INNOVINNPROM

Industrial automation

- ✓ Thirty years of experience in complex automation of agribusiness enterprises
- ✓ The full cycle of automation - from design to commissioning
- ✓ Exclusively proven industrial solutions
- ✓ Own SAKURA-IIOT cloud software platform of the Internet of Things

Vinnitsa - 2023

INNOVINNPROM

SOLUTIONS FOR INDUSTRY

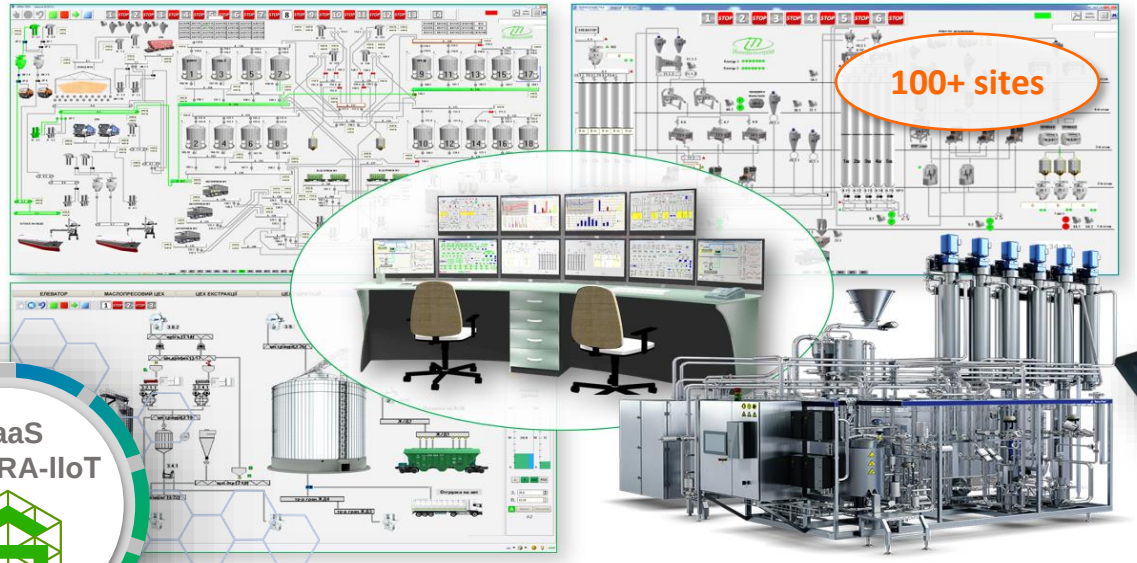
INDUSTRY 4.0

INNOVINNPROM: Products & Solutions

APM/MES/ERP/PLM

8 sites

Automated Design System “Route” / SCADA



100+ sites

Crystal Growing Systems

3 lines

PaaS
SAKURA-IIoT

Car Sampling Systems

45 sites

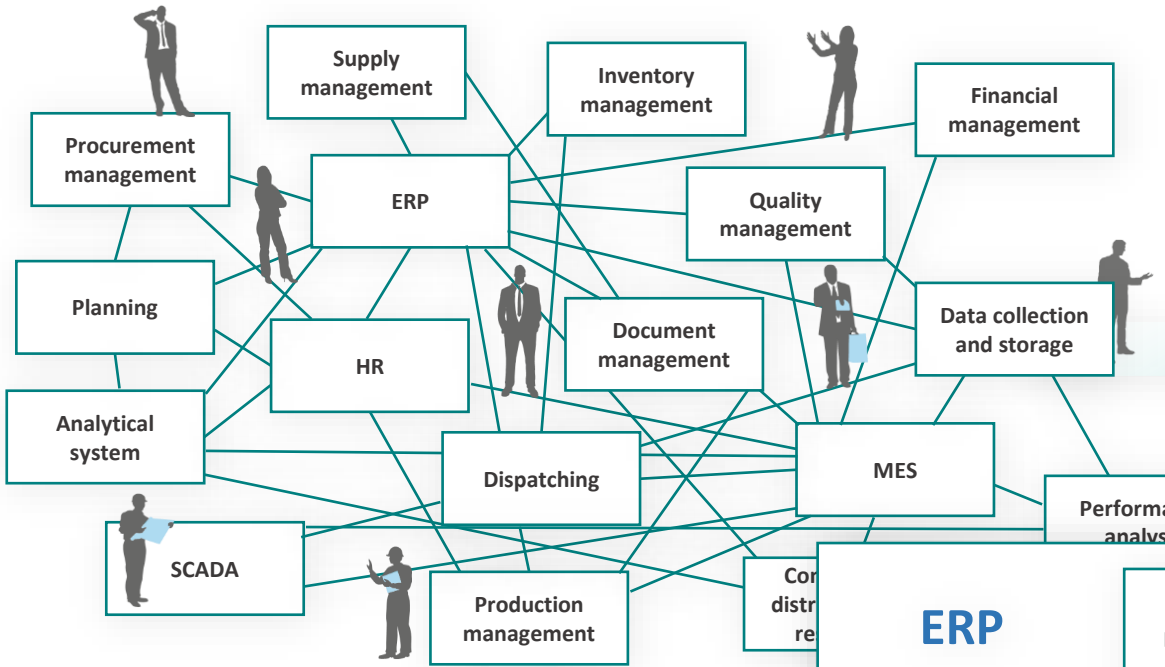
Hopper Railway Car Robotic Sampling Systems

4 sites

Monitoring Systems

50+ sites

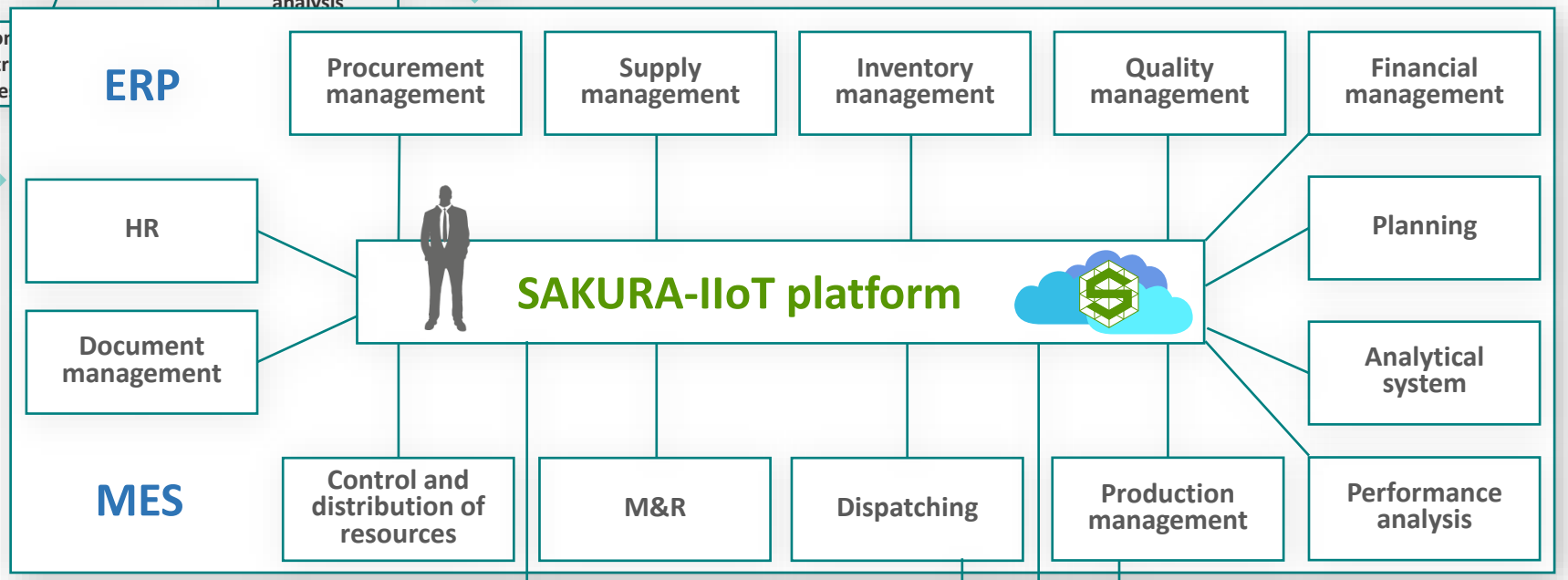
SAKURA Multi-Cloud Platform – from Chaos to System

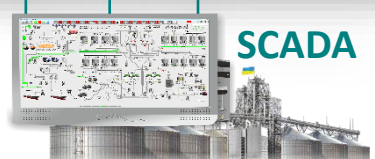


Reasonable reduction and simplification of production systems :

The SAKURA-IIoT information platform unites all enterprise systems (operational, technological, logistical, financial, and others) into a single information space, thus providing the owner and responsible employees of the enterprise access to all data that circulates in the system to any point on the planet in the mode real time

The unified information space based on the SAKURA-IIoT platform provides comprehensive control of the company's operational and technological costs, guarantees a reduction in the impact of the human factor and an increase in production efficiency and productivity.





SAKURA-APM Workspace

ІННОВІНПРОМ

Full Control and Analytics at All Levels - Holding / Enterprise / Production Line / Equipment

INDUSTRY 4.0

- Internet of Things
- Artificial Intelligence
- Machine Learning
- Edge Computing
- Big Data
- Cyber Security
- Digital Twin

SAKURA-ARM Asset Performance Management System

SAKURA-APM - **Asset Performance Management is a system for managing the efficiency of production assets based on the technologies of the fourth industrial revolution (Industry 4.0).**

The term "assets" means any production equipment - both equipment that ensures the vital activity of enterprises (power grids, substations, boilers, compressors, ...) and that which carries out processing and production of products (furnaces, machines, dispensers, bottling or assembly lines , etc.).

Like any classic APM system, the SAKURA-APM system contains two main components:

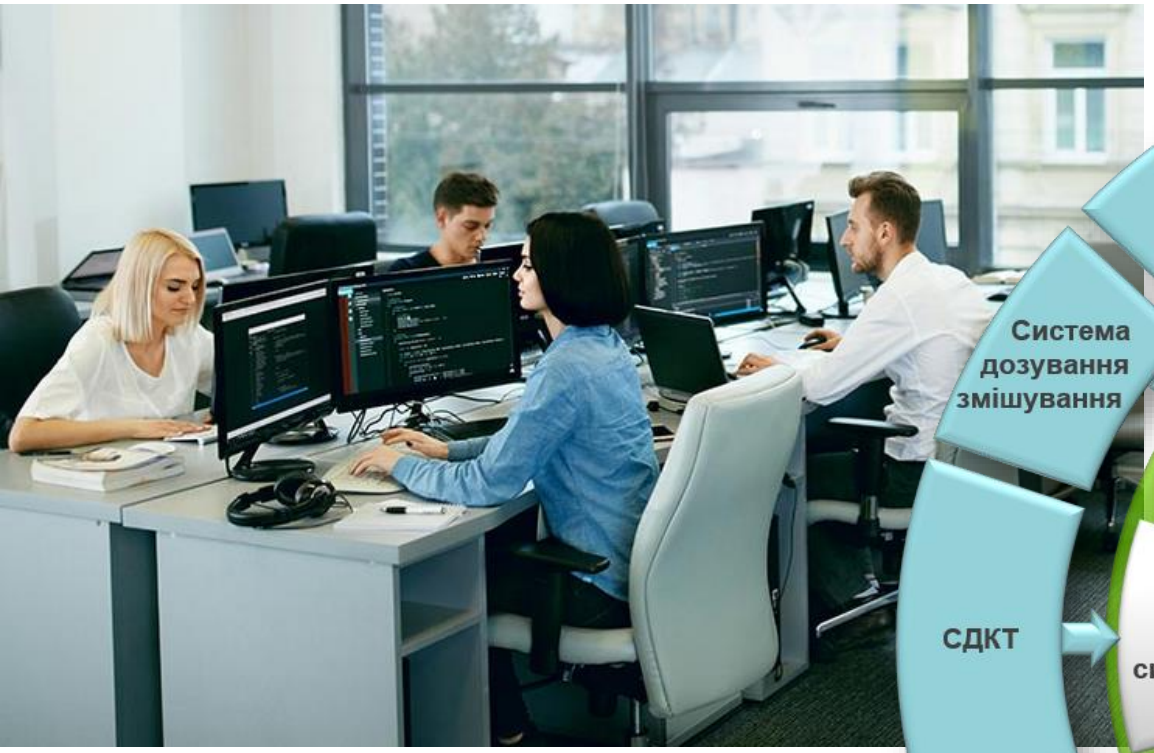
- **Maintenance and Repair (MRO)**
- **Production management systems aimed at operational excellence (Operational Excellence).**

