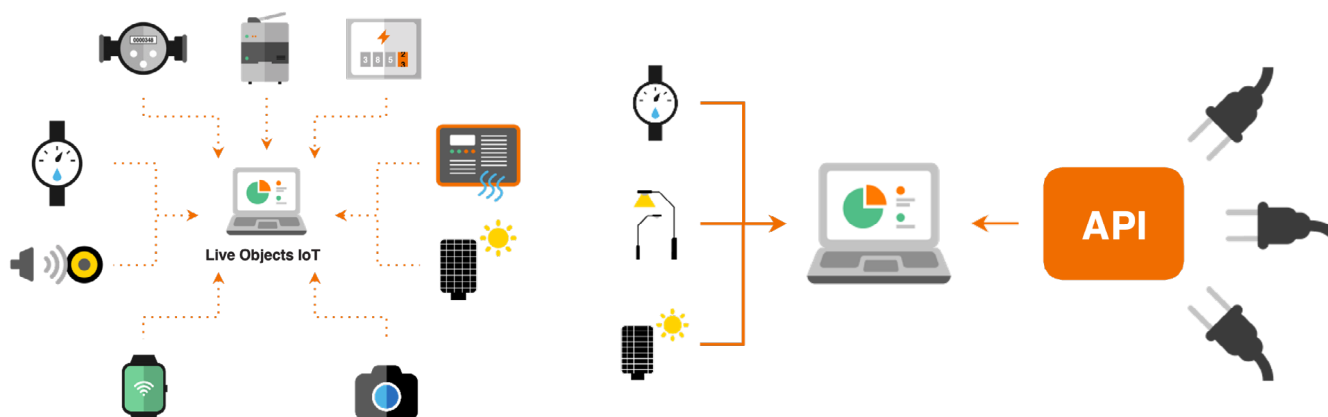
The Municipal Management Platform by Orange integrates services and technologies in one platform that aligns with the “smart city” concept.

WHAT IS THE SOLUTION FOR

The solution enables managing the connected infrastructure (for example meters, smoke detectors, bicycles).

HOW DOES THE SOLUTION WORK

- Comprehensive management of different equipment and municipal services.
- Automation of complex processes municipal management with the uniform central system (can be connected with the existing infrastructure).
- Development of applications and IT solutions for municipal residents and services, based on the data from the Platform.



BENEFITS OF IMPLEMENTATION

- **Everything in one place**
 - Integrated municipal management (IoT Platform)
 - Access to dashboards
 - One account
- **Easy management** - one data visualisation (dashboard)
- **Potential contribution to lower capital expenditure** (no duplication of systems)
- **Guaranteed data safety**

EXAMPLE OF IMPLEMENTATION

Increased municipal control over municipal utilities (Smart Water, Sensor, Lights, Bike), reduced costs and improved quality of life of the residents in Bolesławiec

Implemented a platform for sending data in real-time, monitoring the noise level and improving the quality of life of the residents in Warszawa.

SOLUTION 2

Photovoltaic

WHAT IS THE SOLUTION FOR

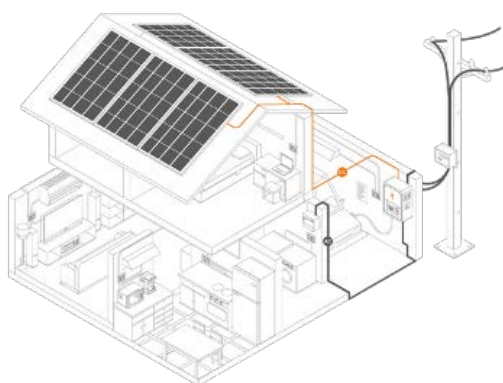
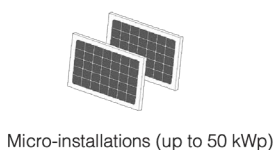
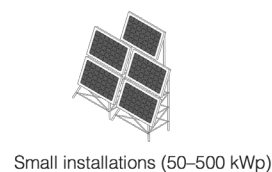
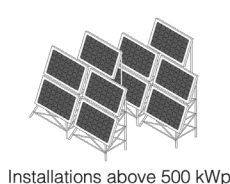
Photovoltaics consist in converting solar light into electricity, or in simpler terms: generation of electricity from solar radiation. The process is conducted using photovoltaic panels.

