



DIFFERENT APPROACH AND NEW OPPORTUNITIES



Smart Solution  
for Industrial IoT,  
Telemetry, SCADA  
and Industrial  
Control Systems

# WHAT IS SmartICS?

SmartICS is a universal and flexible SCADA/IIoT software platform for creating professional automation and digitalization systems without coding using the automated widgets, Drag & Drop tools and Plug & Play technology.

The web-based software product is implemented by the automated interface builder and visualization panels. This allows you to create a single information space for building automation and digitalization systems without coding using the built-in widget library for monitored parameters, Drag & Drop tools and Plug & Play technology.

## WHY IS IT BENEFICIAL FOR YOU?

- The time spent on deployment and configuration is reduced by 3-4 times compared to classic SCADA softwares.
- There are no errors during the system configuration and expansion by using the automated interface builder and dashboards.
- Flexible customization of the user interface according to the individual needs and tasks of each system user.

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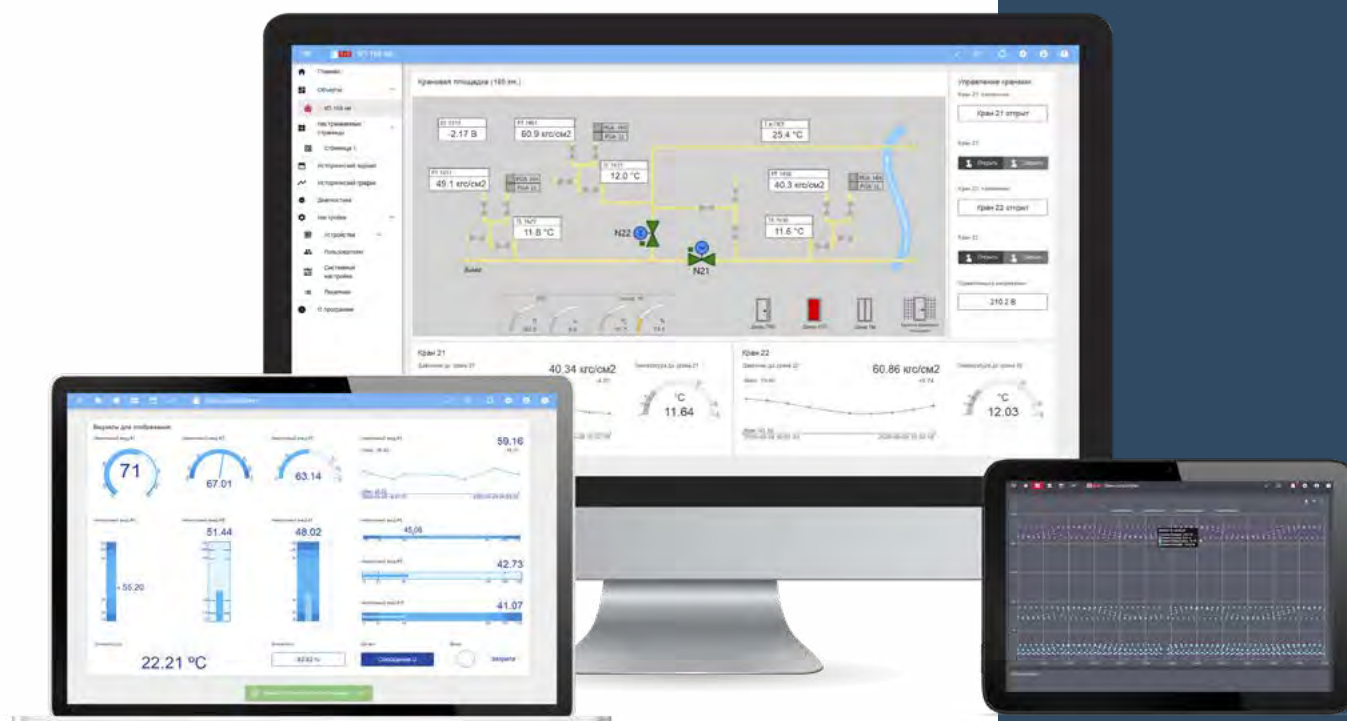
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APPLICATIONS

INDUSTRIAL AUTOMATION  
(SCADA, TELEMETRY, INDUSTRIAL  
CONTROL SYSTEMS)

Automate technological processes  
at the entire manufacturing or some  
production site

BUILDING MANAGEMENT  
SYSTEMS  
(SMART BUILDING)

Create a smart building control center by  
automation of building engineering systems  
(electricity, heat and water supply, lighting,  
climate control, security systems, etc.)



INDUSTRIAL INTERNET  
OF THINGS  
(IIoT)

Make the industrial data more accessible and  
efficient by combining various units (sensors or  
equipment) into a single data exchange network

MANUFACTURING  
DIGITIZATION  
(SMART FACTORY)

Improve the quality and efficiency of decision  
management by implementation of digital  
technologies in operational activities

INDUSTRIES



OIL AND GAS



OIL PROCESSING



CHEMICAL  
AND PETROCHEMICAL



COAL AND MINING



ELECTRICITY



METAL AND MACHINERY  
MANUFACTURING



UTILITIES  
(water supply and water  
disposal, heat supply)



CONSTRUCTION  
(building management  
systems)



AGRICULTURE AND  
FORESTRY



# HOW WAS SmartICS CREATED?



Developing SmartICS, we have been creating a really (and not just in words) user-friendly platform for automating various facilities, that our customers and ourselves needed when implementing system integration projects .

We wanted to significantly reduce the time spent on developing the system and minimize errors during it. We wanted to simplify the process of creating and adapting the interfa-ce for different tasks and users, as well as making changes to it. Finally, we just wanted to provide end-users with easy access to important technological information.

In the web development, there are so-called builders for quick website or service creation and launch without coding and on a budget. We thought it would be great to have a similar tool for data acquisition and visualization in industrial automation systems.

This is how we created SmartICS – the first data acquisition and visualization system "builder" and a flexible no-code software platform for creating industrial automation, IoT, and digitalization systems



# WHAT MAKES US DIFFERENT?

Web-based SmartICS has an integrated automated interface builder and a library of specialized widgets for automatic creation of the user interface and dashboards. Interface creation and con-figuration are done using the simple Drag & Drop without coding and do not require skill of working with other SCADA softwares.

It allows you to create any data visualization system and a single enterprise information space quickly and easily. With SmartICS, changes to the set of monitored parameters and the way they are visualized can be made quickly, without changing the cost and without a separate development sotware or a special developer license.

Data visaulization in SmartICS is based on the principles of a process-oriented approach and the concept of situational awareness. They allow you to reduce the burden on the operator (dispatcher) when working with a large amount of information and to facilitate its perception. This increases operator reaction time in emergency situations and minimizes errors.



# INDUSTRIAL AUTOMATION

On the market, there is a huge variety of software and hardware products and tools for the development of industrial automation systems.

In the process of implementing industrial automation projects, it is necessary to develop your own application software using various tools for each of the system elements:

- 1. Programmable logic controllers (PLCs)
- 2. Local touch operator panels (HMI-panels)
- 3. SCADA software platforms
- 4. Web portals for visualization, analytics and remote access to technological data over the enterprise network



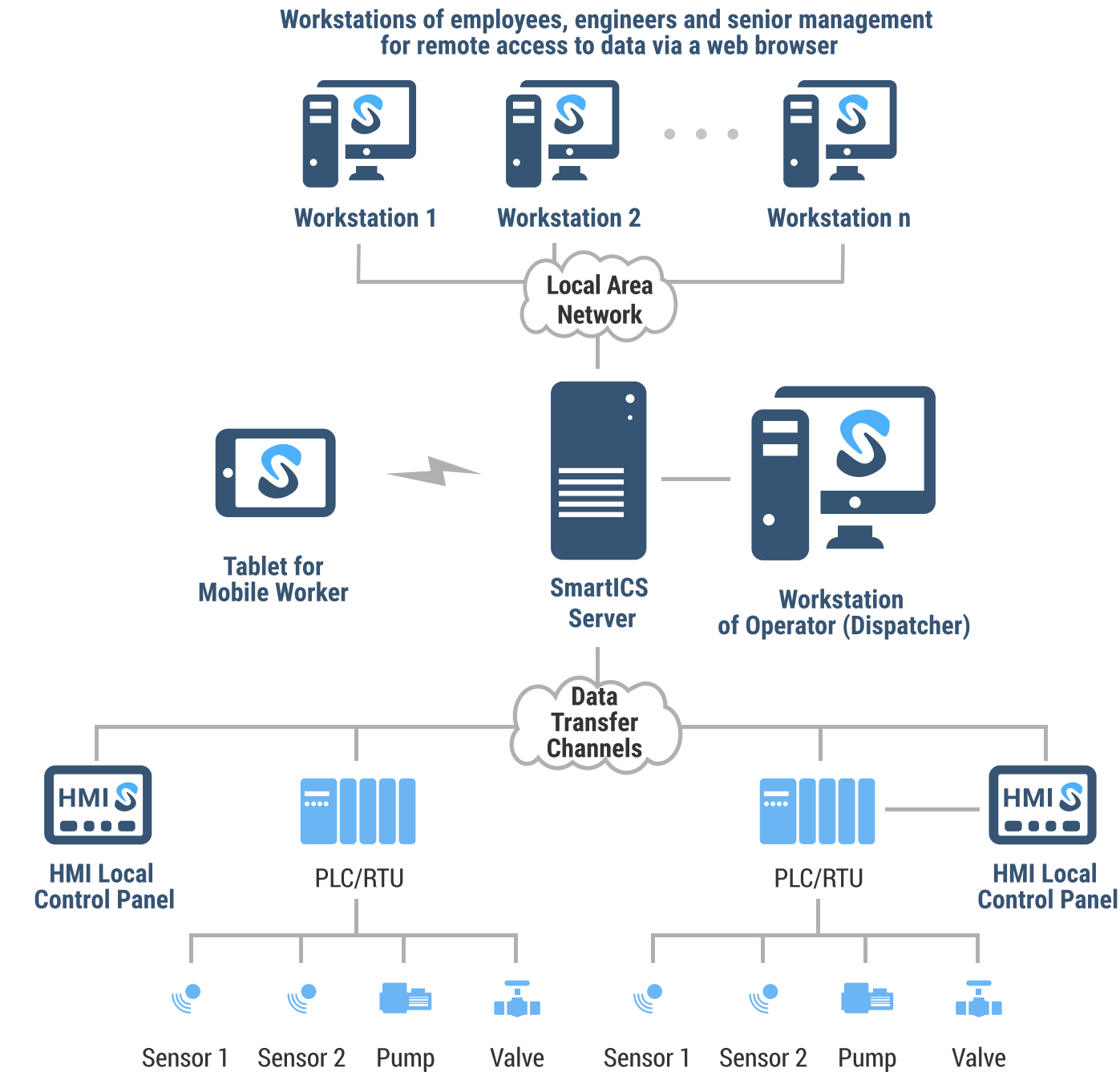
## WHAT DO WE OFFER?