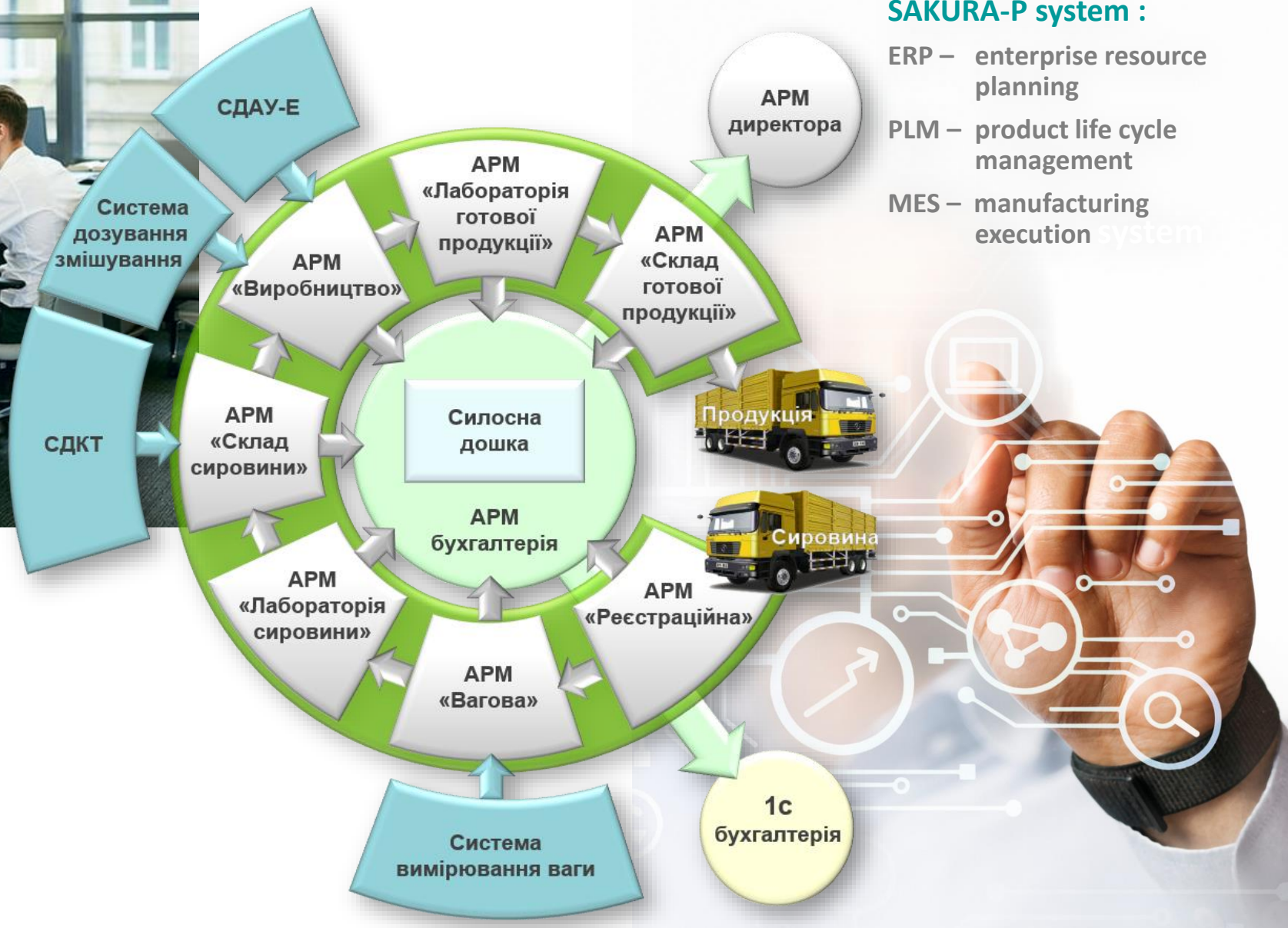
Reduction of operating costs is achieved due to better reliability of assets, extension of their service life (life cycle), reduction of the cost of implementation and operation.

This project received funding from the European Union's Research and Innovation Program Horizon 2020 within the framework of the BOWI project, financed under grant agreement No. 873155

INDUSTRY 4.0

Quantitative and Qualitative Accounting of Products - SAKURA-Production





SAKURA-P system :

ERP – enterprise resource planning

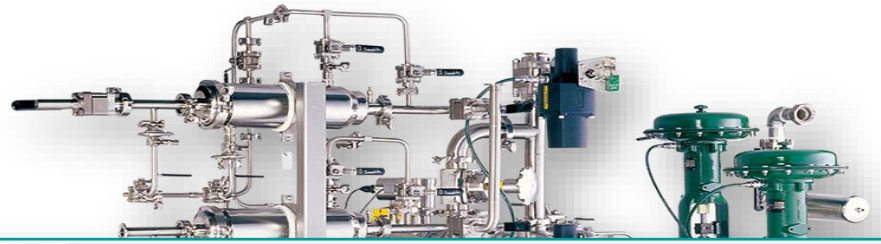
PLM – product life cycle management

MES – manufacturing execution system

- ✓ Quality management
- ✓ Enterprise resource management
- ✓ Product life cycle management
- ✓ Production management
- ✓ Formation of accounting documents
- ✓ Accounting

INDUSTRY 4.0

Energy Efficiency of Production - SAKURA-Technology



- ✓ Total control of equipment operation
- ✓ Intelligent adjustment of technology
- ✓ A significant reduction in the impact of the human factor
- ✓ Increasing the efficiency of equipment use
- ✓ Increasing the energy efficiency of technology
- ✓ Significant increase in the efficiency of business processes

Internet of Things
Інтернет речей

Artificial Intelligence
Штучний інтелект

Machine Learning
Машинне навчання

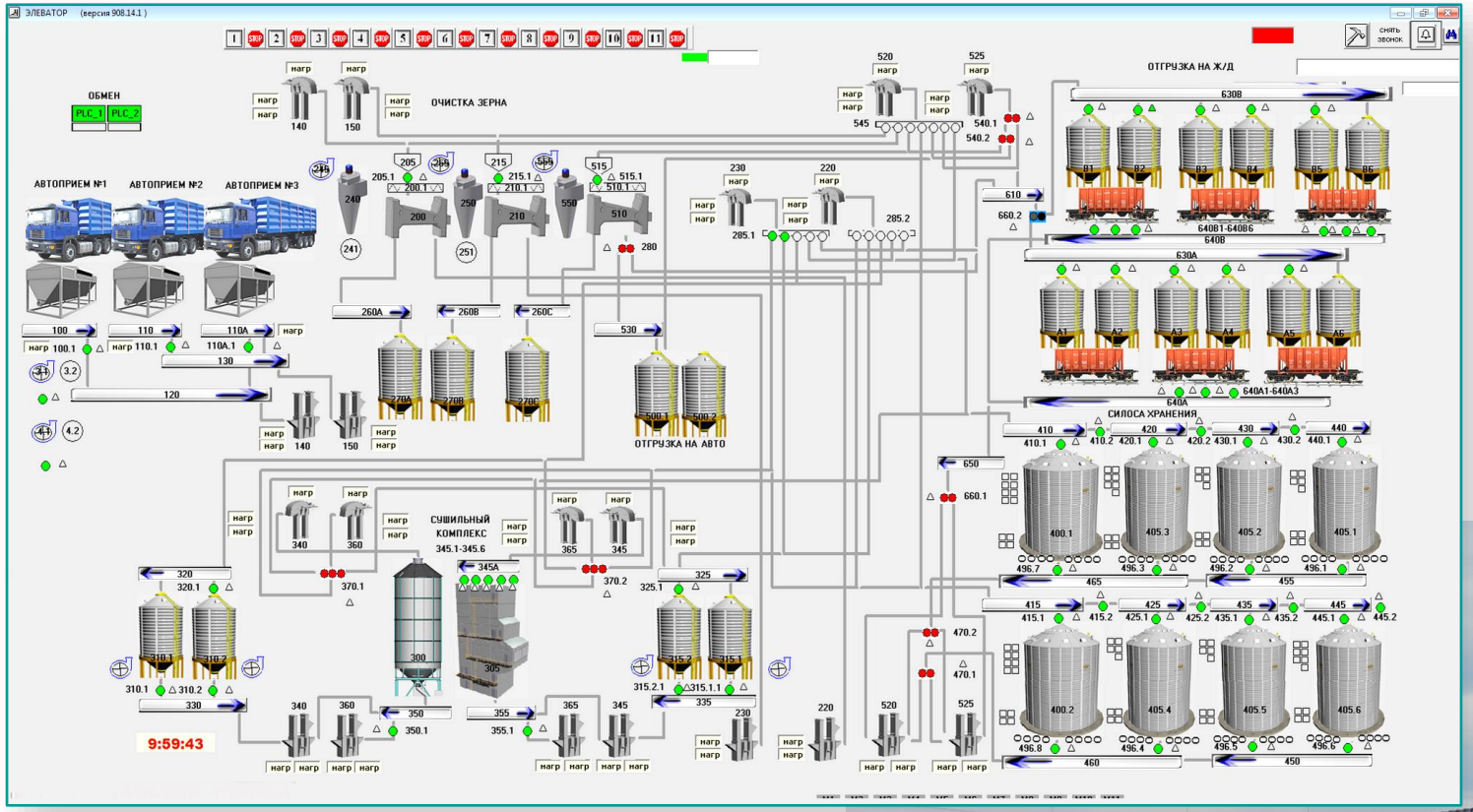
Digital Twin
Цифровий двійник

Big Data
Великі дані

Cyber Security
Кібербезпека

INDUSTRY 4.0

Automation of Grain Elevators and Port Grain Terminals

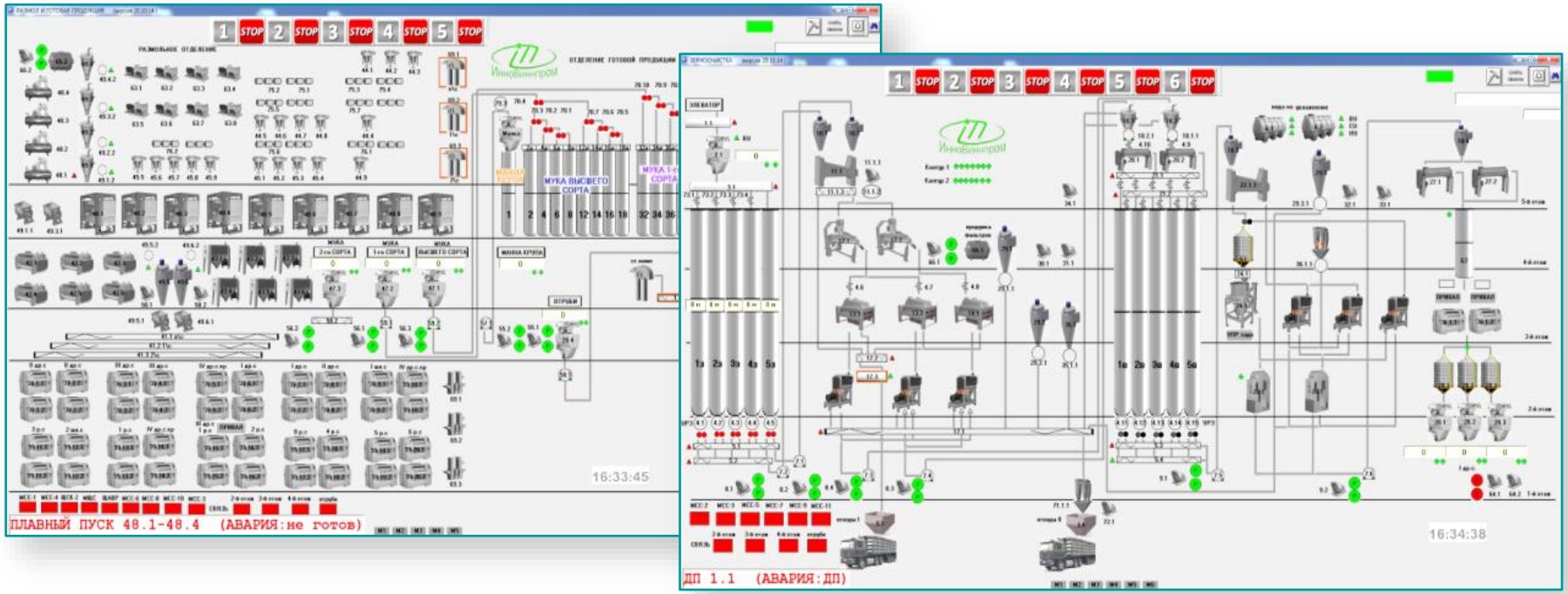


- ✓ Full range of services from design to commissioning "Turnkey elevator"
- ✓ Our own CAD automated design system "ROUTE" for the construction of automated technological process control systems (SCADA)