In the era of systematic increase of energy prices, investment in **energy efficiency** and installation of own energy sources is increasingly necessary. This solution is **for everyone, who wants to implement savings on energy costs**.

A photovoltaic system provides:

savings on energy costs, up to several dozens percent, a step towards energy independence.

protection from potential energy consumption restrictions (particular risk in summer).



BENEFITS OF IMPLEMENTATION

- Own generation of renewable green energy and reduced CO2 emission.
- Actual deceleration of energy price increases for several dozens of years.
- 24h full monitoring of the installation and main connection.

BENEFITS OF IMPLEMENTATION

Solution implemented at:

- **Zakład Utylizacji Odpadów Komunalnych "Izery"** in Lubmierz
- **PHU "Jan"** in Dobczyce
- **ORP Sp. z o.o.** in Brody, near Kalwaria Zebrzydowska

SOLUTION 3

Smart Lights

Municipality or city area lighting is always a significant item in the local government and company budget.

In the era of increase of energy prices, the replacement of older, energy-consuming sodium (or mercury) lighting is becoming an essential investment.

Smart Lights is an innovative solution by Orange, included in Smart City, used for lighting infrastructure management. It was designed in co-operation with leading lighting manufacturers.

HOW DOES THE SOLUTION WORK



Smart Lights enable:

- Controlling individual fixtures or groups of fixtures
- Increasing the energy efficiency and savings
- Optimising lighting infrastructure operation
- Quick detection of failures of the lighting system
- Visualising operation of the system and its components

BENEFITS OF IMPLEMENTATION

Benefits of implementation rozwiązania są następujące:

- dokładne opomiarowanie zużycia wody;
- ograniczenie kosztów rozliczania użytkowników;
- ograniczanie strat;
- szybsze wykrywanie awarii;
- bilansowanie sieci.

SOLUTION

4

Smart Heat

It is an innovative solution by Orange, included in Smart City, used for monitoring the measurements of heat and other utilities.

The remote reading enables obtaining full knowledge of measurement data from heat meters, regulator settings, water meters and current readers.

Smart Heat also provides:

- control over heating nodes,
- supervision over the pre-insulated system,
- safety of infrastructure and systems.

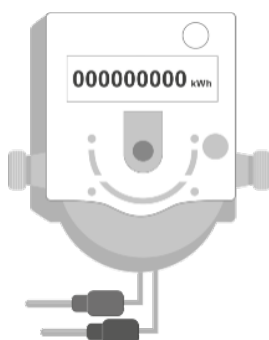
WHAT IS THE SOLUTION FOR

This is a solution to monitor measurement of heat and other utilities. It is a perfect solution for:

- Licensed heating companies
- Companies with combustion facilities for energy generation purposes
- Property managers
- Housing co-operatives

HOW DOES THE SOLUTION WORK

- Dedicated IoT devices for reading heat meters and regulators
- Dedicated devices for locations without access to electricity
- Support systems - available in modular form
- Wide options of project funding - one-off and monthly payments, instalment system



Reading of
heat meters



Reading of
regulator settings



Reading
of water
meters



Reading of
energy
consumption



Reading of
independent
sensors,
converters...

BENEFITS OF IMPLEMENTATION

- Accurate and reliable measurement data – online remote reading of heat meters facilitates settlement and quick identification in case of potential failure
- Energy efficiency – remote changes of regulator settings facilitate quick response to changed conditions and savings
- Higher operating efficiency – remote access enables minimising field visits
- Quicker return on investment with accurate selection of hardware and wide options of funding
- Support systems and additional sensors enable creating new services (“heat comfort”)
- Online monitoring enables quicker response to failures and problems, which translates to higher loyalty of the Customers

SOLUTION**5****Smart Water**

The digital revolution forces introducing changes in the operation of cities and municipalities, as well as companies. Nowadays, it is necessary to consider implementing new solutions that enable modern, quick and economical operation.

Orange created a modern solution called Smart Water, which facilitates water supply and sewage system management.

WHAT IS THE SOLUTION FOR

This is an innovative IoT solution for remote reading of water, using the GSM network.