Our software can be deployed as a service not only on servers and workstations, but also on local operator panels with Windows Embedded OS. This allows you to run the same project locally, in the immediate vicinity of the controlled equipment (for example, on panels with Windows Embedded OS), or implement a single centralized control system, whereby data will be transferred to the local HMI-panel from the system server.

In addition, it is easy to organize a Web portal (Web server) with SmartICS and provide access to the technological data for specialists of various interested enterprise departments (for example, chief power supervision service, metrology service, instrumentation and control service, etc.) from their personal computers without installing additional software.

There is no further reason to develop separate applications for the HMI-panel "in place" and for the operator (dispatcher) workstation separately

# HOW DOES IT WORK?



## WHAT ARE THE ADVANTAGES?

- 1 You do not have to spend time and money developing separate applications for deploying locally on panels, for the operator (dispatcher) workstation, for the Web portal and organizing web access
- 2 You will unify your automation systems and easily be able to change and scale the system when adding new control facilities, equipment or sensors. With SmartICS platform, that can be configured without coding, your specialists will no longer need to have the skills to configure and develop application on several different platforms



# WHAT'S THE POINT OF BUILDING AUTOMATION?

Building management systems are used to create centralized automated control systems and to manage building engineering systems. This allows you to receive detailed information on the functioning of all building systems (ventilation, heating, air conditioning, security systems, etc.) in real time. The system can also alert service personnel about emergency situations timely and control the equipment simultaneously.



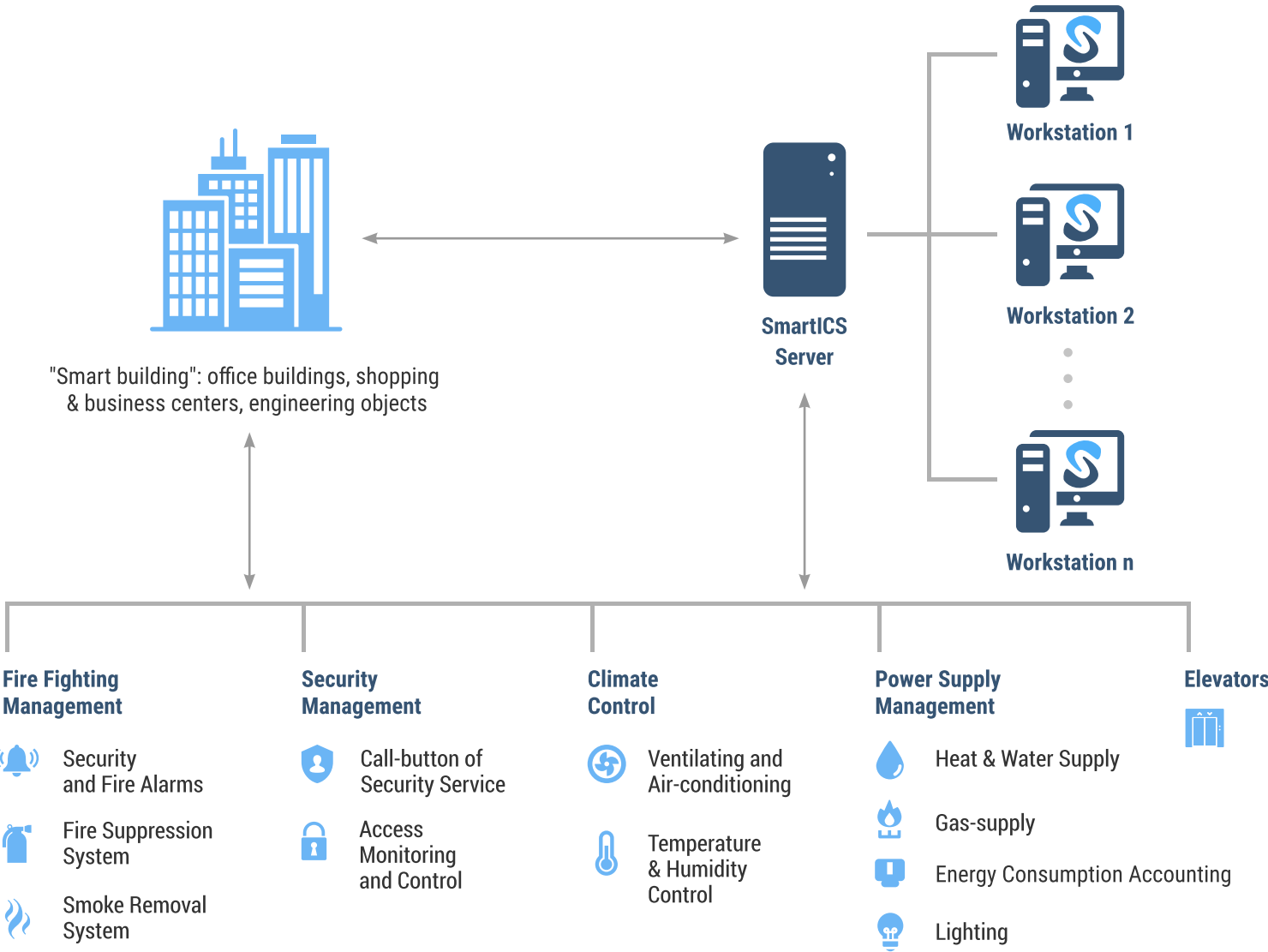
## WHAT DO WE OFFER?

- Use of a set of widgets for equipment state monitoring and visualization (sensors, bars, indicators, graphs, visual process graphics, etc.)
- Remote equipment control using a set of special widgets that implement control functions

Often with the building management systems, it is necessary to organize not only a central control room, but also provide the possibility of on-site monitoring and control using local visualization panels or mobile devices (tablet).

With SmartICS, you do not need to develop application for HMI-panels or for mobile devices separately. Developing a single project will be sufficient for the necessary data to be accessed from any device through a regular web browser.

# HOW DOES IT WORK?



## WHAT ARE THE ADVANTAGES?

- 1 Coordinated functioning of various building systems
- 2 Remote access and control of all building equipment, minimizing manual control
- 3 Providing the trouble free work of equipment and the possibility of preventing potential accidents on engineering systems
- 4 Timely notification of service personnel about emergency situations
- 5 Reducing the frequency and maintenance costs of building systems
- 6 An option to integrate with the building security system to prevent violations and unauthorized access

## WHY USE IIoT?

With development and growth, new production sites may appear at enterprises, requirements for industrial automation systems may change, new information analysis tasks may arise. These tasks require additional data collection, the installation of new sensors and the organization of new equipment remote control.

However, the integration of new devices and data into an existing control system can be difficult for several reasons:

- hardware restrictions when RTU/PLC or other devices do not have enough physical I/O channels;
- restrictions on the number of signals from the dispatcher control system;
- operational reasons, when the technological process simply cannot be stopped to make changes in existing control systems.

In such situations, IIoT-sensors can be used.