- ✓ Management of all processes
- ✓ Quality control of grain products
- ✓ Operational response
- ✓ Visualization of processes
- ✓ Keeping statistics
- ✓ Minimization of the influence of the human factor

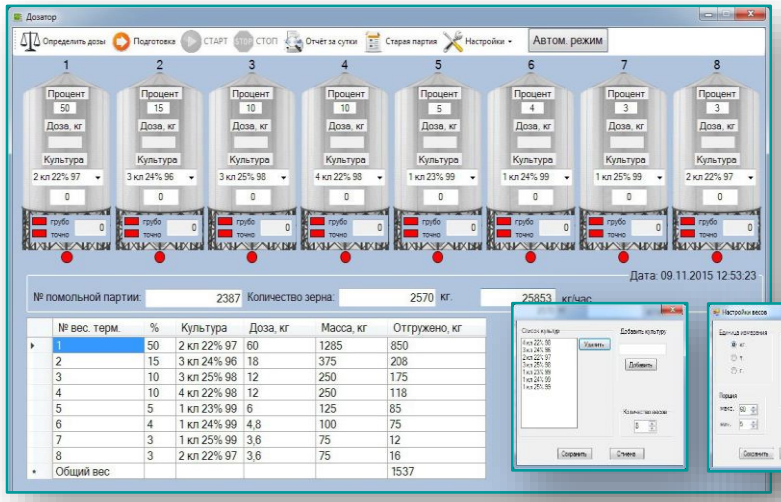
INDUSTRY 4.0

Automation of Mills



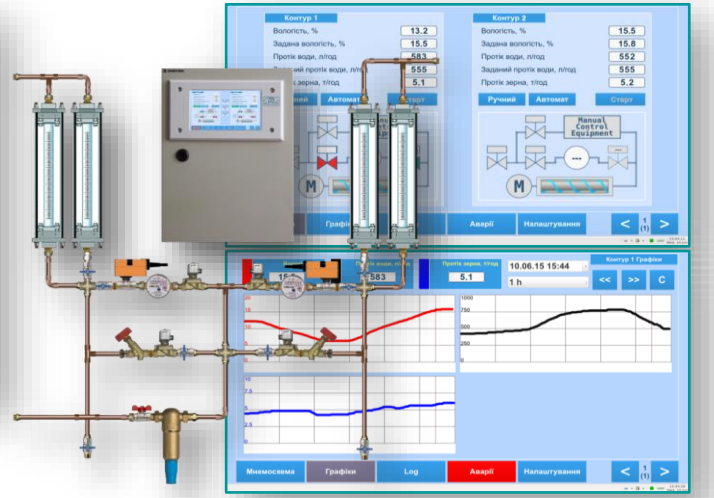
- ✓ Management of all production and technological processes
- ✓ Control of the quantity and quality of products
- ✓ Operational response
- ✓ Visualization of processes
- ✓ Keeping statistics
- ✓ Minimizing the influence of the human factor