Highlights of Smart Water:

- Remote and fully automatic reading of water meters
- Monitoring and management of the water flow
- Reduction of abuse and irregularities at the stage of water distribution that are impossible to detect and determine with traditional methods

HOW DOES THE SOLUTION WORK

- Simple dashboard with processed data visualisation - tables, widgets, maps, lists
- Data collection – all reading data, alerts, reports and statistics in one place
- Device management – reports, statistics, alerts for devices

BENEFITS OF IMPLEMENTATION**Comfort**

- Remote and automatic reading with consumption balancing capabilities
- Integration of water meters of different manufacturers in one system
- Application with 24h access to data

Monitoring

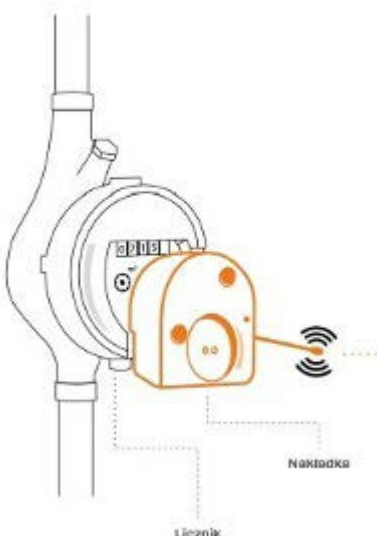
- Water flows in the entire water supply system
- Access to data on flows in the day-time mode
- Online alerts, for example leakage, diversion

Safety

- Highest standards of collected data security
- Easy and safe funding system

Savings

- Daily reports on water balancing
- Reduced water losses
- Higher water sales, lower operating costs



SOLUTION 6

Smart Charger

Nowadays, most manufacturers offer hybrid and electric cars. Clean air is increasingly important for people, so they are increasingly willing to choose those cars. In addition, Polish law forces the transition to environmentally-friendly cars. This will cause an increasing demand for charging stations.

WHAT IS THE SOLUTION FOR

Smart Charger is an offer of modern car chargers by Orange, which is distinguished by:

- wide range of charger models,
- possible individual visualisation of personalisation,
- possible turn-key installation, including "design and build",
- 24h charger monitoring.

HOW DOES THE SOLUTION WORK

- Simple dashboard with processed data visualisation - tables, widgets, maps, lists
- Data collection – all reading data, alerts, reports and statistics in one place
- Device management – reports, statistics, alerts for devices

BENEFITS OF IMPLEMENTATION

Station type according to accessibility:

- Private stations
- Semi-private stations
- General access stations

Station type according to charging type

- AC stations
- DC stations
- Superchargers

Sockets and plugs in use:

- Socket type 2/AC
- Socket type 1/AC
- Plug type 2/AC
- Plug type CHAdeMO/DC
- Plug type CCS2/DC

EXAMPLE OF IMPLEMENTATION

Implemented charging stations in **Śrem** and **Kalisz**
Planned implementation of two more chargers

SOLUTION 7

Smart Bike

We are living in times, in which climate protection is increasingly prominent. The subsequent changes are visible and increasingly perceptible, so Orange prepared the offer of 4th generation bicycles to address these challenges. They enable the inhabitants to move around the city quickly and comfortably without the need to use cars or public transport, as well as without having to find a bicycle docking station.

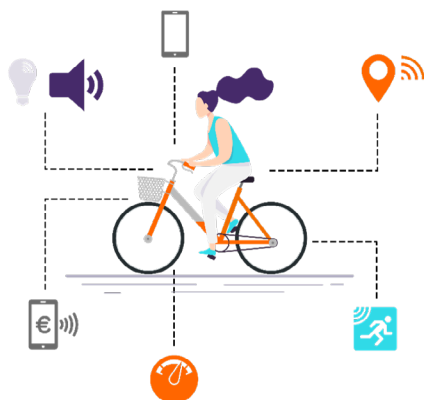
WHAT IS THE SOLUTION FOR

Smart Bike is a 4th generation bicycle system that can transform every city. These are modern bicycles, distinguished by no need to build a docking station.

HOW DOES THE SOLUTION WORK

The use of the GPS location technology, GSM and motion sensors that enable starting and ending the trip at any point designated by the administrator.

The lack of docking stations or their virtual equivalents guarantee savings to the city, freedom and comfort to the users and full control to the administrators.