## WHAT DOES THE MARKET OFFER?

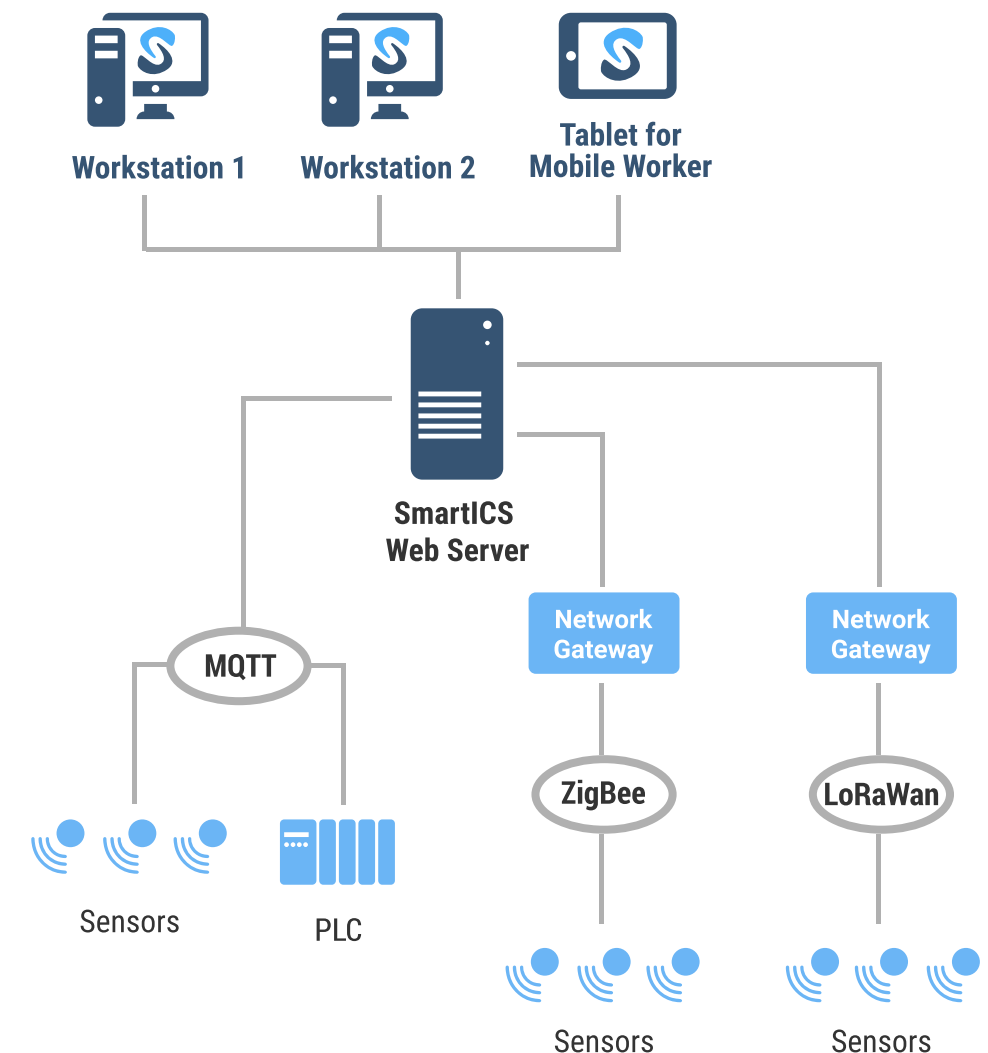
There are many smart devices and sensors for building IIoT from various vendors on the market. In addition to devices, many manufacturers offer their own software services, usually cloud ones, for collecting, processing and visualizing the collected data.

Such cloud services allow you to quickly organize online data collection from sensors without building your own IT infrastructure. This often puts the safety of industrial enterprises at risk, especially when you need to not only collect data, but also remote equipment control.

## WHAT DO WE OFFER?

With SmartICS, you can organize a local control center to collect, analyze and display data from IoT sensors directly at the enterprise.

To collect data from IIoT devices, you can use the built-in capabilities and data transfer protocols supported by SmartICS, e.g. OPC UA. A variety of additional software I/O servers or MQTT brokers can be used to integrate data into SmartICS as well. This allows you to remove almost all the restrictions on the technical data exchange with different devices, sensors and IIoT actuators.



## WHAT ARE THE ADVANTAGES?

- 1 SmartICS provides the safe implementation and operation of IIoT solutions, realizing all the advantages and new features of the IIoT concept in your enterprise unrelated to your Internet or cloud service provider
- 2 The use of IIoT solutions and technologies does not require cabling and deploying expensive communication channels and allows you to automate and digitize manufacturing without building a classic complex system using programmable controllers
- 3 SmartICS easily collects, visualizes and analyzes data from IIoT devices. This does not require a shutdown of manufacture and large financial or time costs



## WHY DO YOU NEED THE DIGITALIZATION?

Manufacturing digitalization involves the implementation of digital tools and technologies (industrial Internet of things (IIoT) and big data analytics) in operational enterprise activities to improve the quality of decisions making and enterprise efficiency.

### ENTERPRISE DIGITALIZATION ALLOWS

- to quickly collect and digitize information about the processes and physical parameters of the equipment operation
- to receive timely and comprehensive analytics based on the collected information
- to make high-quality management decisions based on the resulting analytics

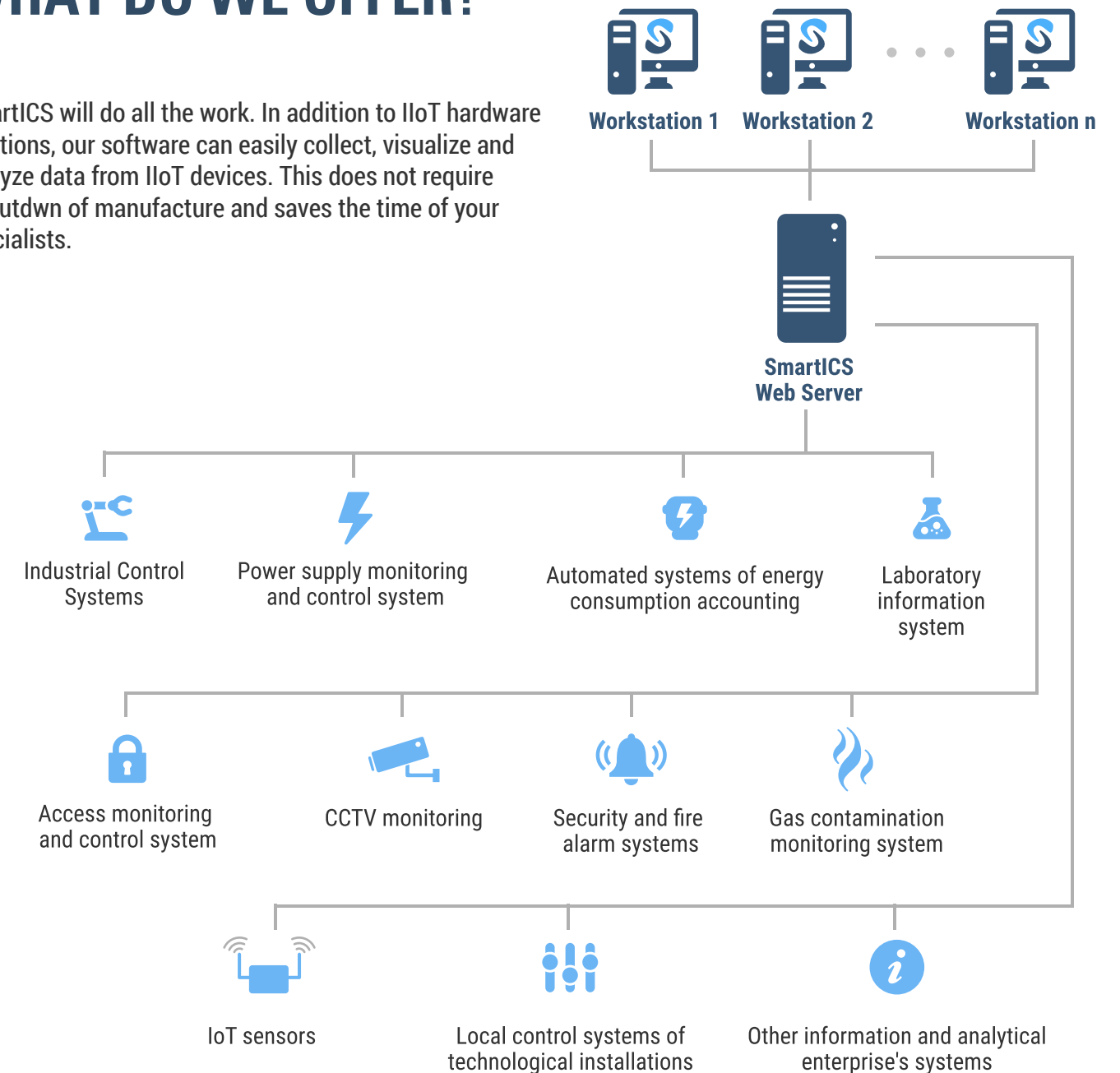
## HOW DOES THIS HAPPEN?

In most cases, there is not enough data from one source (for example, PLCs of industrial automation systems) for a comprehensive assessment of the manufacturing efficiency. It is necessary to take into account the indicators of other systems, implemented on the basis of various software systems, for example:

- data on energy consumption accounting in production from automated systems
- data on capacity and volume of output from machines and plants
- data on the products quality from laboratory information systems
- data from IoT sensors monitoring industrial and environmental parameters
- data from the personnel location system and from the access control and management system, etc.

## WHAT DO WE OFFER?

SmartICS will do all the work. In addition to IIoT hardware solutions, our software can easily collect, visualize and analyze data from IIoT devices. This does not require a shutdown of manufacture and saves the time of your specialists.