Systems of formation of grinding batches



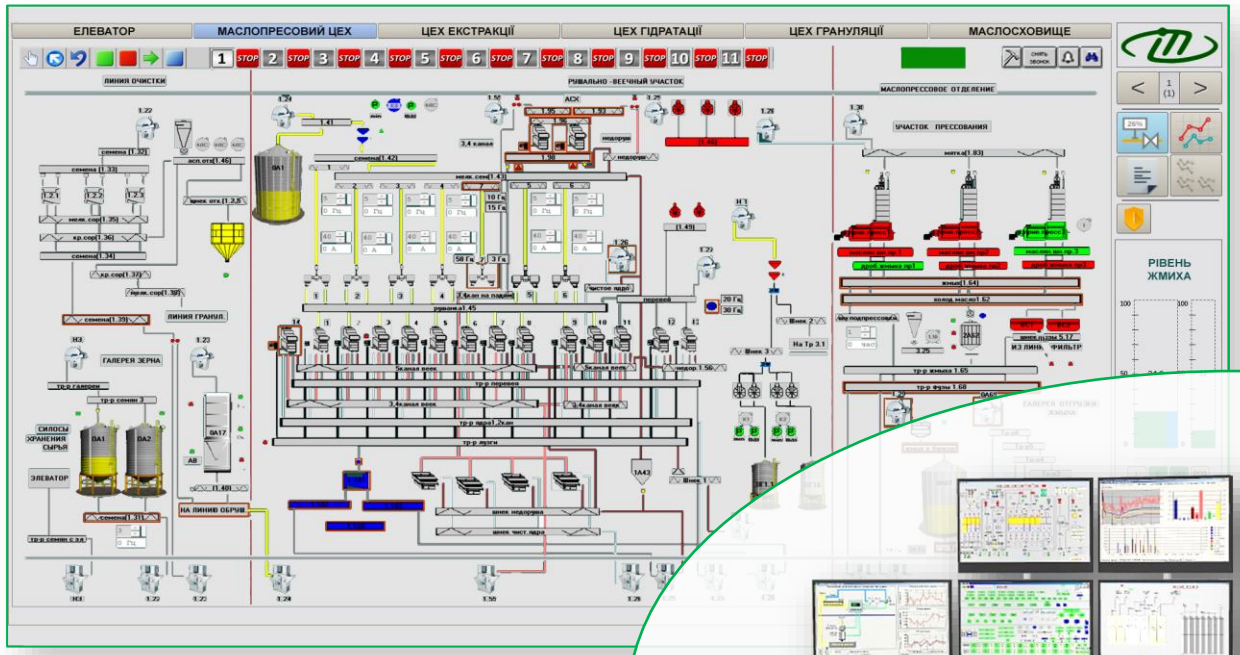
Mill productivity analysis systems

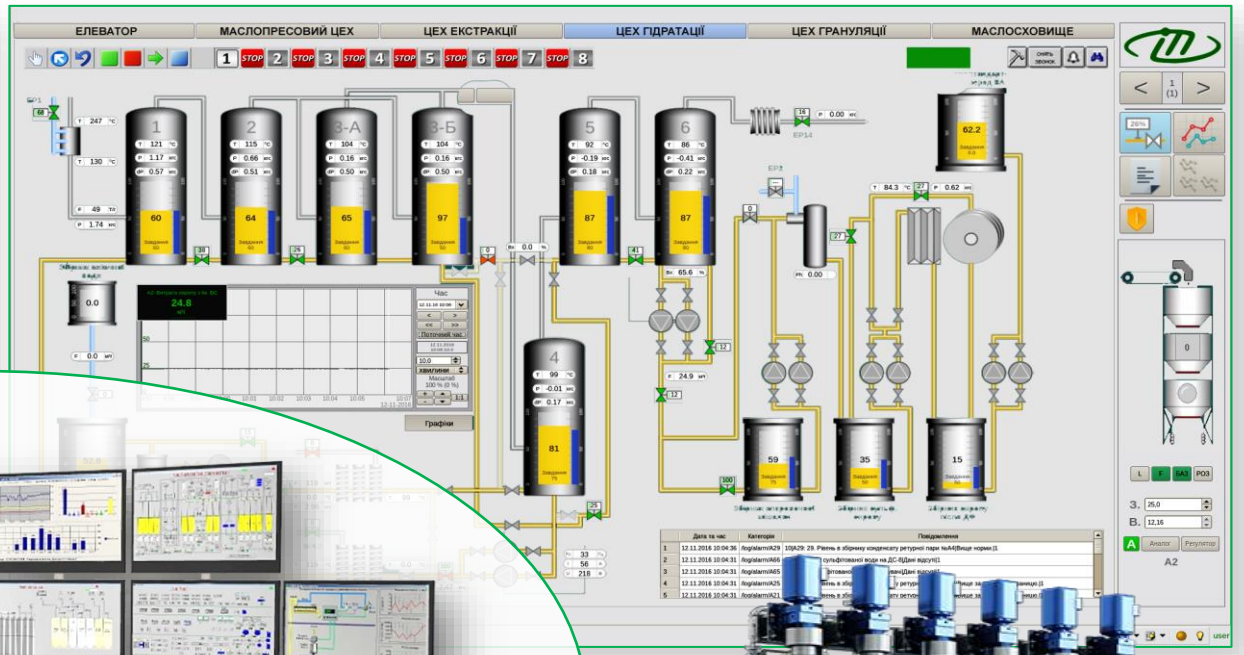
Grain moistening systems

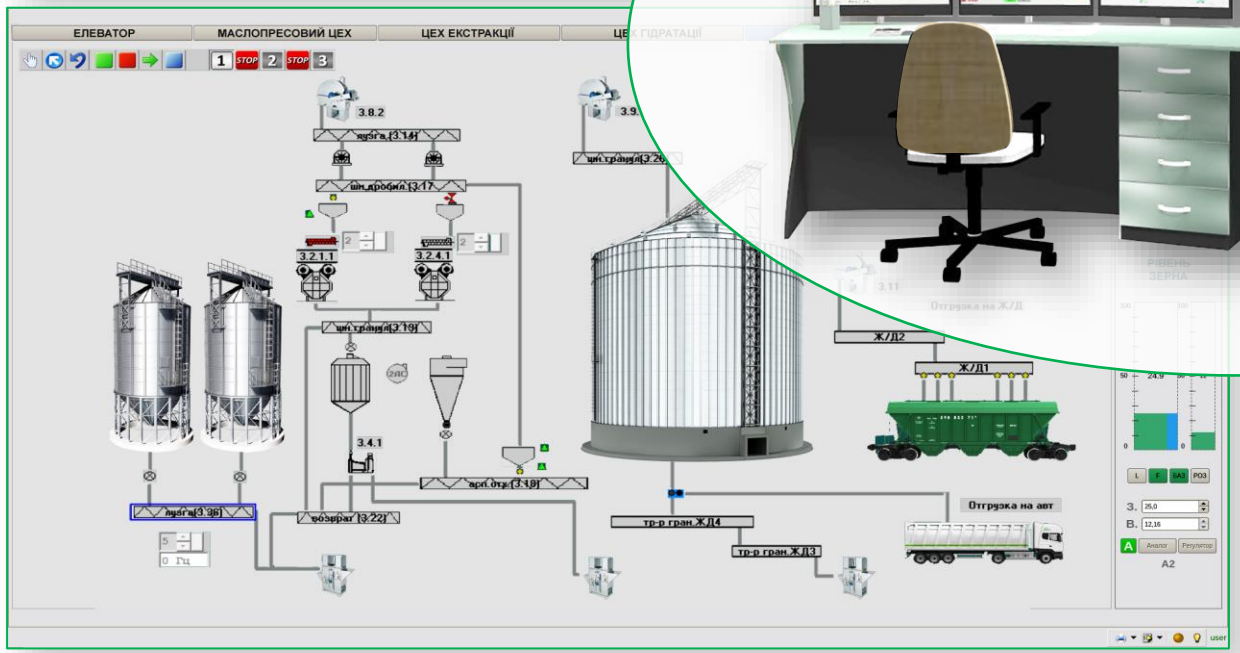


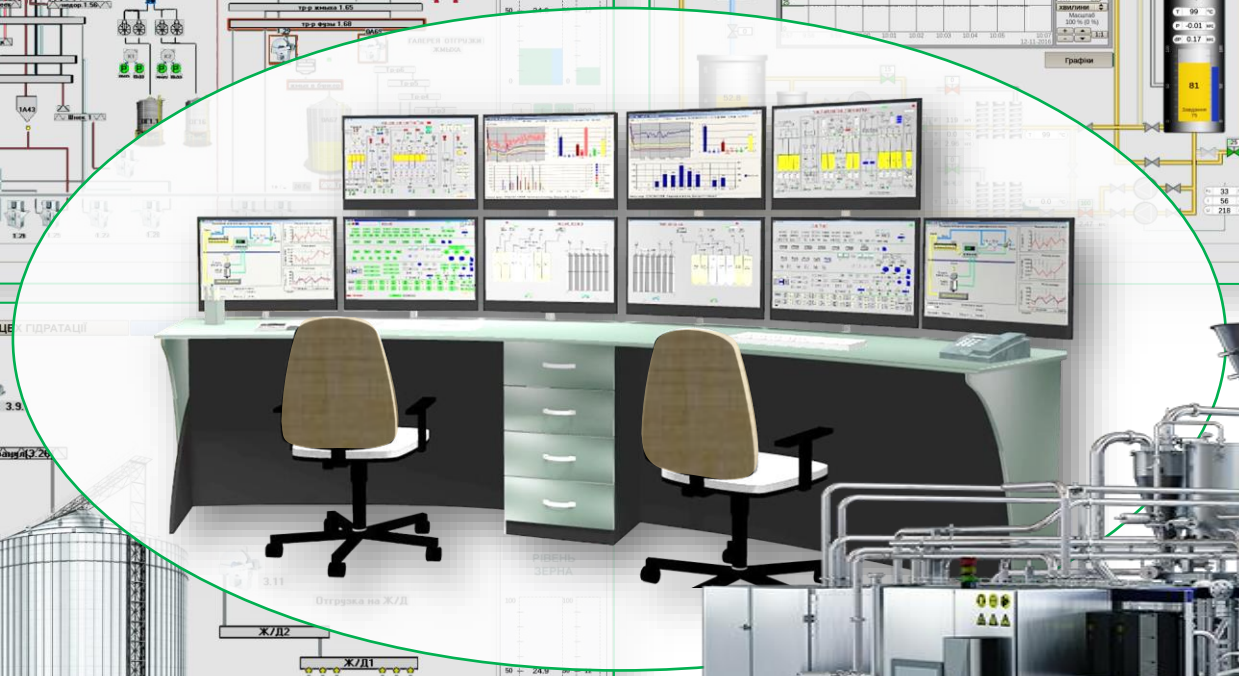
Automation of Oil Press, Feed, and Sugar Factories

ІННОВІННПРОМ





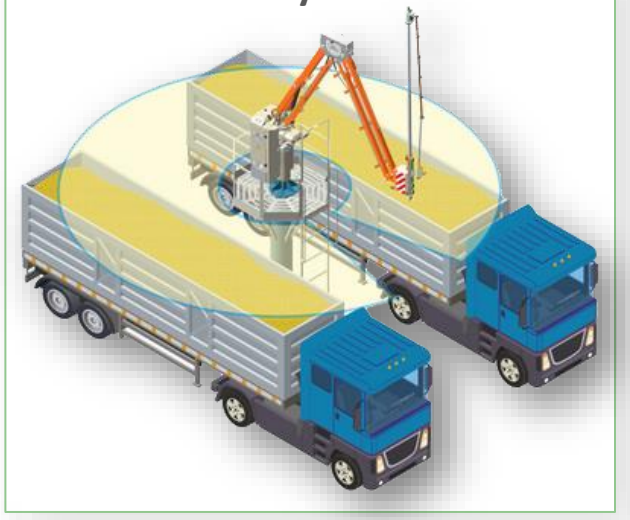




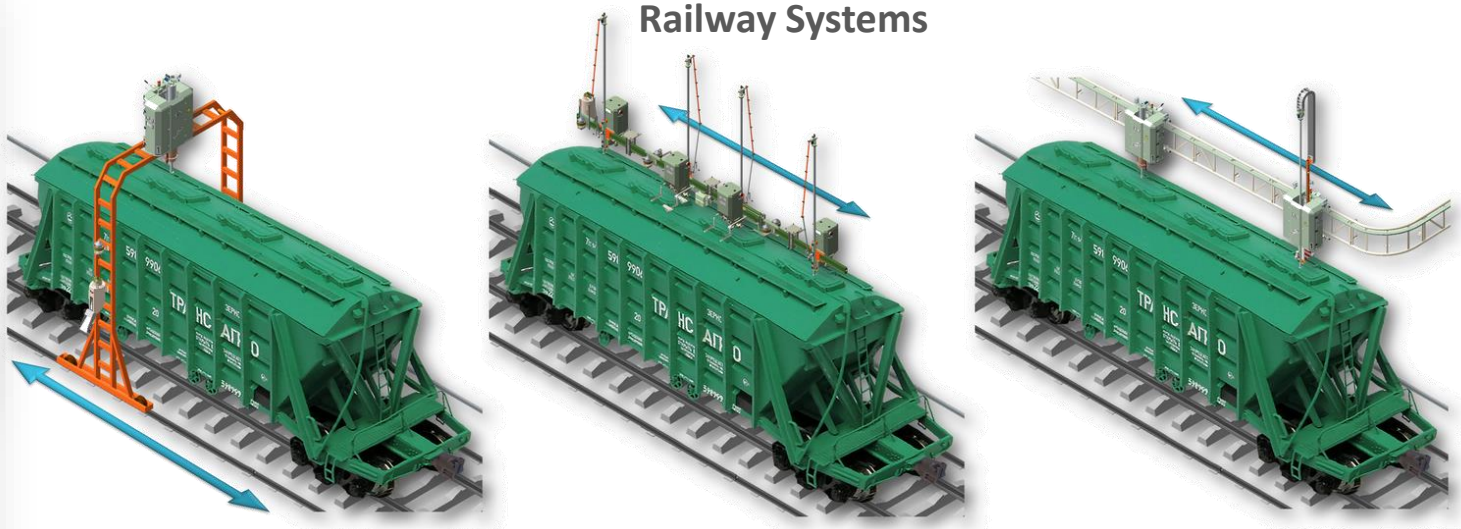
INDUSTRY 4.0

Grain Sampling Systems

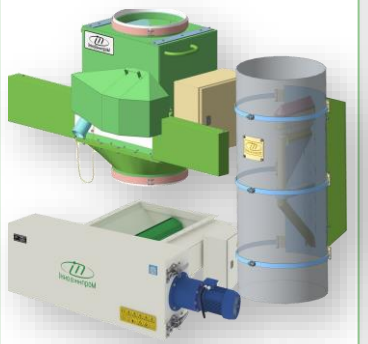
Car Systems



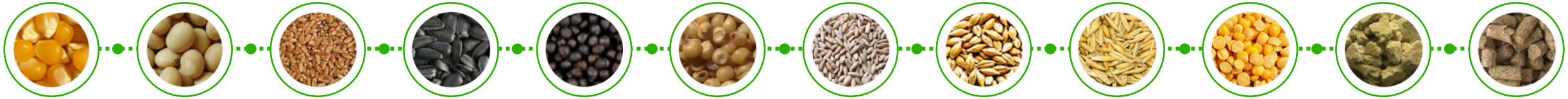
Railway Systems



Flow Systems



Cereal Crops with which the Samplers Work:



- ✓ Sampling in accordance with industry standards
- ✓ Compliance of the quality of the sample with regulatory requirements
- ✓ Own patented technologies

Made Samplers:

Car Systems – **33**
Railway Systems – **4**
Flow Systems – **14**

Automobile Sampler

- ✓ Sampling from the bodies of two cars
- ✓ Sampling to the entire depth to the bottom of the body
- ✓ Automatic sending of the sample to the laboratory by pneumatic transport
- ✓ Radio control and video control

Video Control System

Radio Control System

СЕРТИФІКАТ ВІДПОВІДНОСТІ

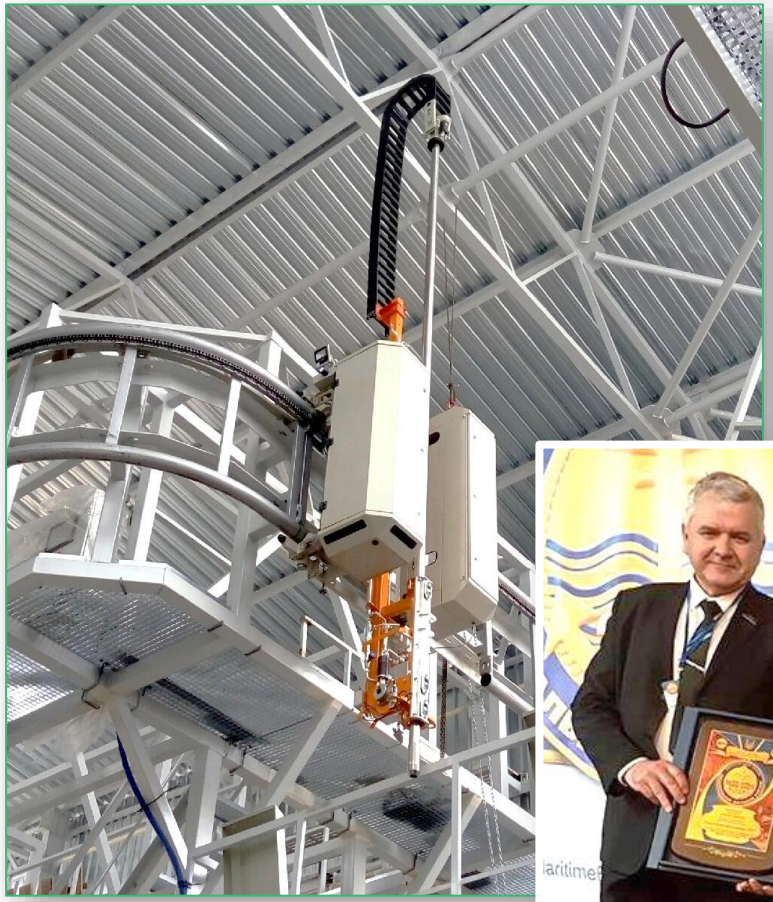
Unique own solutions

Innovations

Engineering Achievement 2017 – Railway Sampler

National maritime rating of Ukraine

Commemorative sign for the development and implementation of a mobile module for grain sampling from hopper wagons – Engineering achievement 2017

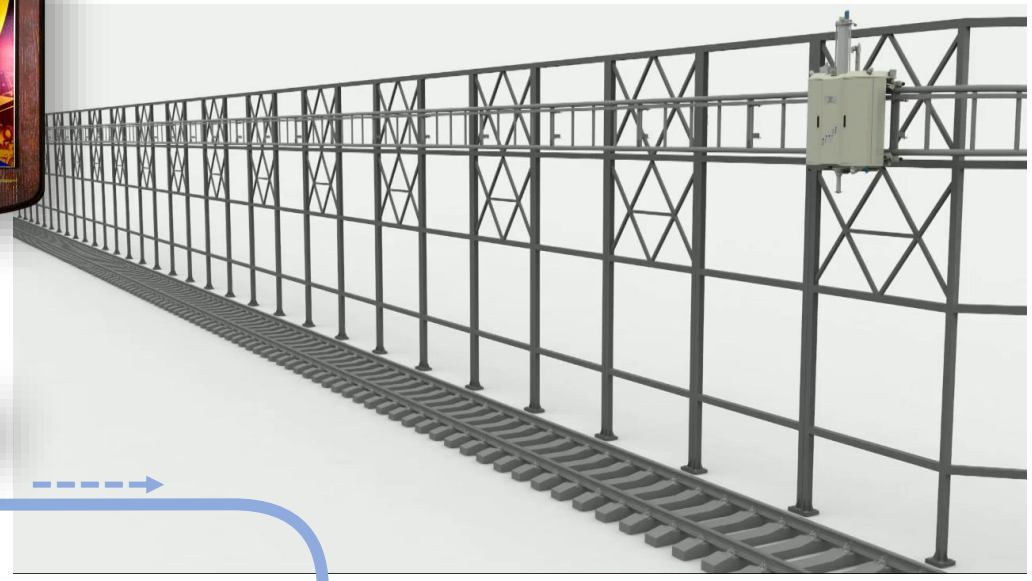


Hopper Railway Car Robotic Sampling Systems

National Marine Ranking
Engineering Achievement 2017

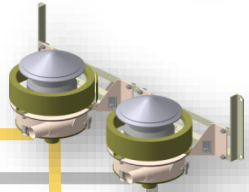
ІННОВІННПРОМ

- ✓ Unique own patented solutions
- ✓ A unique telescopic probe
- ✓ Automatic search for wagons and open hatches