BENEFITS OF IMPLEMENTATION

Smart public transport system

Efficient fleet management system, reduced environmental impact

Expansion of P&R (Park and Ride) and B&R (Bike and Ride) solutions

Cycling infrastructure, including cycling paths, contributes to city or municipality promotion

Environmentally-friendly transport to work (often shortening the travel time)

Development and promotion of bicycle tourism

Dedicated multi-lingual application for renting and returning bicycles

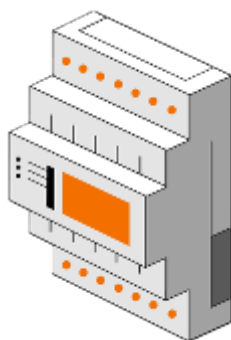
SOLUTION**8****Smart Astro**

The Municipal Management Platform (Live Objects) – stores the data reported by astronomical clocks, enables sending control commands to change clock configuration, releases data to control applications through the API

The WEB server Dashboard application – visualises the information stored in LiveObjects, enables sending the reports and alert notifications to target

WHAT IS THE SOLUTION FOR

The **SmartAstro** system for monitoring and remote setting of astronomical clocks used for controlling street lighting.

HOW DOES THE SOLUTION WORK

- The astronomical clock is used to enable and disable lighting or other energy loads in accordance with daily astronomical sunrise and sunset points.
- The clock automatically determines daily temporal points of contact activation and deactivation.
- The Smart Astro solution enables expediting or delaying the programmed activation and deactivation points.
- It is also possible to program a NIGHT BREAK, that is temporary shut-down of the loads for economy purposes.
- It is also possible to program an annual, cyclical CALENDAR OF EXCEPTIONS from the rules, as well as a set of ABSOLUTE EXCEPTIONS for specific dates.
- In addition to the astronomical clock, the outputs support the standard activation and deactivation function for the controlled load.

BENEFITS OF IMPLEMENTATION**Savings Calculator**

The supplied application also enables presenting the savings obtained by application of the SmartAstro system.

An unquestionable source of savings on time and labour costs is the possibility of remote control and management of clock settings. An additional correction of the lamp activation and deactivation times and optional night breaks generate savings on electricity costs.

The calculator enables:

- entering the controlled lamp power for every astronomical clock
- configuring the electricity costs (accounting for the day and night tariff)
- calculating the energy consumption costs per day/month/year, depending on the sunrise and sunset correction settings and optional night breaks.

Lower CO2 emission

The lower energy consumption translates not only to savings in the municipality or city budget. It also results in lower gas and chemical emissions to the atmosphere.

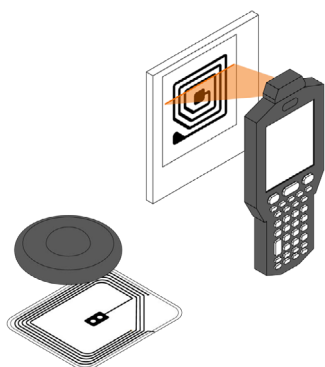
The Smart Astro application related to energy savings will show the reduction of emissions to the atmosphere for:

- Carbon dioxide (CO₂)
- Sulphur oxide (SO_x/SO₂)
- Nitrogen oxide (NO_x/NO₂)
- Carbon monoxide (CO)
- Total particulates

SOLUTION

9

RFID Radio Frequency Identification



RFID is a technology for automatic identification of objects and persons using radio waves, which enables saving, storing and reading information.

RFID tags are small data media in various shapes and sizes. They can be placed on objects, in devices or inset in clothes. They are compatible with:

- mobile terminals, desktop readers, RFID antennas,
- RFID roll label printers,
- passive, active and RTLS tags.

WHAT IS THE SOLUTION FOR

Quick technological development forces the companies to transform. The technological revolution is based among other things on network communication and human-machine communication.

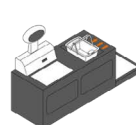
The RFID technology has become the modern standard for the identification of persons and communication between them.

BENEFITS OF IMPLEMENTATION

- Time optimisation
- Improved efficiency
- Increased security
- Financial savings
- Automation and management
- Integrity of systems

EXAMPLES OF IMPLEMENTATION

- **Davis** – reduction of lost fabrics.
- **Poczta Polska** - optimisation of processes and reduction of fixed costs.
- **Orange Polska** - optimisation of counting time and monitoring of fixed assets at the OPL office.