## WHAT ARE THE ADVANTAGES?

- 1** Better understanding of the equipment current state and performance
- 2** Reducing the number and duration of unplanned production capacity shutdown
- 3** An **OPTION** to increase the finished-product output, to provide the required level of manufacturing quality, to reduce material costs and reduce the level of defects and work accidents
- 4** A retrospective analysis of production data helps to make the right management decisions, and, therefore, to use time and production resources more efficiently, to reduce costs and increase enterprise income



# FUNCTIONALITY AND CAPABILITY

## DATA COLLECTION, PROCESSING AND STORAGE

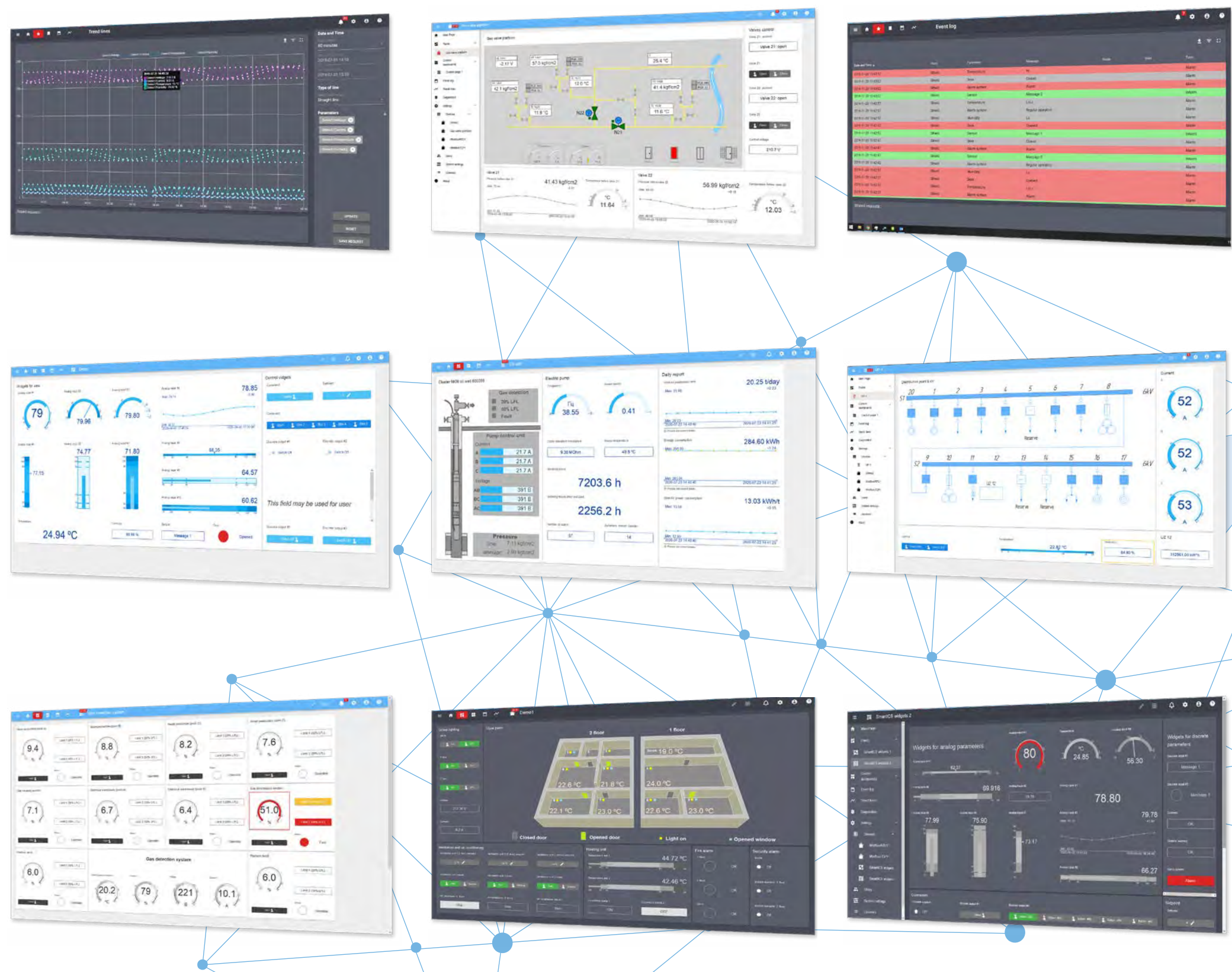
- Collecting technological data from various devices, including IIoT equipment using industrial data transfer protocols
- Recording and holding historical trends of parameter changes and equipment states
- Logging of events, operator actions, alarms and warning signals
- Historical information storage for further analysis and decision making

## REAL-TIME EQUIPMENT MONITORING AND CONTROL

- Using a set of widgets for equipment state monitoring and visualization (sensors, bars, indicators, graphs, visual process graphics, etc.)
- Remote equipment control using a set of special control widgets

## ACCESS TO THE SOFTWARE AND WORK WITH DATA

- Web access to data, including from mobile devices
- Configurable system access rights depending on user roles (e.g. monitoring only or monitoring and control)
- Creating reports and exporting data in .csv format



# TECHNICAL CHARACTERISTICS

Modular architecture with optional functional modules and drivers

Built-in configuration and editing mode (no separate development environment)

Unlimited number of processed I/O signals (productivity depends on the hardware and communication channels)

Unlimited number of clients and users

Local and remote access to data from any device through a web browser

Historical data storage - DBMS MS SQL Server or MS SQL Server Express

The distribution size is ~ 150 MB.

SmartICS integration with third-party applications can also be done via API (JSON format)

## SUPPORTED OPERATING SYSTEMS

MS Windows 7  
MS Windows 10

## SUPPORTED WEB BROWSERS

Google Chrome  
Firefox Mozilla  
Yandex Browser  
Safari  
Microsoft Edge

## SUPPORTED DATA EXCHANGE PROTOCOLS

Modbus RTU  
Modbus TCP  
OPC UA Client  
AdapTel driver for data transfer through DMR and TETRA radio networks

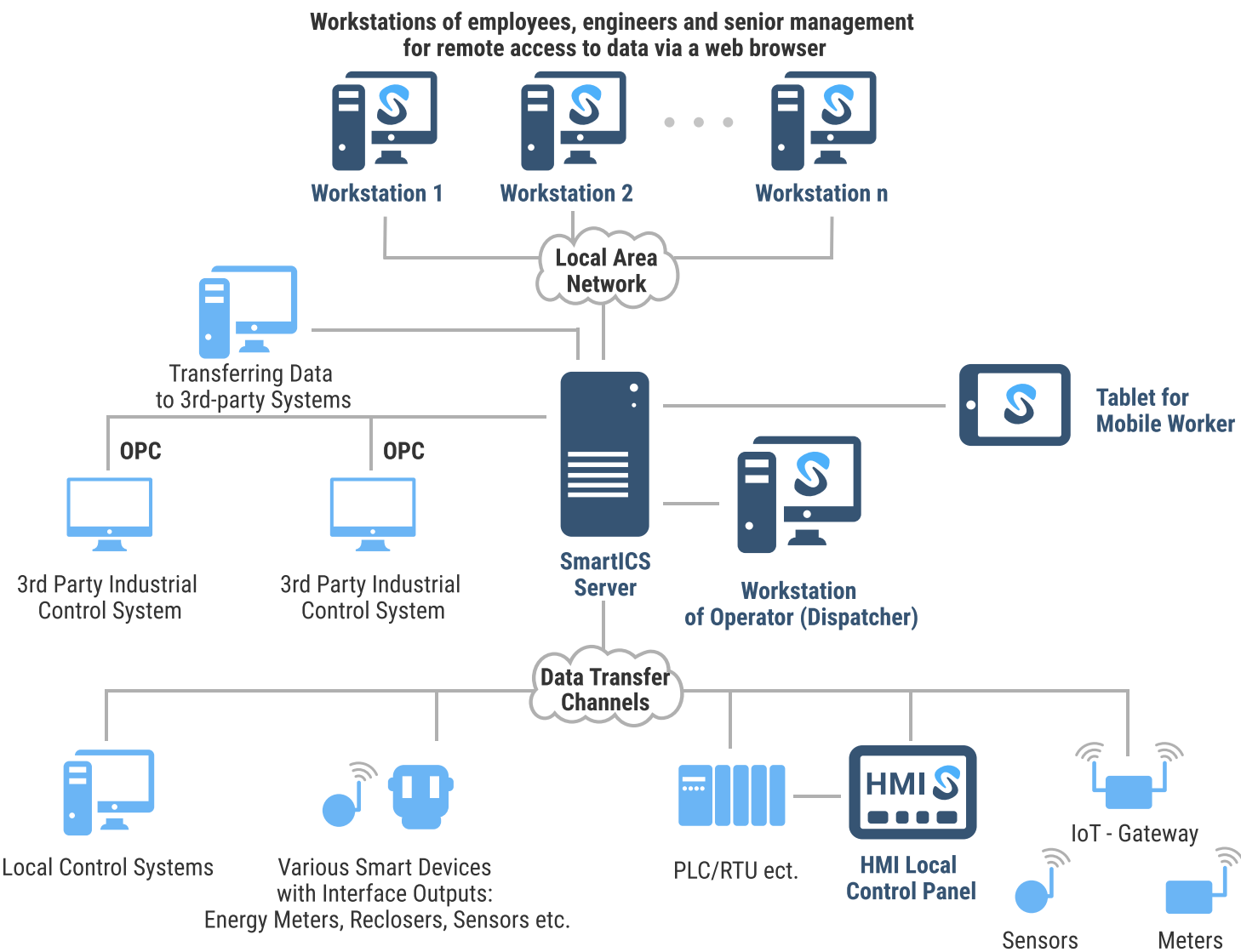
## AN OPTION TO COLLECT DATA OVER PROTOCOLS THROUGH OPC SERVER

Profinet  
DNP 3.0  
IEC-60870-5-104  
SNMP  
MQTT  
and others

# CONFIGURATION FEATURES

- Development and implementation of systems based on SmartICS without coding and scripting
- Configuration of the interface and information display using the widget library and the Drag & Drop individually for the tasks of a particular user
- No separate development environment or developer key; online editing of the interface
- Several interface color schemes, including night one, in accordance with the concept of situational awareness
- Project backup and restoring from a backup, copying settings from one user to another