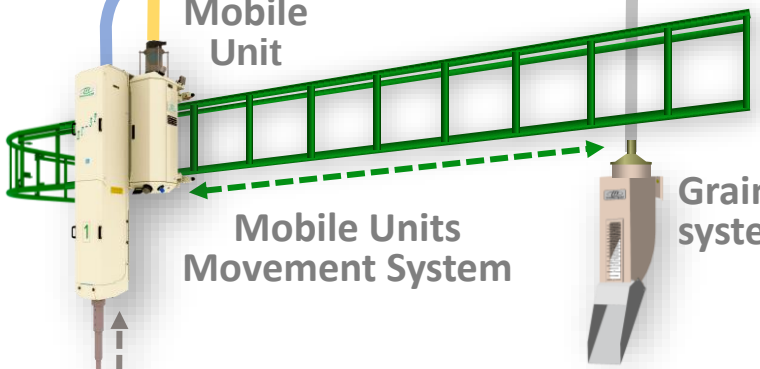


Video Control System

Pneumatic transport system



Mobile Unit

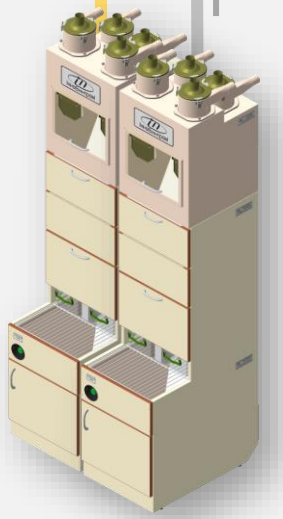


Mobile Units Movement System

Grain return system

Radio Control System

Grain laboratory



Laboratory Cabinet

Pneumatic Mail

Management System

Flow Samplers

- ✓ Adaptive execution options
- ✓ Automatic mode of operation
- ✓ Setting the sampling period
- ✓ Automatic delivery of samples to the laboratory by pneumatic transport

Unique Own Solutions

Functionality

High Accuracy

Certified Products

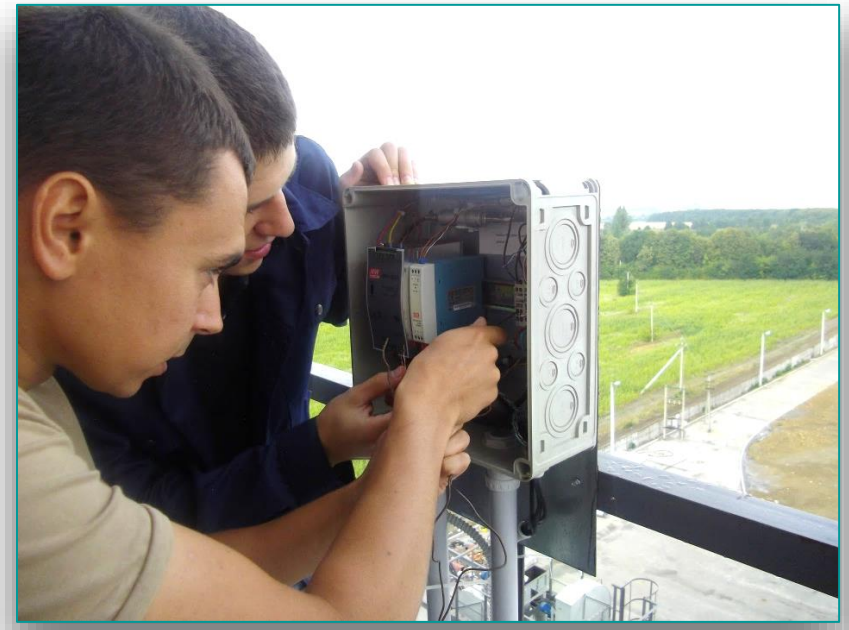
Thermometry Systems

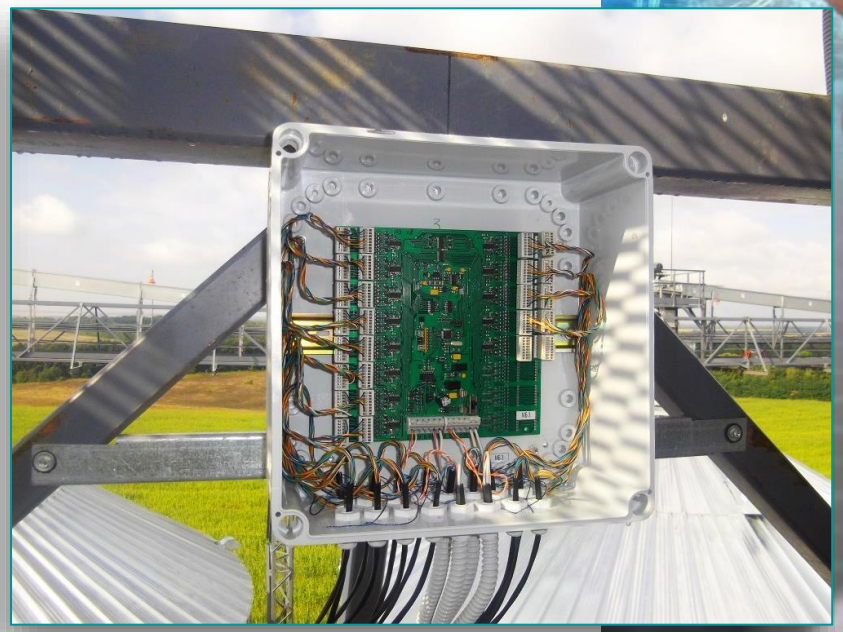
- ✓ Multi-channel multi-zone temperature control
- ✓ Notification of temperature deviation from the norm
- ✓ Control of the temperature and humidity of the outside air
- ✓ Multi-level indication
- ✓ Controllers and hardware gateways of our own development

Big Data
Великі дані

Long Distances
Великі відстані

Radio Data
Радіо дані





Bunker Scales

- ✓ Commercial weighing accuracy - 0.1%
- ✓ Estimated productivity from 50 to 2000 tons/hour
- ✓ Pneumatic, hydraulic or electric valve drive
- ✓ Automatic calibration system with built-in calibration loads