SOLUTION

10

API Products

WHAT IS THE SOLUTION FOR

API will streamline operations at your company. With this solution, you will build advanced IT systems using the full capabilities of the utilities of the telecommunications carrier.

HOW DOES THE SOLUTION WORK



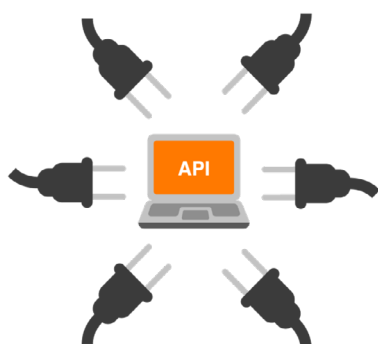
The API Orange exposition platform is dedicated for Customers with resources, infrastructure and competencies to download and use data by means of API REST interfaces.

API is a set of IT functionalities that enable external systems or applications to use carrier capabilities, such as:

- sending SMS,
- geolocation,
- monitoring terminal status.

This is direct, flexible and unified access to data.

BENEFITS OF IMPLEMENTATION



- Time optimisation - automated SMS from the Customer systems (marketing campaigns, access authorisation etc.)
- Use of carrier capabilities:
 - Terminal location checking (within the own SIM card fleet).
 - Automation and modification of the IT systems of the Customer by supplementation with components and data from the carrier.
 - API Rest interfaces for quick integration of Customer and carrier environments.
- Transformation of the recipients of telecommunication services into creators of new applications
 - together, we form an open community that shares experience.
- Flexible settlement models - minimum annual declaration or subscription.

Polkomtel Sp. z o.o.

ul. Konstruktorska 4
02-673 Warsaw
tel.: (48) 22 426 10 00
tel.: (48) 22 426 56 00

*Provider of modern telecommunications
services in B2B and B2C model,
member of media and telco group Cyfrowy Polsat.*

SOLUTION ①

Provision of geolocation data on calls and call attempts to emergency numbers

Plus network operator was first on the Polish market to implement the service of providing real-time data on approximate geolocation of calls and attempted calls to emergency numbers. The service is addressed to entities and public utility service providers that operate emergency numbers (eg. waterworks companies, power companies, district heating companies, gas plants). The first entity to make use of this service was the Municipal Waterworks and Sewage Company in Wrocław (MPWiK Wrocław) , an industry technological leader.

WHAT IS THE SOLUTION FOR

The services enables real time monitoring and geolocation of places from which there is the highest number of calls to emergency numbers at a given moment, eg. to the Wrocław water and sewage emergency number 994 to report system failures. The service deals with the problem of unavailability of emergency numbers caused by network number overload during massive waterworks system failures.

HOW DOES THE SOLUTION WORK

Plus network operator provides the Client who operates an emergency number, eg. 994, anonymised and aggregated data about the approximate geolocation of calls and attempted calls from Plus numbers to the Client's emergency number. The data is made available in real time on Polkomtel's server and downloaded via API to the Client's server.

BENEFITS OF IMPLEMENTATION

The advantage for the Client is the possibility to immediately assess the scale and societal impact of the massive failure and its approximate location in order to provide swift failure assistance and reaction of technical service in a manner optimised with regard to time and geographical scale.

REFERENCE

MUNICIPAL WATERWORKS AND SEWAGE COMPANY IN WROCLAW

Utility services for Wrocław citizens.

**Provision of geolocation data on calls and call attempts to emergency numbers.
Provider: Polkomtel Sp. z o.o.
Implementation date: 08.12.2018**

Anonymized and aggregated data on approximate geolocation of calls and attempted calls from Plus network to the client's emergency number is provided in accordance with GiS format standard. The client downloads the data via API and visualises the data on its map of water and sewage networks in Wrocław.