# HOW DOES IT WORK?





# FAST IMPLEMENTATION AND CONFIGURATION

## HOW LONG WILL THE PROCESS OF DEVELOPING A NEW PROJECT FROM SCRATCH TAKE?

In most classic SCADA softwares, the development, configuration and implementation take a long time even with coding skills and experience with other SCADA-systems.

With SmartICS, all these tasks is on average 3-4 times faster depending on the project. No coding skills and work with other SCADA-systems are required, and both the server part and the user interface are configured through a web browser and do not require additional software (development environment).

Tried and tested: our employees, as well as engineers of our customers and partners who did not have experience with other SCADA systems, fully mastered the system in 2-3 days

## EASY CONFIGURATION AND EXPANSION

In SmartICS, dashboards for added devices are created automatically. You do not need to make a graphic visualization of the process first, and then manually bind tags to it, as in classic SCADA systems. Just configure adding a new device, and a window with the visualization of all its parameters (dashboard) will appear in the system automatically.

During operation, the user can form their own dashboards for displaying necessary technological information easily, without contacting the developers. They will consist of standardized widgets visualizing information, and may also include various images or classic visual process graphics.



# WHAT IS THE BENEFIT?

Mastering SmartICS takes on average of 1-2 days without special coding skills and experience with other SCADA-systems while you can master SCADA-softwares in 1-4 weeks having these skills and experience.

Your employees do not need to complete a long product training. A short introductory online course is sufficient.

With simple, convenient and automated configuration tools, you minimize errors when binding parameters to widgets, which means you reduce testing and debugging times.

You will spend a minimum of time and money on all stages of the automation system implementation from development to maintenance and make the project implementation much more cost-effective.

## HOW DO YOU ACHIEVE HIGH SPEED AND EASE OF DEVELOPMENT AND CONFIGURATION?

### Classic SCADA softwares vs SmartICS

### IN 3-4 TIMES FASTER

- 1 Data is accessed through a web browser from any device (no need to configure frontend)
- 2 Web browser configuration without a separate development environment
- 3 Automatic creation of an dashboards for added devices
- 4 Standard widget library
- 5 Automatic binding device tags to widgets
- 6 Convenient system for copying settings and widgets to duplicate the project quickly
- 7 Simple and flexible user rights



# INFORMATION REPRESENTATION SYSTEM

## CLASSIC VISUAL PROCESS GRAPHICS OR DASHBOARDS WITH WIDGETS?

– IT'S UP TO YOU!

The basis of a clear and usable SmartICS interface is user-friendly widgets whereby all users can create dashboards based on their tasks. All operations with widgets and dashboards are performed using a simple Drag & Drop and subsequent zooming in the same browser window where data is displayed. To do this, the user just needs to switch to page editing mode. In addition, you can easily

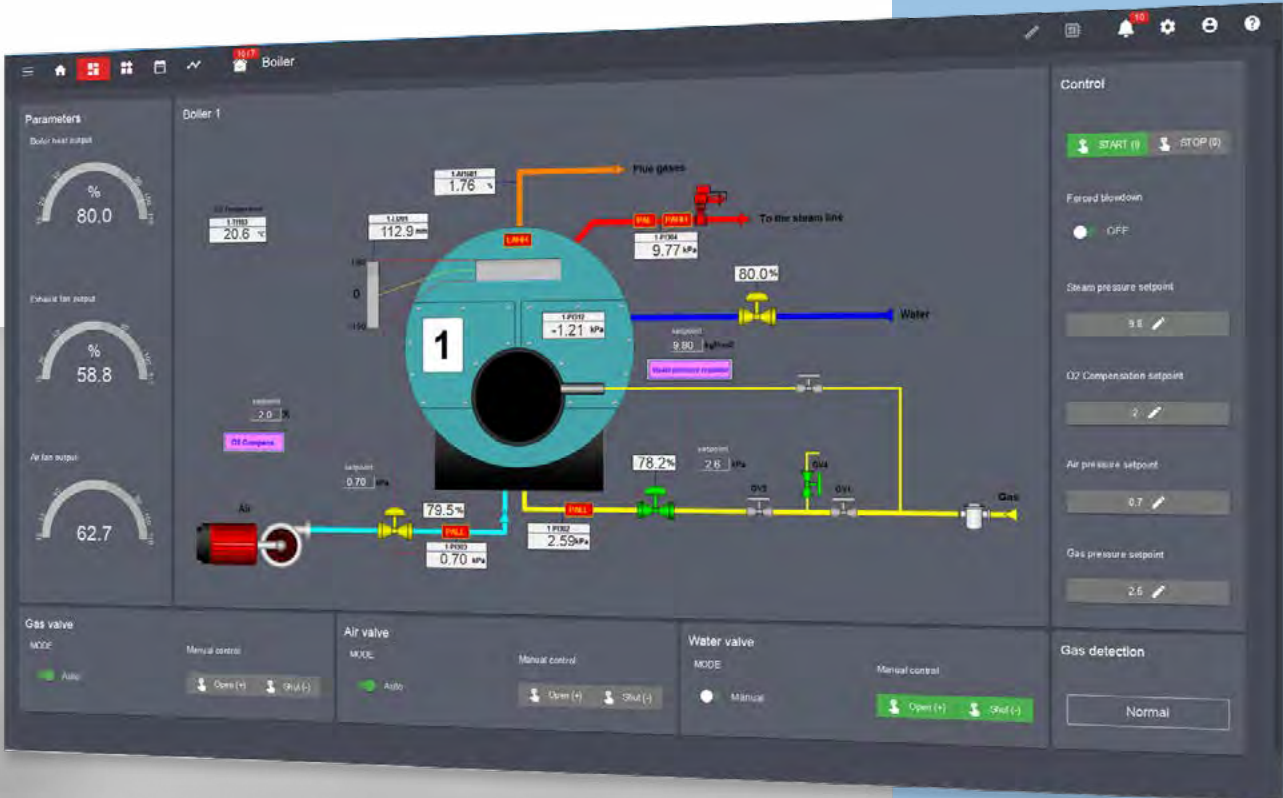
change the color theme of the interface online (4 themes are available, including night/dark one) or change the language (7 languages are currently supported). However, we did not rule out the possibility of using classic graphics to visualize the process! We made it much easier to create an interface with their use.

In classic SCADA softwares, classic visual process graphics are developed in a built-in graphic editor. Graphic images (classic visual process graphics, plan of the facilities, electrical circuit schemes, etc.) imported into SmartICS can be developed in any graphic editor, and you just need to add the necessary widgets to it. You do not need to understand new graphic tools.

# WHAT IS THE BENEFIT?

Through a combination of the widget library with the specified parameters processing logic and the ability to implement classic visual process graphics of any kind without help, the user can configure the system interface exactly as user needs and make any changes as necessary.

Furthermore in most classic SCADA-systems, the interface is the same for all system users due to the complexity of its creating. In SmartICS, you can create an interface individually for each user, taking into account his production tasks, and this will not take you much time.





# DATA VISAULIZATION OPTIONS

## SITUATIONAL AWARENESS – WHAT IS IT AND WHAT FOR?

Current trends in the complicating of automation systems and the growth of data amounts are making operators to overtax themselves. The dispatcher finds it increasingly difficult to navigate them and spends much more time making decisions.

In some situations, lost time can result in a serious facility accident. And human errors lead to failures and disruptions of the production processes.

According to international research, operator errors in industrial systems cause up to 42% of emergency situations.