Unique Own Solutions

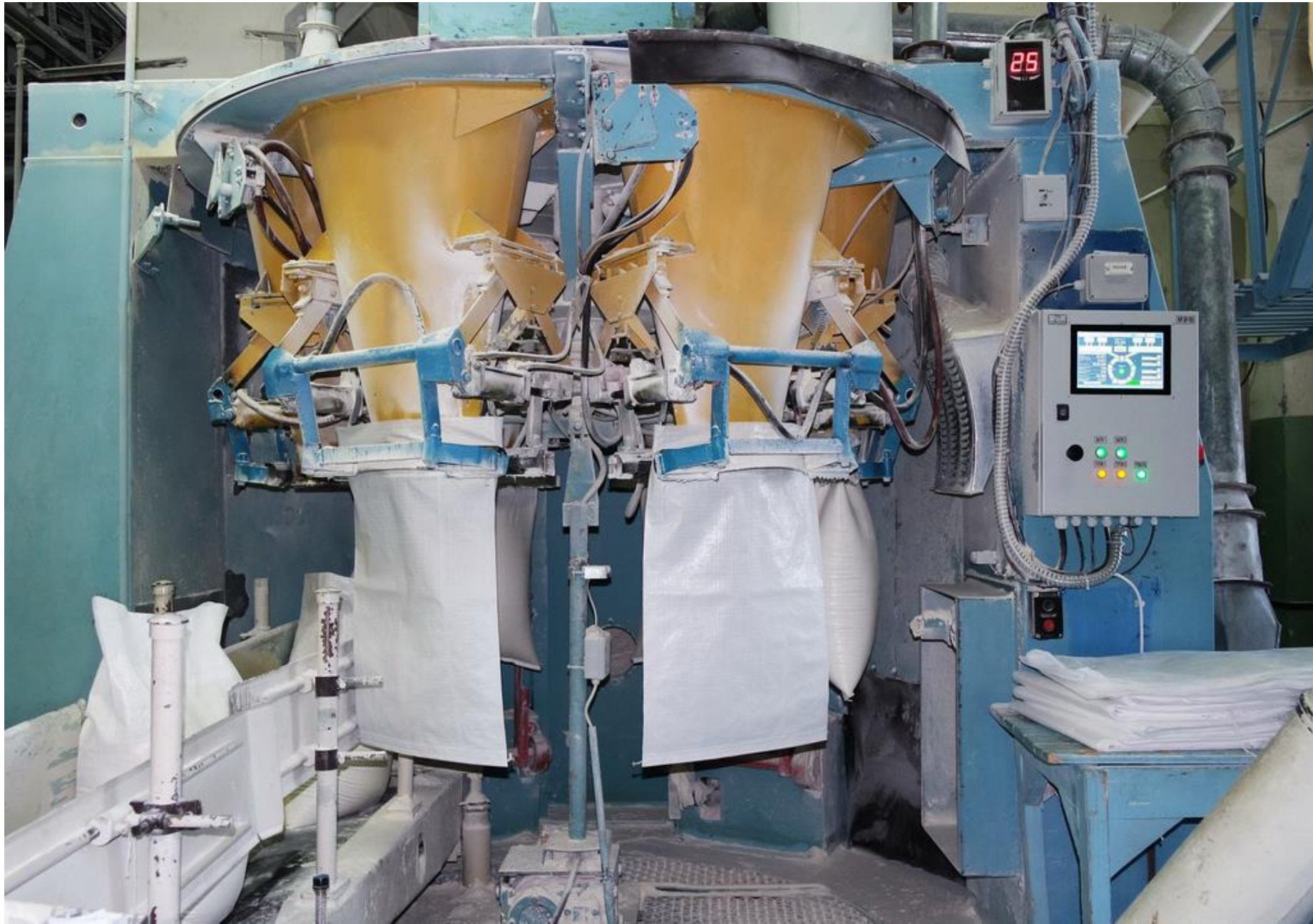
Functionality

High Accuracy

Certified Products

Dosing systems

- ✓ Commercial weighing accuracy - 0.1%
- ✓ High dosing rate



Unique
Own Solutions

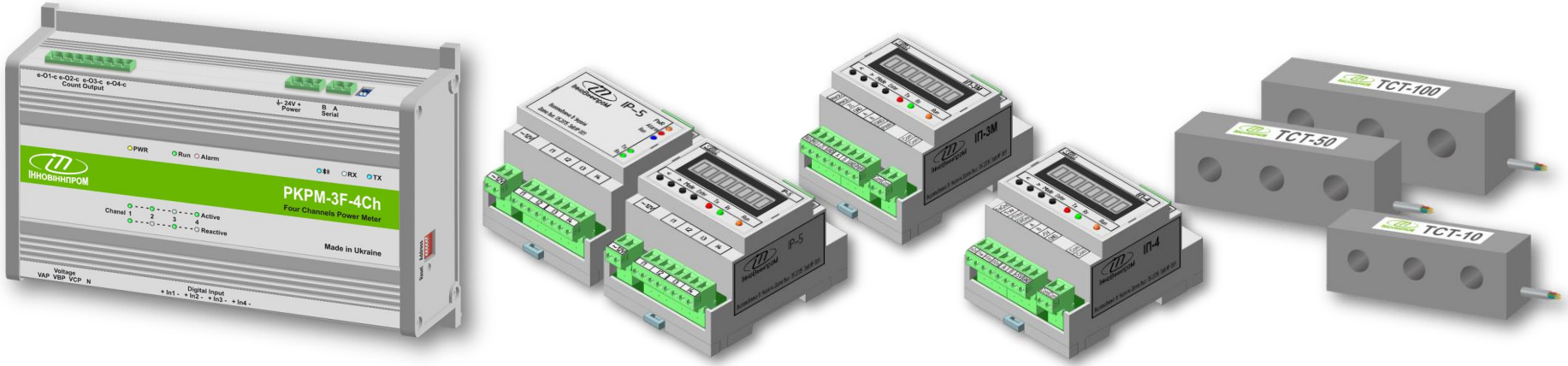
Functionality

High
Accuracy

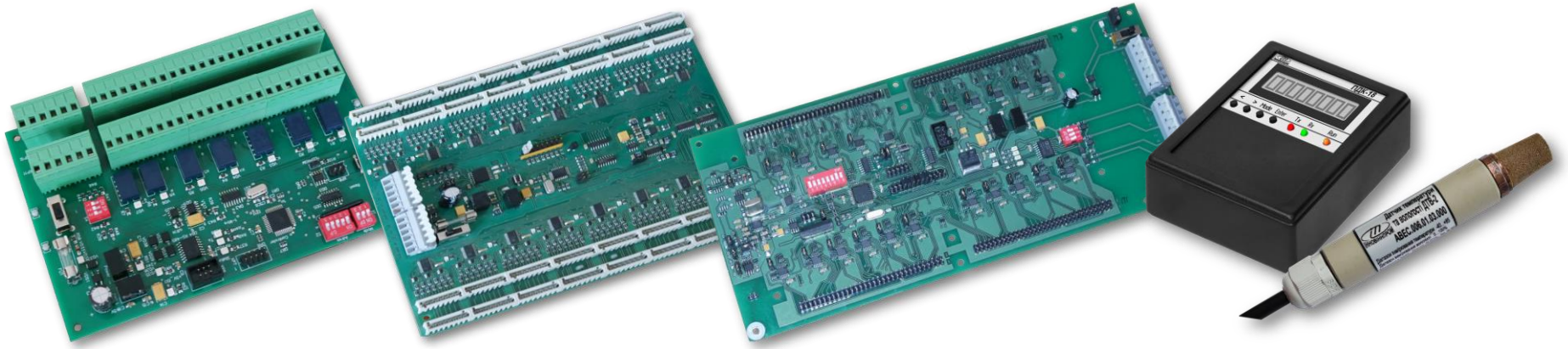
Certified
Products

Specialized Controllers

Precision controllers for measuring energy parameters



Controllers of multi-channel temperature and humidity measurement systems



Specialized controllers of automation and data transmission systems

Hi-Tech Technologies

Control systems for plants growing artificial leucosapphire crystals::

- ✓ Automation of all stages of growing crystals
- ✓ Precise accuracy of control and regulation
- ✓ Intelligent control at all stages of crystal growth
- ✓ Innovative science-intensive technologies

Omega DM300 / Omega PG350

Delta-K

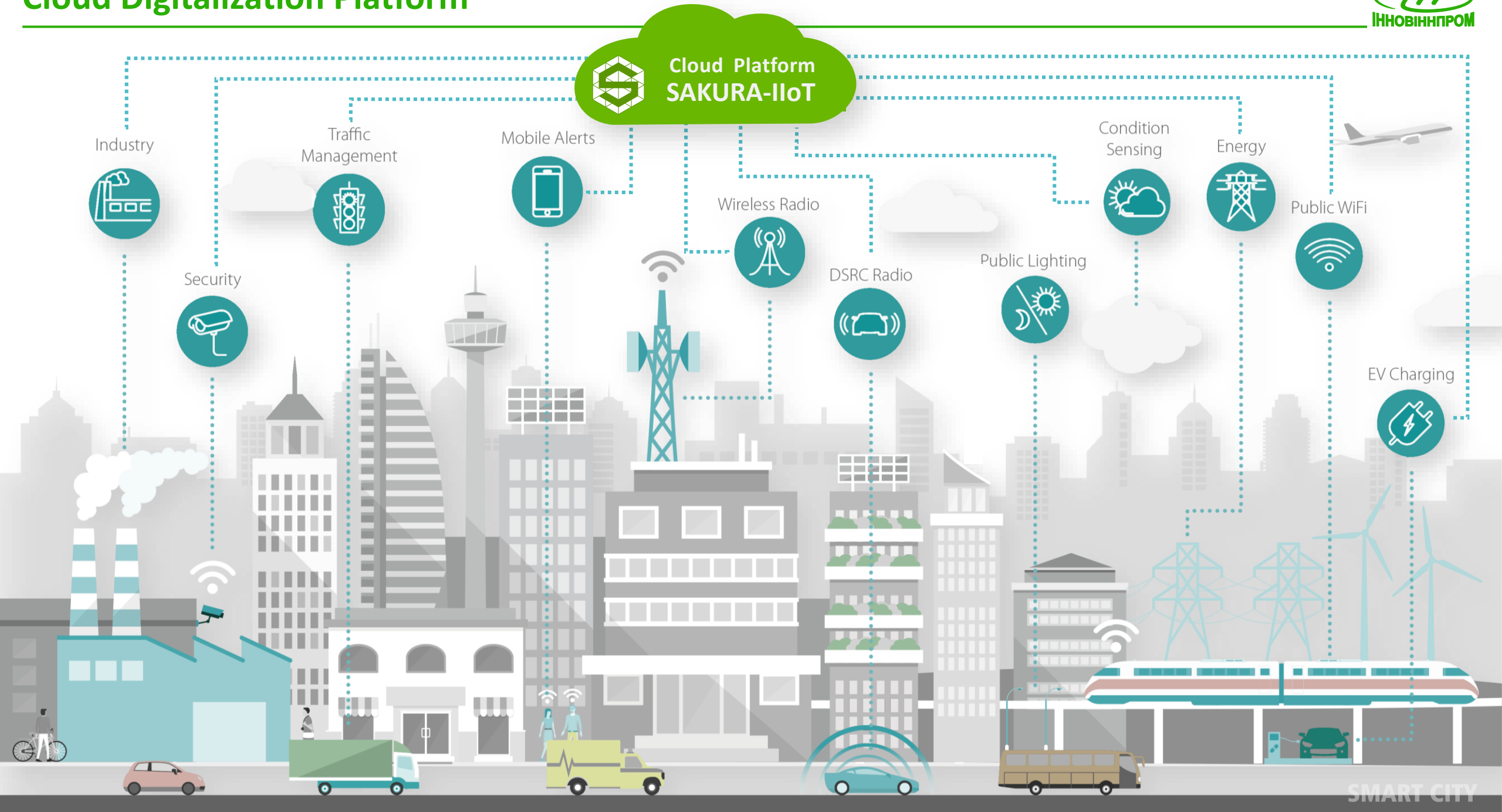
PromCrystal-S2

INNOVINNPROM

SOLUTIONS FOR AGGLOMERATION

INDUSTRY 4.0

Cloud Digitalization Platform



A Smart City based on the SAKURA-IIoT Platform

Intelligent transport system **SAKURA-ITS**

Intelligent Parking System **SAKURA-ISP**

Environmental Monitoring System **SAKURA-ECO**

Intelligent waste Management System **SAKURA-CLEAN**

Power grid Management System **SAKURA-GRID**

Cloud platform SAKURA- IIoT

Information Systems of Agglomeration

Data Storage Services

Analytical Processing of Data and Informing Citizens

Environmental Monitoring SAKURA-ECO

Air Quality Monitoring

Watercourse Monitoring and Tracking Water Consumption

Cloud platform SAKURA- IIoT

Exchange of Information with the State and Public Networks

Receiving Information From Satellite Networks

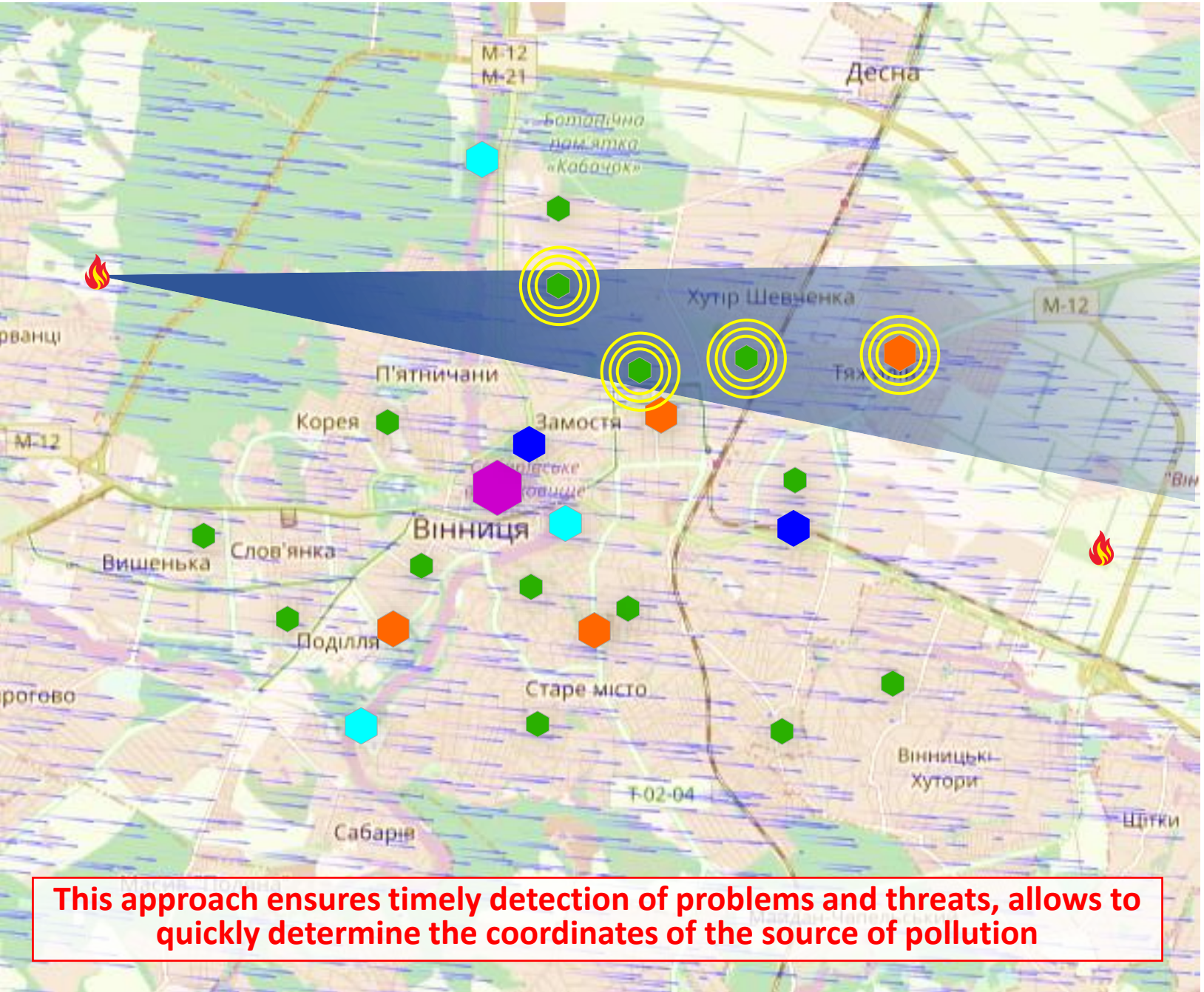
Visualization and Analytical Processing of Data

Adjustment of the City Road Traffic

Intelligent Parking System

SMART CITY

SAKURA-ECO Environmental Monitoring Network



This approach ensures timely detection of problems and threats, allows to quickly determine the coordinates of the source of pollution

Environmental Monitoring :

Cloud service :
- Information from Environmental stations;
- Information from global networks;
- Information from NASA satellite networks.

Environmental reference stations :
- Control of meteorological parameters;
- Control of the level of dust microparticles;
- Gas level control.

Reference watercourse monitoring stations :
- Control of meteorological parameters;
- Control of water level, flow and quality.

Indicative Environmental stations :
- Control of meteorological parameters;
- Control of the level of dust microparticles.