Miejskie Przedsiębiorstwo Wodociągów
i Komunikacji S.A. we Wrocławiu
Na Grobli 14/16, 50-421 Wrocław.
Phone: 071-34 09 500,
e-mail:mpwik@mpwik.wroc.pl

Ensuring continuity of water supplies to our customers is crucial for us, that is why in case of water system failures, especially on a big scale, the quickest possible time for reaction is very important. Thanks to our partnership with Plus network and a “we can do it approach” we have worked out and implemented an innovative way to raise the quality of our service and our customers’ comfort by using data managed by the network operator. Having real time access to information we can assess the scale of the failure (based on the number of calls) and its approximate geolocation (based on anonymised caller location data) even before the callers actually report the failure. In case of massive system failures every single minute counts. A short reaction time results, above all, in: limiting burdensomeness for customers, limiting water loss caused by the leakage, limiting negative impact on the surroundings, e.g. road surface damage, flooding of cellars, increasing safety of citizens – explains Piotr Słomianny, Finance Director at MPWiK Wrocław.

SOLUTION 2

system SiDLY



SIDLY Sp. z o.o. is an innovative Polish technology company which created a market for telecare wristbands in Poland. It successfully delivers telecare solutions for businesses, medical care units, hospitals and individual customers.

The SiDLY telecare system consists of a device - a wristband, an application and a telecare platform. The telemedicine platform is facilitated to the client or can be operated by paramedics from the SiDLY Healthcare Telemedicine Clinic. The SiDLY telecare system enables distant care of the SiDLY wristband user, including monitoring vital signs (pulse, saturation). The system consists of:

- a medical device (telecare wristband worn on the wrist like a watch)
- a phone application for the wristband user and his/her caregiver with a data view
- a telecare platform where all the data collected by the wristband is stored.

The telemedicine platform is operated by a telecentre where paramedics are employed. Their role is to make an intervention when the wristband detects a dangerous situation or when the user calls for help.

The telecom service necessary for the functioning of this solution is delivered by Polkomtel Sp. z o.o.

WHAT IS THE SOLUTION FOR

The SiDLY system allows for providing safety to patients, elderly, lonely and sick people and enables on-going monitoring of their health condition.

- Used in medical units it improves efficiency of medical staff by measuring vital signs and storing them on the platform
- In the case of individual clients who use the SiDLY system with a telecare service, it allows paramedics to provide distant care regardless of the time and place where the client is. The wristband enables on-going monitoring of vital signs. If it detects a situation dangerous to a user's health or a fall, the wristband sends an alarm that is visible on the telecare platform and enables intervention and help to be provided for the wristband user.

HOW DOES THE SOLUTION WORK

The network operator Plus provides anonymised and aggregated data about the approximate geolocation of calls and attempted calls from Plus numbers to the Client's emergency number. The information is delivered to the Client who operates an emergency number, eg. 994. The data is made available in real time on Polkomtel's server and downloaded via API to the Client's server.

BENEFITS OF IMPLEMENTATION

The advantages for hospitals are:

- Regular and frequent measurements of pulse, saturation.
- Expansion of the current call system. The SIDLY system is a modern call system. The user can make voice contact with the medical staff via the wristband without leaving the hospital bed.
- Patients' safety. Monitoring vital signs every 90 seconds and constant access to the history of the patient's condition.
- Medical staff safety. Reducing the number of necessary staff entries to the hospital ward to the minimum.
- Patient localisation. The wristband contains an in-built GPS module and enables not only localising the patient but also setting safety zones and alarming in case they are crossed.
- The ability to provide the patient with medical supervision at home. The patient can be monitored from any place. The doctor can look over the convalescence of a patient who is in home isolation.
- Savings for the hospital. Reducing the costs of protection garments/equipment for medical staff.
- Constant access to data. All data is saved on a dedicated platform, so that the staff can view the changes in data over a time span. This simplifies the diagnosis and coordinating the treatment.
- Risk reduction on infectious disease wards. The wristband also allows for risk mitigation in such wards by reducing the number of interactions between the patient and staff.
- Managing unwanted incidents. The wristband is equipped with a fall detector. When a dangerous situation occurs it alarms the operator, who takes immediate action.
- Optimising staff work. The wristbands monitor patients vital signs', so all the measurements do not have to be performed by medical staff. The wristband optimises staff work by allowing for health monitoring of several patients at the same time. It has been validated on the basis of past implementations that the wristband used in a hospital ward with 30 patients can save 70-90 hours of staff work.