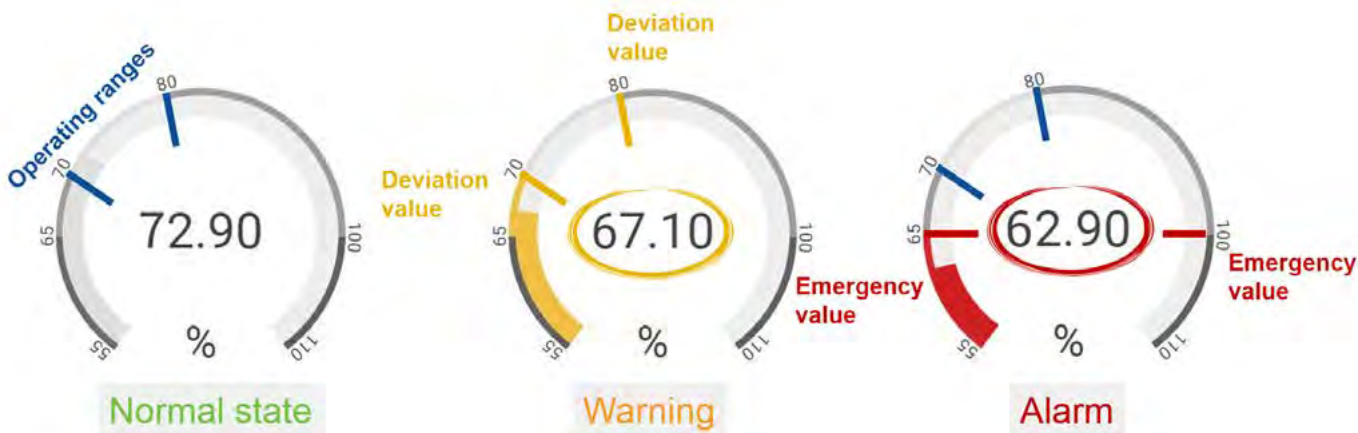
In SmartICS, the process-oriented approach and the concept of situational awareness are used to present the information and to help dispatchers cope with stress.

### PROCESS-ORIENTED APPROACH

Unlike classic SCADA softwares with the interface presented in the form of classic visual process graphics, in SmartICS any data related to a particular process can be displayed on a separate panel, and the parameter readings themselves are presented using informative widgets.

### SITUATIONAL AWARENESS

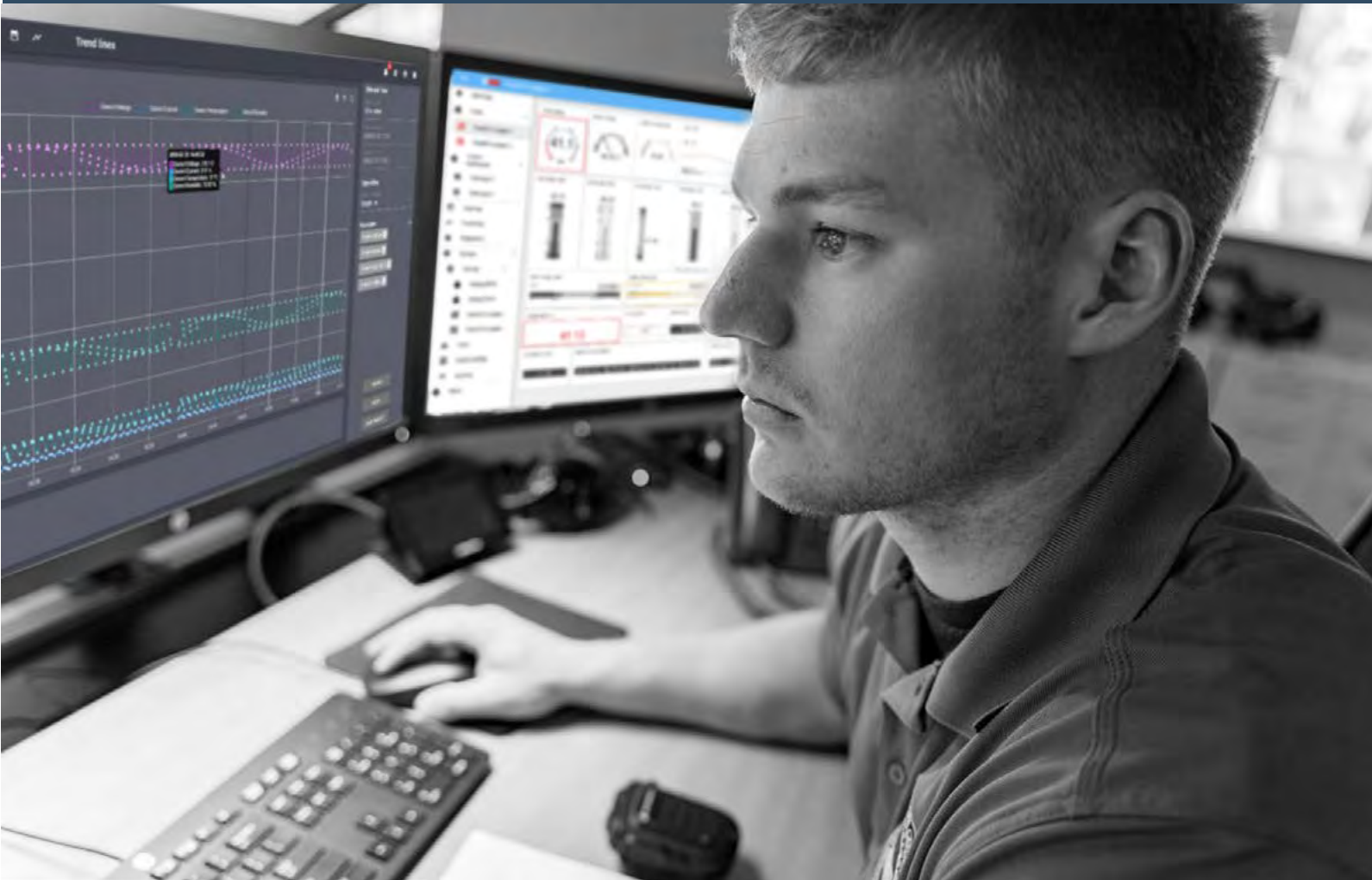
SmartICS widgets have special color schemes that highlight abnormal or critical values in color and keeps normal values gray. This helps dispatchers more easily identify issues and prevent accidents.



## WHAT IS THE BENEFIT?



The process-oriented approach and the concept of situational awareness to the data visaulization can increase the operator/dispatchers' reaction rate to emergency situations. They identify and interpret emerging events faster, make decisions more quickly and correctly and prevent serious facility accidents. The result is the safety of people and the environment, as well as the safety of the financial enterprise resources.



# VARIETY OF DATA ACQUISITION OPTIONS

To collect data in industrial automation systems, both wire and wireless communication channels are used. For geographically distributed facilities, the most relevant is the use of wireless data channels, such as VHF, Wi-Fi, cellular communications, satellite communications, ZigBee, LoRaWAN and others.

In some cases, especially when the controlled equipment is remote from the control room and located in hard-to-reach places, it is extremely time-consuming and economically inefficient to create a separate infrastructure for collecting technological information from these facilities.

In such places, cellular communications can either be completely absent or very unstable to ensure guaranteed data transfer and control of remote facilities.

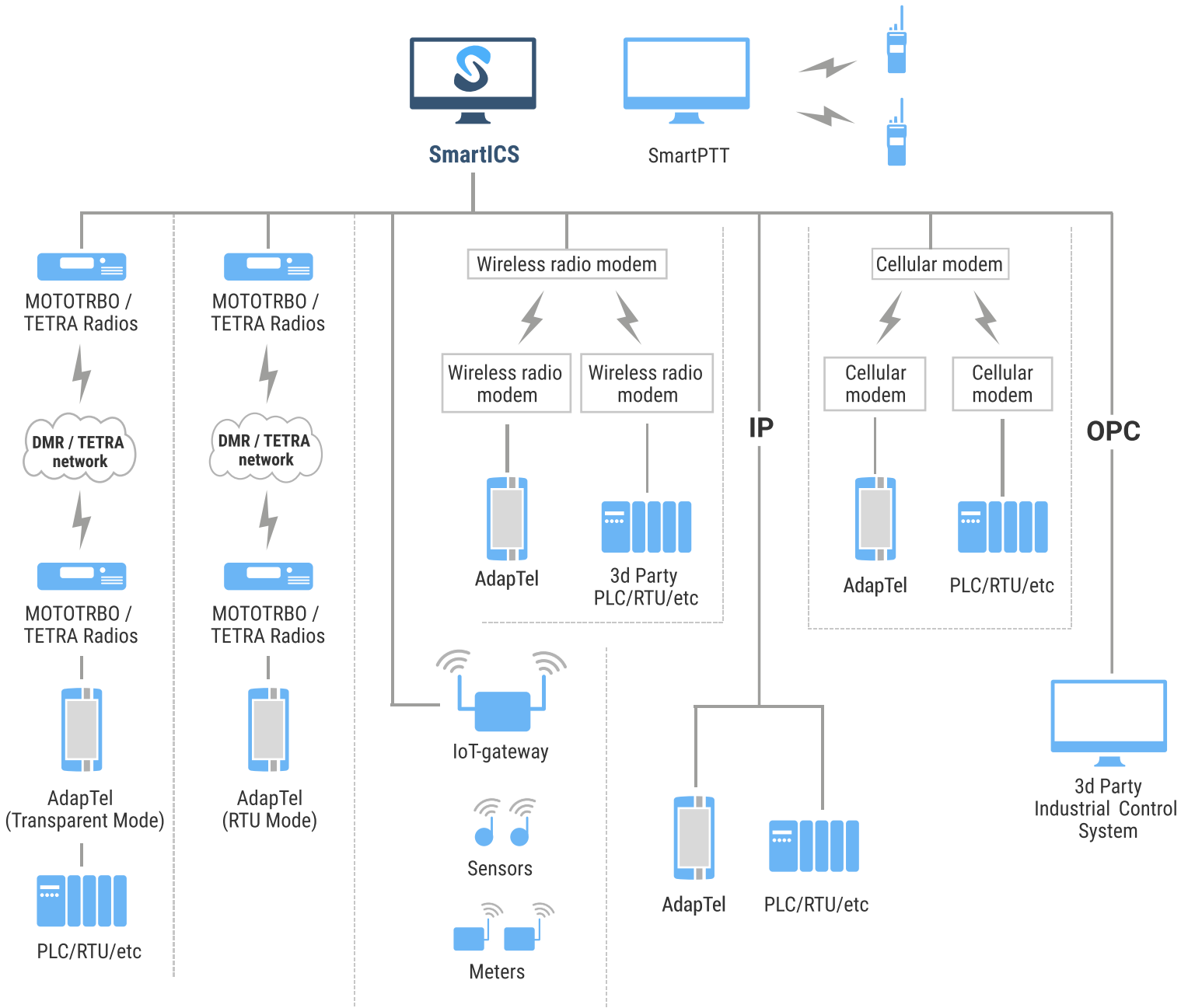
## DATA COLLECTION VIA VOICE RADIO CHANNELS

To collect data, you can use an existing DMR or TETRA digital radio network used for employee voice communication. Voice and data can be transmitted through different channels of the radio communication system to avoid interference.