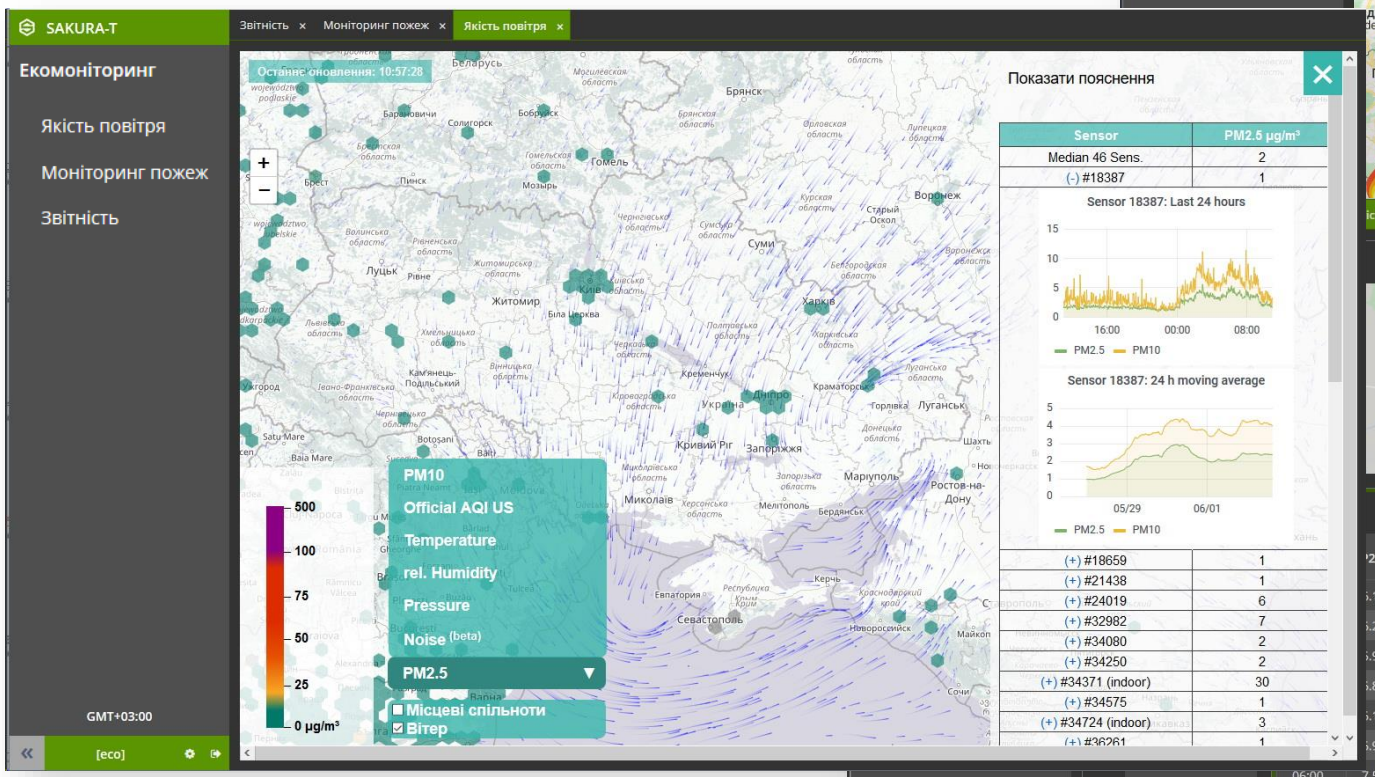
Indicative Environmental stations of enterprises and citizens :
- Control of meteorological parameters;
- Control of the level of dust microparticles.

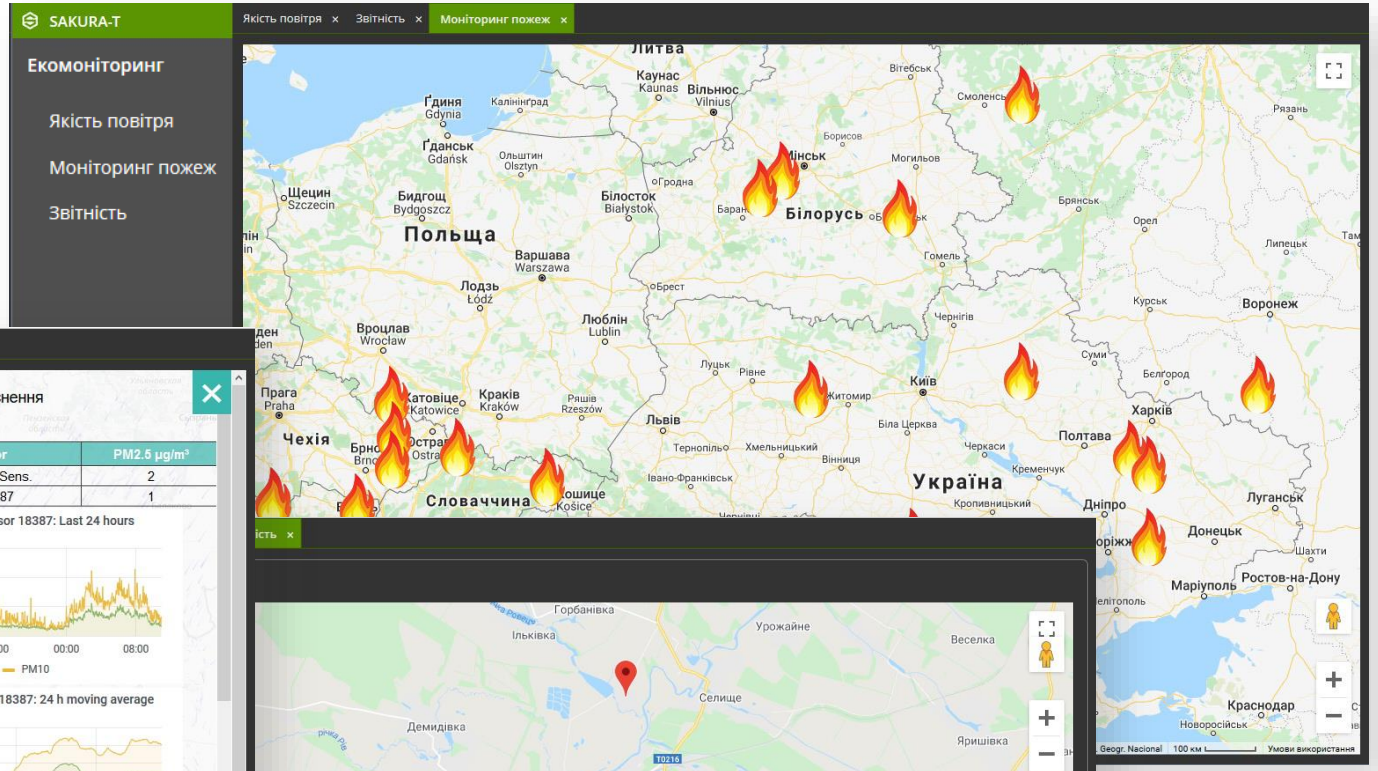
Animated image of wind currents.

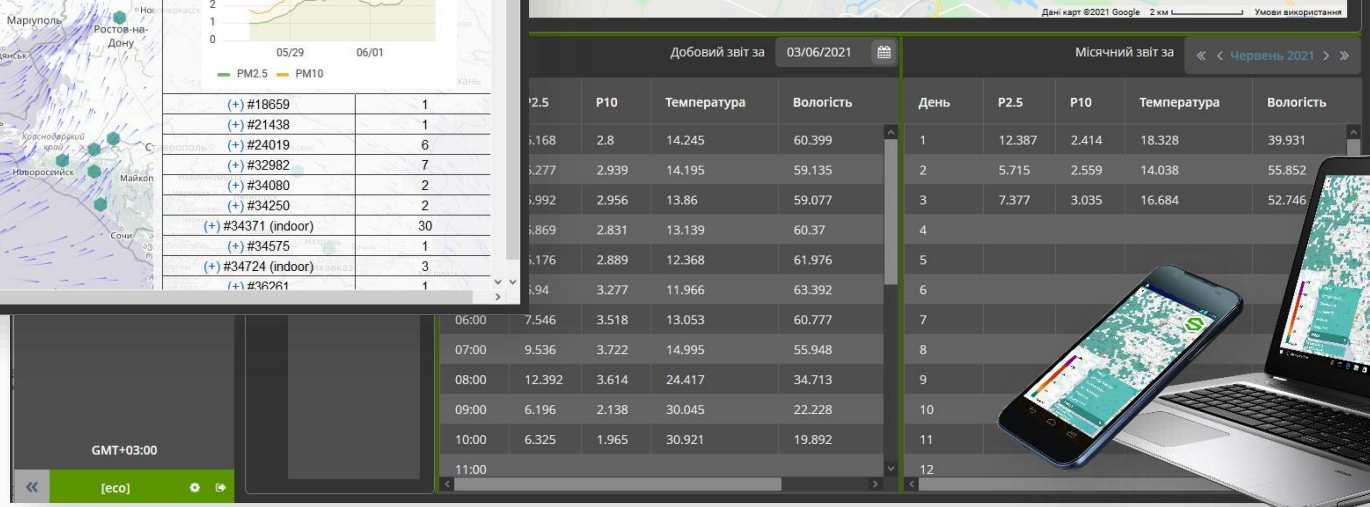
INDUSTRY 4.0

SAKURA-ECO Cloud Service

- ✓ Control of the content of dust particles PM1, 2.5, 10
- ✓ Control of the content of gases CO, CO2, NO2, SO2, O3, etc.
- ✓ Weather control
- ✓ Control of the noisy acoustic background
- ✓ Visualization of data on an interactive map
- ✓ Data exchange with public monitoring networks







Internet of Things
Інтернет речей

Big Data
Великі дані

SMART CITY

Water Pollution Prevention System

Watercourse
Monitoring Station

SAKURA ECO WMS

Main Functions of the System :

- ✓ Continuous round-the-clock monitoring of the water quality of the Southern Bug River on the border of the Khmelnytskyi and Vinnytsia regions and in front of the water intake point
- ✓ Control of the water flow level and speed of the Pivdenny Bug river
- ✓ Weather control
- ✓ Calculation of the time of approach of pollution to the point of water intake
- ✓ Formation of warning signals about exceeding the pollution level
- ✓ Visualization of data on an interactive map
- ✓ Data exchange with public monitoring networks

Watercourse
Monitoring Station

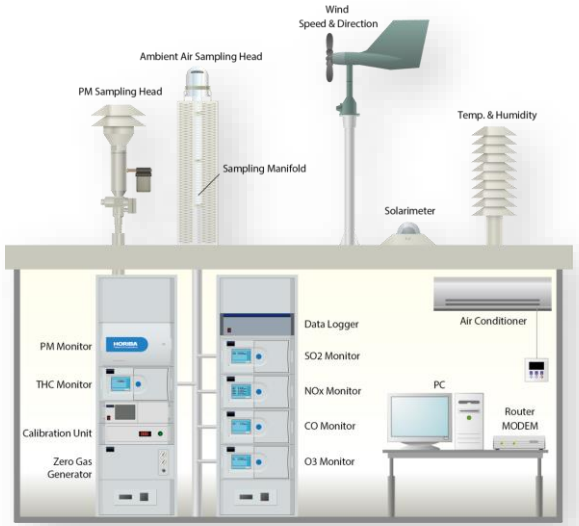
SAKURA ECO WMS

Advantages of the System :

- ✓ Prevention of cases of intake of contaminated water
- ✓ Determination of the source of pollution - external or within the agglomeration
- ✓ Early warning of a threat

Turbidity
Suspended substances
Coloration
Temperature
Dissolved oxygen
Hydrogen index (pH)
Biochemical consumption of oxygen
Chemical oxygen consumption (COD)
Mineralization (total salinity)
Conductivity
Nitrogen-containing compounds (ammonium nitrogen, nitrites, nitrates)
Absorption at a wavelength of 254 nm
Potassium