The advantages for individual users are:

- Safety. Users are safe thanks to telecare. They have 24-hour access to the telecentre with paramedics who can intervene immediately in case of danger. The system allows for providing distant care to seniors and patients, lone people, in need of care, who have chronic diseases. It brings relief to family members who care for their loved ones.
- Family care. The system enables family care - members of the family who are caregivers can install the application and have access to measurement history and can receive alerts if the wristband user's health condition changes. If a dangerous situation occurs, they will be notified by the application.

EXAMPLES OF IMPLEMENTATION

Several dozen thousands of individual users use the SIDLY system. The SIDLY telecare system has also been implemented in 16 countries and in over 150+ local authority units including in Warsaw, Gniezno, Lublin, Radom, Toruń, Wągrowiec, Ustka. The system has been implemented in numerous care units and hospital wards, including the infectious diseases ward at Szpital Wojewódzki (regional hospital) in Opole and many other hospitals, inter alia in Italy, Portugal and Belgium.

SOLUTION 3

SNIKEYbox

The SNIKEYbox solution was developed by the start up – Wirtualny Konsjerz Sp z o.o. in cooperation with 2 companies belonging to the Cyfrowy Polsat Group - Polkomtel Sp. z o.o. and Plus Flota Sp. z o.o. The device meets the demands of Plus Flota users and employees by supporting the development and automation of car sharing in the Cyfrowy Polsat capital group.

SNIKEYbox is a modern safe box with a touchpad which enables simple unattended (automatic) round-the clock delivery and return of car keys and documents for cars available in the car sharing system. Based on submitted reservations, the appliance provides specific cars and the app that accompanies it simplifies monitoring car hand-outs, returns and the car condition (eg. amount of fuel, cleanliness).

The project was implemented by the Polkomtel Innovation Team and the Plus Flota project team during an acceleration programme conducted by the organization Impact Poland. The start-up SNIKEY worked together with the teams on the final version of the product, conducting user questionnaires and tests on subsequent prototypes, refining the final product in order to adapt it optimally to the needs of Plus Flota and car sharing users.

SNIKEYbox is a SaaS service combined with an IoT appliance. The service and the SNIKEYbox appliance are meant for B2B entities that manage car fleets, providing for drivers with different needs. Plus Flota sp. z o.o., which manages the Cyfrowy Polsat Group car fleet in a car sharing system, is the first company to use SNIKEYbox.

WHAT IS THE SOLUTION FOR

The application and device SNIKEYbox enable reservation and automated key handling of company cars shared by many drivers. SNIKEYbox gives users access to vehicles 24 hours a day. Thanks to transferring to an online application the register of car handouts and returns, as well as notices of car breakdowns, managing a company's car fleet becomes more efficient. The SNIKEYbox solution limits the number of repeatable activities when the car is handed over between drivers and servicing companies' employees

HOW DOES THE SOLUTION WORK

The Car Sharing Platform designed by Plus Flota gives Cyfrowy Polsat Group employees access to all shared vehicles. Each employee can make a reservation via the platform, then takes the keys at a designated SNIKEYbox which records key handouts and returns. In the meantime drivers receive necessary information about their reservations on their phones and at the same time can notify the fleet administrator via the online application of the condition of the vehicle. Thanks to the synchronisation of SNIKEYbox with the online reservation system and the car fleet management system, the administrator has constant access to information about the condition vehicles in the particular locations of SNIKEYbox.

BENEFITS OF IMPLEMENTATION

The advantages for a company implementing the SNIKEYbox solution are:

- 24 hour a day availability of vehicles to employees and independence from the availability of car fleet employees, which allows for optimising the use of fleet vehicles and decreasing TCO (Total Cost of Ownership). Relieving car fleet workers from repeatable activities and significant limitation of necessary paper documentation typical for traditional vehicle handouts and reporting vehicle condition.
- Shortening time necessary for key handouts and returns for drivers using fleet vehicles.
- Simple constant communication between fleet users.
- Better safety of employees during the pandemic.

EXAMPLES OF IMPLEMENTATION

The SNIKEYbox solution was implemented as one of the key tools in the automation of the sharing process of electric and combustion engine cars for Cyfrowy Polsat S.A. employees which is managed by Plus Flota.



**The Polish Chamber of Information Technology
and Telecommunications**

Al. Jerozolimskie 136 (IX piętro), Eurocentrum Alfa
02-305 Warszawa



Tel.: 22 628 22 60, 22 628 24 06

biuro@piit.org.pl

www.piit.org.pl