You can collect the data from such networks using special AdapTel device. AdapTel is a communication gateway with data input/output functions. It is used in DMR and TETRA networks, as well as in other standard data networks.

SmartICS and AdapTel have their own data communication protocol, which takes into account the features of data transfer over such radio networks. The communication will be reliable!

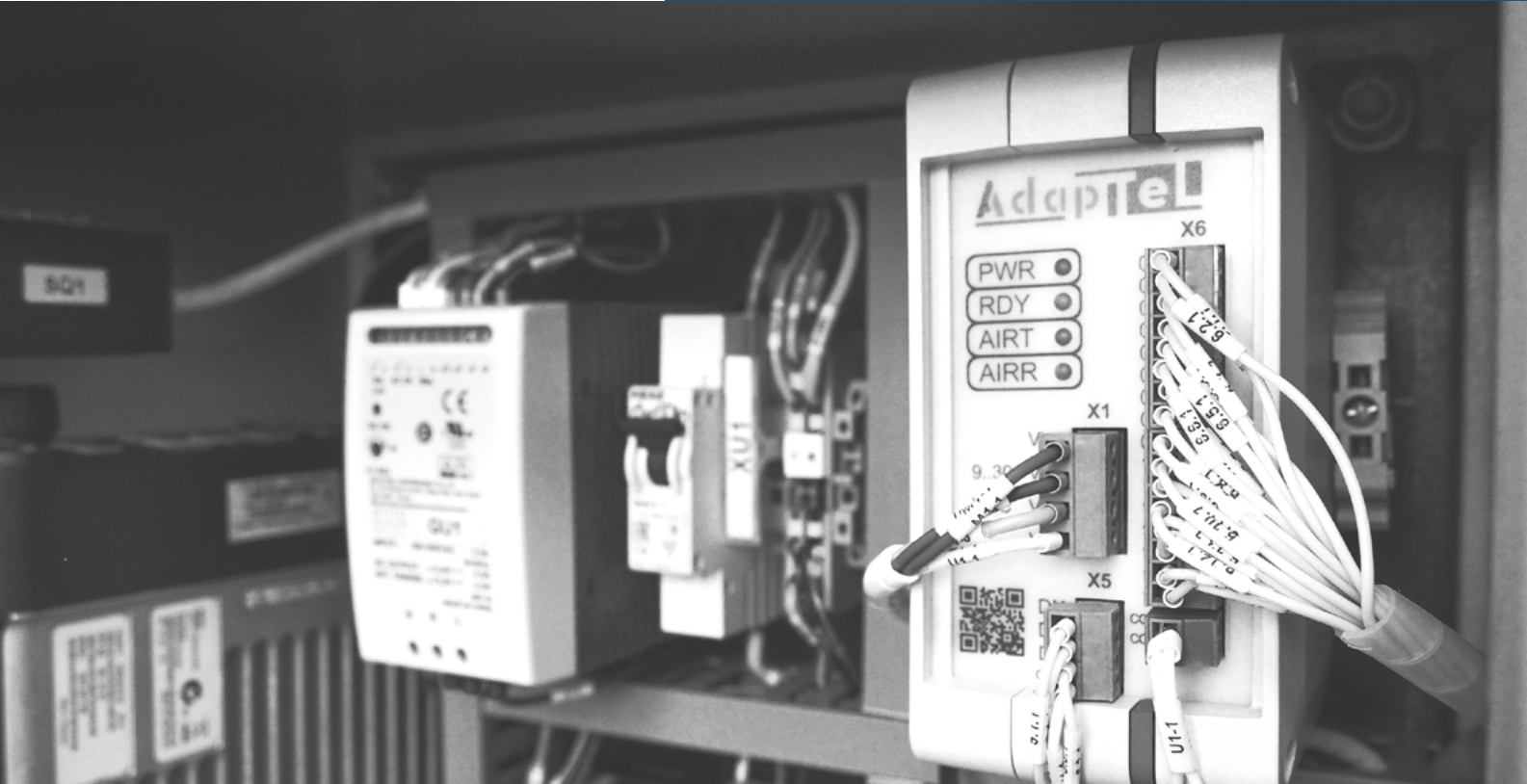
More information about AdapTel is available at <https://smartptt.com/products/adaptel/>



## WHAT IS THE BENEFIT?

Integration of SmartICS with the enterprise existing dispatch radio system will avoid spending money on creating a new infrastructure for organizing the technological information collection.

The use of these complementary systems will increase the observability of technological facilities and the efficiency of the dispatcher processing, especially with regard to prevent emergency situations and organize the process of their eliminating.