SAKURA Ecological Monitoring Stations



SAKURA ECO EMS Air Quality Monitoring Reference Stations

- ✓ Control of the content of dust particles PM1, 2.5, 10 in the dust of the NDZS
- ✓ Control of the content of CO, CO2, NO2, SO2, O3, and other gases
- ✓ Weather control
- ✓ Air sampling for laboratory research
- ✓ Operation and data transfer in automatic mode
- ✓ Compliance with the requirements of Directive 2008/50/EU of the European Parliament and of the Council of May 21, 2008 on atmospheric air quality and Resolution of the Cabinet of Ministers of Ukraine No. 827 of August 14, 2019 regarding the implementation of state monitoring in the field of atmospheric air protection
- ✓ Availability of European certificates and DSTU certificates

SAKURA ECO AMS
Indicative Air Quality Monitoring Stations

- ✓ Control of the content of dust particles PM1, 2.5, 10
- ✓ Control of the content of NO2, CO, SO2, O3, NH3, H2S, Cl2, HF, CH2O, H2, HCL and other gases
- ✓ Weather control
- ✓ Acoustic noise level control
- ✓ Energy-independent power mode
- ✓ Operation and data transfer in automatic mode
- ✓ Compact modular structure

SAKURA ECO WMS
Indicative Watercourse Monitoring Stations

- ✓ Water level, flow and temperature control
- ✓ Water quality control
- ✓ Control of the content of dust particles PM1, 2.5, 10
- ✓ Weather control
- ✓ Acoustic noise level control
- ✓ Energy-independent power mode
- ✓ Operation and data transfer in automatic mode
- ✓ Compact modular structure

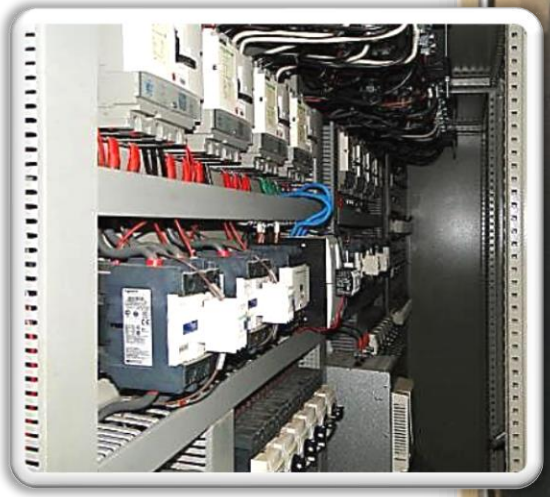
SAKURA ECO APS Public Air Quality Monitoring Stations

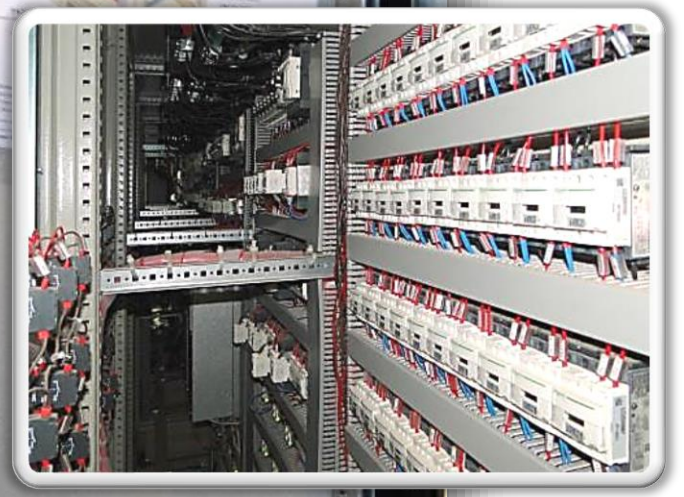
- ✓ Control of the content of dust particles PM1, 2.5, 10
- ✓ Weather control
- ✓ Operation and data transfer in automatic mode

SMART CITY

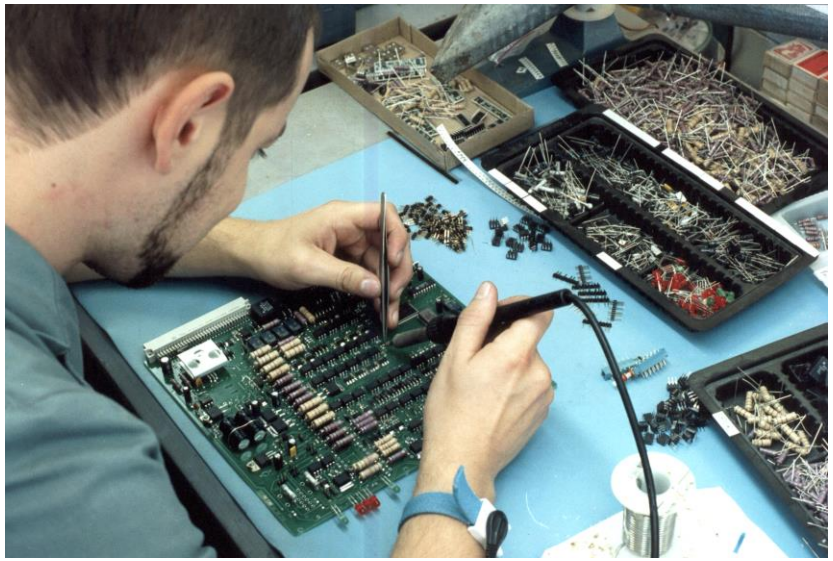
Company Services

Electrical Installation





Design and Assembly



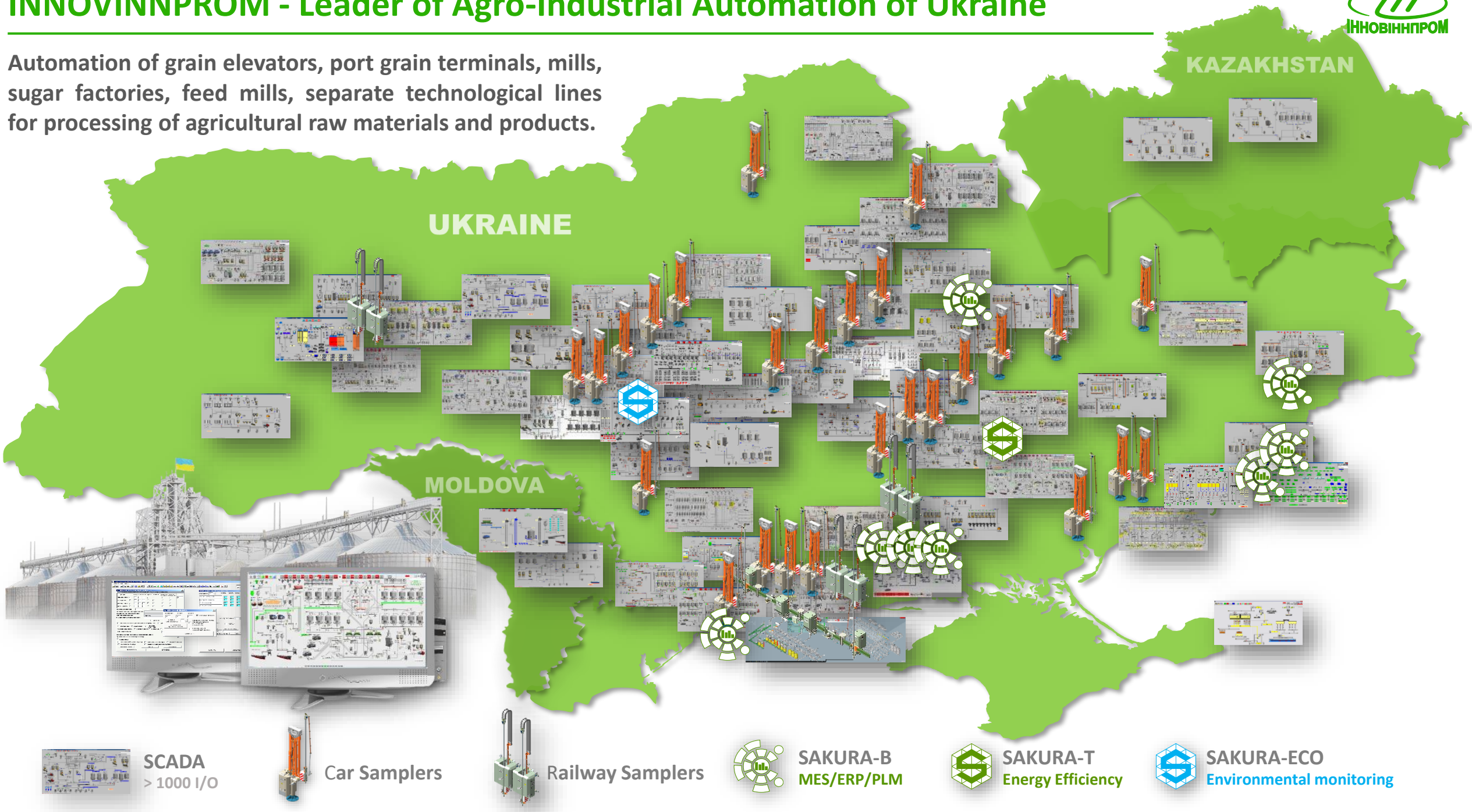
Creativity

Qualification

Skills

INNOVINNPROM - Leader of Agro-Industrial Automation of Ukraine

Automation of grain elevators, port grain terminals, mills, sugar factories, feed mills, separate technological lines for processing of agricultural raw materials and products.



SCADA
> 1000 I/O

Car Samplers

Railway Samplers

SAKURA-B
MES/ERP/PLM

SAKURA-T
Energy Efficiency

SAKURA-ECO
Environmental monitoring

Company Landscape

ІННОВІННПРОМ

Vendors

SIEMENS
Schneider Electric
RITTAL
WAGO
CISCO
ZEMIC
CAMOZZI
ifm
PF ПРОМФАКТОР
ОДЕСКАБЕЛЬ
LAUMAS
FESTO
TELTONIKA
Klemsan
HYDRAULIC LINE ГИДРАВЛИКА ИЗ ПЕРВЫХ РУК
ОВЕН
electro cable GROUP
OMRON
MOXA
ETI
PHOENIX CONTACT INSPIRING INNOVATIONS
УКРАЇНСЬКА ЕЛЕКТРОТЕХНІЧНА КОРПОРАЦІЯ АСКОУКРЕМ
Weidmüller
DKC
EATON
IOT Solutions
LAPP GROUP
VIPA A YASKAWA COMPANY
MOELLER
DEGSON
OBO BETTERMANN
ABB
БКЗ БЕРДЯНСКИЙ КАБЕЛЬНЫЙ ЗАВОД
Develiot

Suppliers

СВ АЛЬТЕРА
galantpol
ALT UKRAINE

Designers

ПОЛТАВАГРОПРОЕКТ

IT

Google Cloud
Microsoft Azure
amazon web services
Grafana Labs
kubernetes
HAULMONT
spring
IntelliJ IDEA
Java
influxdb
chronograf
HAPROXY
PostgreSQL
MESH
PATRONI
APACHE HTTP SERVER PROJECT
Apache Guacamole
UltraVNC
HETZNER ONLINE
docker

Main Clients

МХП АГРОІНДУСТРІАЛЬНИЙ ХОЛДИНГ
UkrLandFarming Public Limited Company
RIOLA CONSTRUCTION GROUP
KERNEL GROUP OF COMPANIES
АгроСпец Сервис
КОРОЛІВСЬКИЙ СМАК
АСТАРТА-КИЇВ агропромхолдинг
ДЕРЖАВНА ПРОДОВОЛЬЧО-ЗЕРНОВА КОРПОРАЦІЯ УКРАЇНИ
НОВІ ПРОДУКТИ
cygnet AGROCOMPANY
НІБУЛОН
агро прайм ХОЛДИНГ
НТТ Новотех-термінал
agrotrade

DIH

АППАУ Асоціація «підприємств промислової автоматизації України»

Vinnytsia cluster of instrument making and automation:

ПРОМАВТОМАТИКА Our synergy is your energy
7 Med Levels
VTN vtnled.com
Viasoft
ТЕРМІЯ
Liana Company
ПОГ "Вінницьке УВП УТОС"
MAITEK
VINAERO
НВП "ГРЕМПІС" автоматизація обліку енергоносіїв
TIRAS

Universities

ВНТУ Вінницький національний технічний університет
ДонНУ
Донецький національний університет імені Василя Стуса

Our Team


INNOVINNPROM
Industry 4.0