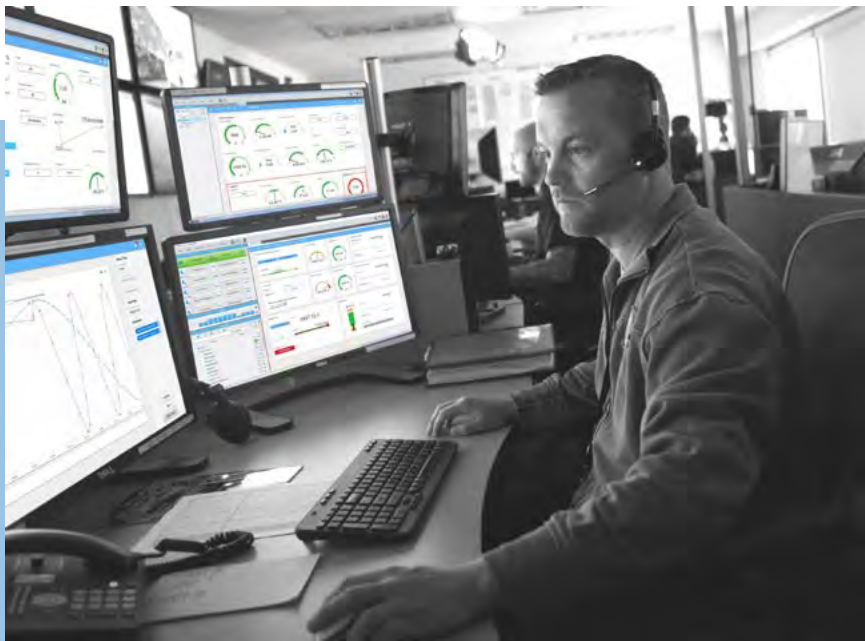




# INTEGRATION OF SmartICS WITH SmartPTT DISPATCH SOFTWARE

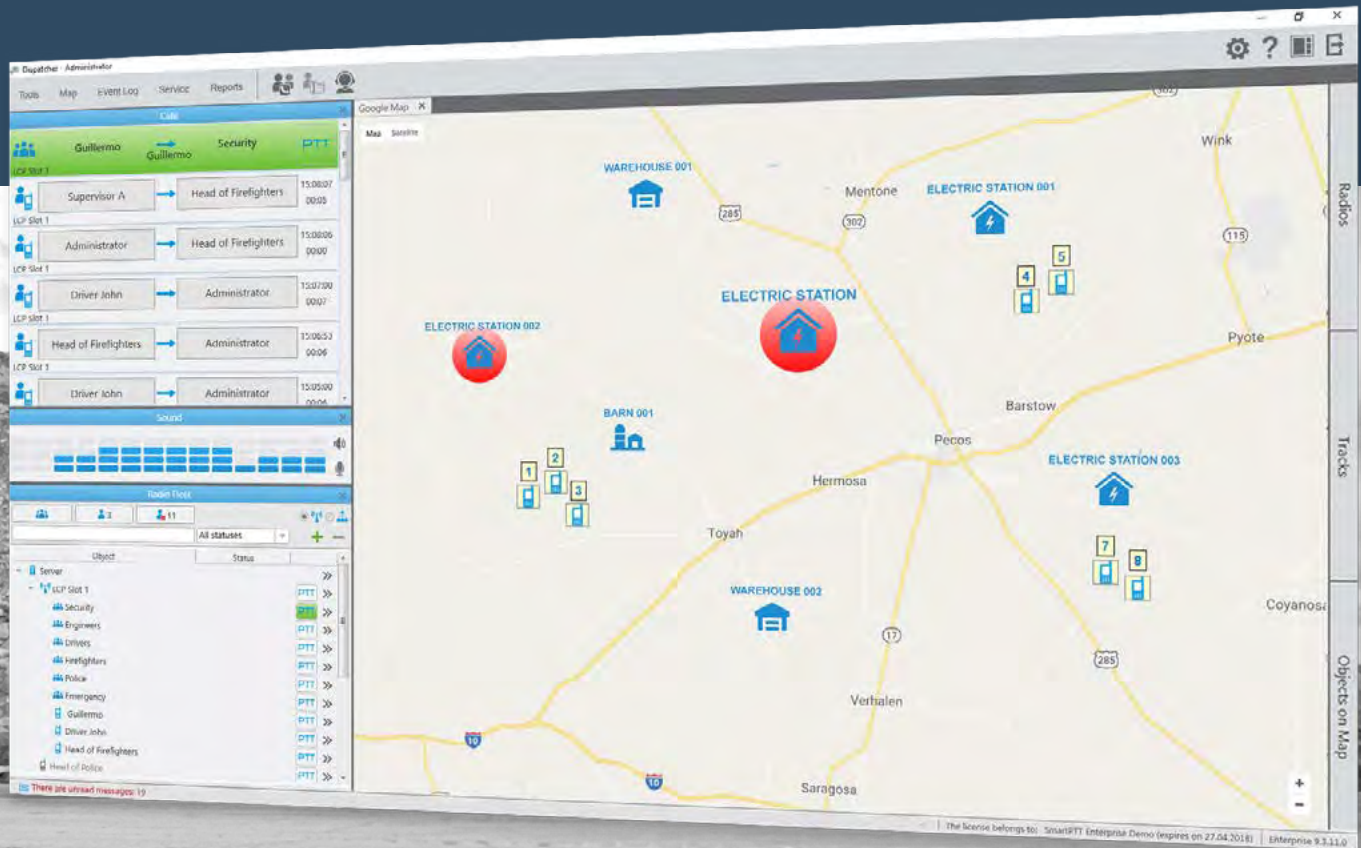


When organizing the data collection over voice digital radio networks, you will be able to combine the monitoring and control system of distributed facilities with the voice dispatcher radio communication system based on SmartPTT software (more information is available at [smartptt.com](http://smartptt.com)).



# WHEN INTEGRATING WITH SmartPTT, THE OPERATOR CAN

- see telemetry data and information about all radio subscribers on one screen: personnel location and routes, location and current state of controlled automation facilities
- configure various automatic scenarios: for example, automatically sending messages about emergency and unusual events at monitored facilities or sending tasks directly to radio stations of responsible employees or personnel located near the facility





# CAN THE EXACT LICENSE PRICE BE CALCULATED AT THE SYSTEM DESIGN STAGE?

Yes! Are you familiar with the situation when adding 100 new signals from the PLC I/O channels, you have to extend your current license for your SCADA system? Or when you did not take into account all the SCADA system parameters during the preliminary budget assessment and, implementing the project, you faced with a lack of tags in the purchased license for the SCADA system. SmartICS has a completely different approach!

The SmartICS license price is calculated based not on the number of I/O signals, which may increase in the future, but on the number of interrogated units, such as PLCs, RTUs, counters or other intelligent interface devices. You will not have to calculate the number of the connected tags at the automation system design stage, at the risk of not taking into account all the necessary tags or paying for extra ones.

If you need to connect more devices, just add the option to connect an additional number of devices. The number of clients and users connected to the server is also unlimited and is not taken into account.

There is also no paid developer license, which makes SmartICS a beneficial option.

## LET'S COMPARE?

	Classic SCADA softwares	SmartICS
Workstations	1 license per each workstation	One single license without limitation on the number of workstations, tags and users
10 connected devices	License and price depend on the number of tags	
Web access for remote users	Web server license and additional licenses per each user	
Developer license (development environment)	As a rule, a paid license is purchased separately	

YES!

All you need to know is the number of connected devices

And the first 10 devices are already included in the basic SmartICS license

# WHAT IS THE BENEFIT?

When designing an automation system with SmartICS, you can calculate the exact and most likely final cost of purchasing it even at the automation project planning stage.

The final license cost may only change if you are planning a full-scale expansion of the system and intend to add new controlled facilities or interrogated units, e.g. PLCs.

If you just add new signals to an existing controller, it will not change.

Due to the convenience of our licensing policy, you spend much less time and effort when planning a project and calculating the license cost. You don't need to count the number of tags that may change multiple times. You do not need to calculate the number of your specialists who will need access to the data. All you need to know is the number of connected devices.





## LICENSING

To run SmartICS, you will need a license. Choose the most suitable licensing option for you:

### Permanent key

- A set of software modules and necessary options specifically for your project
- Unlimited license period

### Annual subscription

- A set of software modules and necessary options specifically for your project
- Annual subscription renewal

### YOU CAN TRY AND TEST OUR SYSTEM ABSOLUTELY FREE:

- 1 Via remote online access to the demo system deployed on our server, which is accessed via a web link
- 2 Request a distribution kit for installing a SmartICS demo version on your computer with a temporary license for more detailed familiarization and testing of the system before purchasing a license

## TECHNICAL SUPPORT

Regardless of the chosen licensing option, we are ready to provide training on working with our platform for all our clients. It is held in the format of a webinar with further access to records. You will also receive all the necessary reference materials and instructions for working with the system.

If this is not enough, we are always glad to provide you with technical support. You do not need to buy maintenance and technical support separately, since they are included in the license price.

Our technical support team is always available and glad to answer any of your questions by phone +7 (3822) 522-511, +1 786 362 55 25 (US office) or by e-mail [support@smartics.io](mailto:support@smartics.io).

## ABOUT THE DEVELOPER COMPANY

Elcomplus is an international IT company, developer and integrator of communication systems, industrial automation and manufacturing digitalization.



[www.elcomplus.com](http://www.elcomplus.com)

25

years on the market

6

offices in Russia and the USA

250

employees

80

countries of distribution

Elcomplus started its activity in 1994 with the supply of technological radio communication systems. In 1997 the company becomes an official partner of Motorola Solutions, and this partnership continues to this day.

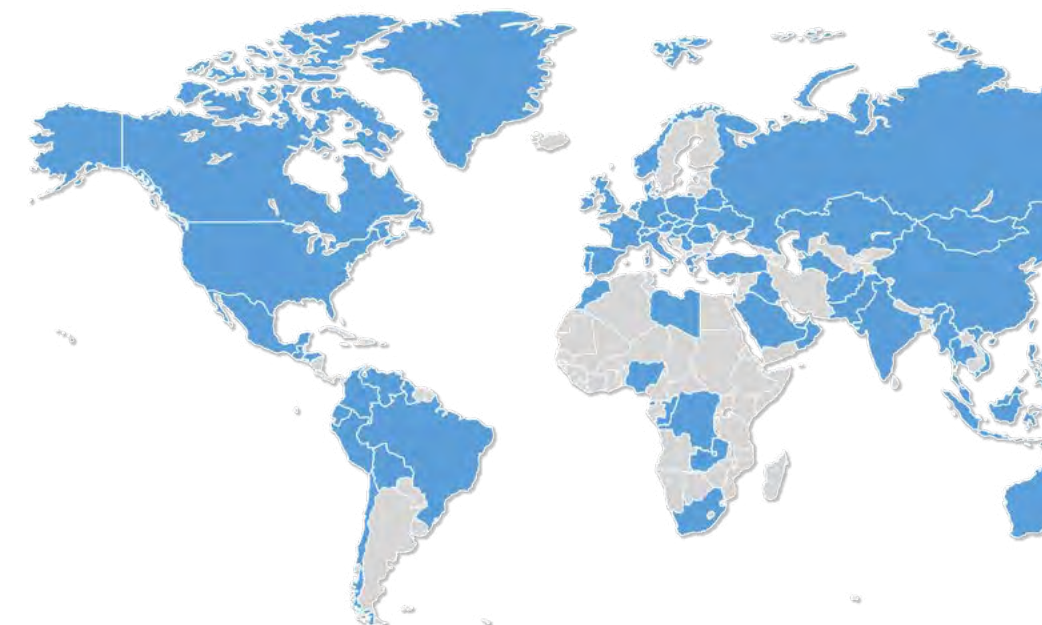
In 2000 company launches a new business line – Industrial Control systems. Over the past two decades, numerous automation systems have been implemented in the oil and gas, energy, chemical and petrochemical, mining, heat and water supply, agricultural and other industries.

In 2010, we launched our own SmartPTT software for digital dispatch radio systems based on Motorola DMR-standard equipment. It is included in the price list of Motorola Solutions and has been helping our customers around the world to protect resources, time and human health for 10 years.

Since 2018, the module for remote monitoring and control technological facilities has been implemented in the SmartPTT software (SmartPTT SCADA), and in 2020 we introduced it as a standalone product with new capabilities for solving challenges in the field of industrial automation, IIoT and enterprise digitalization.



2000+ other clients worldwide





smartics.io



+7 (3822) 522-511  
+1 786 362 55 25



support@smartics.io