Yuria-Pharm

Implementation of Manufacturing Operations Management (MOM) System in the Pharmaceutical Industry

With the support of the Association of Industrial Automation Enterprises of Ukraine

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About Yuria-Pharm

Yuria-Pharm is an international specialized pharmaceutical corporation founded in 1998. Yuria-Pharm specializes in the production of infusion solutions, medicines and medical devices. The headquarters is located in Kyiv, Ukraine.

Yuria-Pharm is one of the ten leaders of Ukraine in terms of sales and is a member of the Association of Manufacturers of Medicines of Ukraine (AVLU). The company produces more than 110 million units of products per year.

Yuria-Pharm maintains its leadership among hospital distributors in Ukraine. The company accounts for 60% of sales of infusion solutions, which are equal to about 100 positions in the portfolio of Yuria-Pharm. The company also holds the leadership in the sale of medical devices – syringes, infusion systems and more.

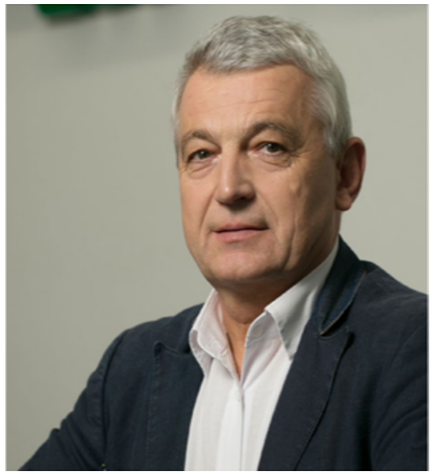
One of the important directions of the strategy is compliance with international quality and production standards. The company has quality certificates: Ukrainian State Standard – ISO 9001-2001 (ISO 9001: 2000, IDT); Ukrainian State Standard – ISO 13485: 2005 (ISO 13485: 2003, IDT); ISO 13485: 2003 (BSI); GMP (Ukraine), GMP (EU). For achievements in the development of the pharmaceutical industry, Yuria-Pharm has received numerous awards at the national and international levels.

Project Context

Operational dispatch management systems have been the focus of managers for more than 20 years. Despite the stable interest, they are not very common in Ukraine. The reason for this condition is the complexity of the systems (at full implementation of functionality), their cost, as well as the combination of availability in the local market with appropriate service support. In modern design, manufacturers seek to install more complete production management systems (MOM – Manufacturing Operation Management), capable of performing not only operational and dispatch control of the state of production, but also of ensuring the performance of quality control functions, inventory, production planning, maintenance, etc.

The management of Yuria-Pharm expressed interest in similar systems. The main motivation was the following issues in the enterprise:

- The lack of full operational and dispatch control in real time made it impossible to react quickly to stops and changes in production.
- It was necessary to establish continuous processes to increase production efficiency by achieving the planned productivity of production lines, minimizing the number and duration of downtime and increasing product quality, and minimizing the number of shortages.
- With a large number of different lines and machines, it was difficult to understand the details and causal links of equipment failures and deviations of process modes.
- People play a significant role in the consideration and processing of production data – a lot of data was entered by operators manually.
- As a result, different services had different interpretations of the information received and, accordingly, there was no trust in the reliability of the data. This, in turn, did not contribute to teamwork to improve KPIs.



"To see all production in the palm of your hand, to understand the state of each line and the reasons for its shutdown, to control every important KPI and all this in real time – today, it is no longer a dream, but just standard requirements for managers and engineering management in the pharmaceutical industry. The lack of information on current offers or the cost of these systems is often troubled to meet these requirements. When we heard about the availability of such systems in our industry, we immediately organized a meeting with Indusoft-Ukraine, began discussions and joint development of a detailed Terms of Reference."

- Volodymyr Shevchuk, CEO, Yuria-Pharm

Systems such as ASODU (Automated Systems of Operational Dispatch Control, as a low-end segment in the category of MOM systems) have long been known in the market. At the same time, the quality of these systems does not always satisfy the customer. For example, grassroots automation at Yuria-Pharm includes a large number of controllers from different manufacturers – Siemens, Vipa, Omron, Owen and others.

The problem was that this logic of the controllers solves the problem of direct control of the machine only. Machine developers did not anticipate that data on the operation of major components, performance parameters, system errors, etc. will be needed by someone. Therefore, the main problem

was to highlight useful information and interpret existing data. For example, Yuria-Pharm set a task to determine the causes of downtime automatically. But how to do it when the machine control system generates a lot of opaque errors that are difficult to interpret?

In other words, if the data systematized in the PLC were not important for higher level KPI accounting, it would not be systematized in a user-friendly form. That is, they need to be found, "extracted," aggregated and systematized in the appropriate databases, accounted for and further – displayed, or transferred to other algorithms for further processing. When there are many such controllers (lines and machines), this task of automated real-time accounting is quite complex, including the difficulties of establishing a network connection. And without such a collection of accurate information "from below," it is impossible to establish accurate accounting of equipment and KPIs at the upper level.

Another aspect important for understanding this project is the balance of contractors on the part of the customer and the contractor. As always, close engineering or high-tech projects require close collaboration. Looking ahead, it should be noted that this was the case with Yuria-Pharm and Indusoft-Ukraine. At the same time, the number of available industrial automation specialists from the customer side was limited. This imposed additional requirements on the contractor in terms of implementing the tasks of collecting and dispatching grassroots information.

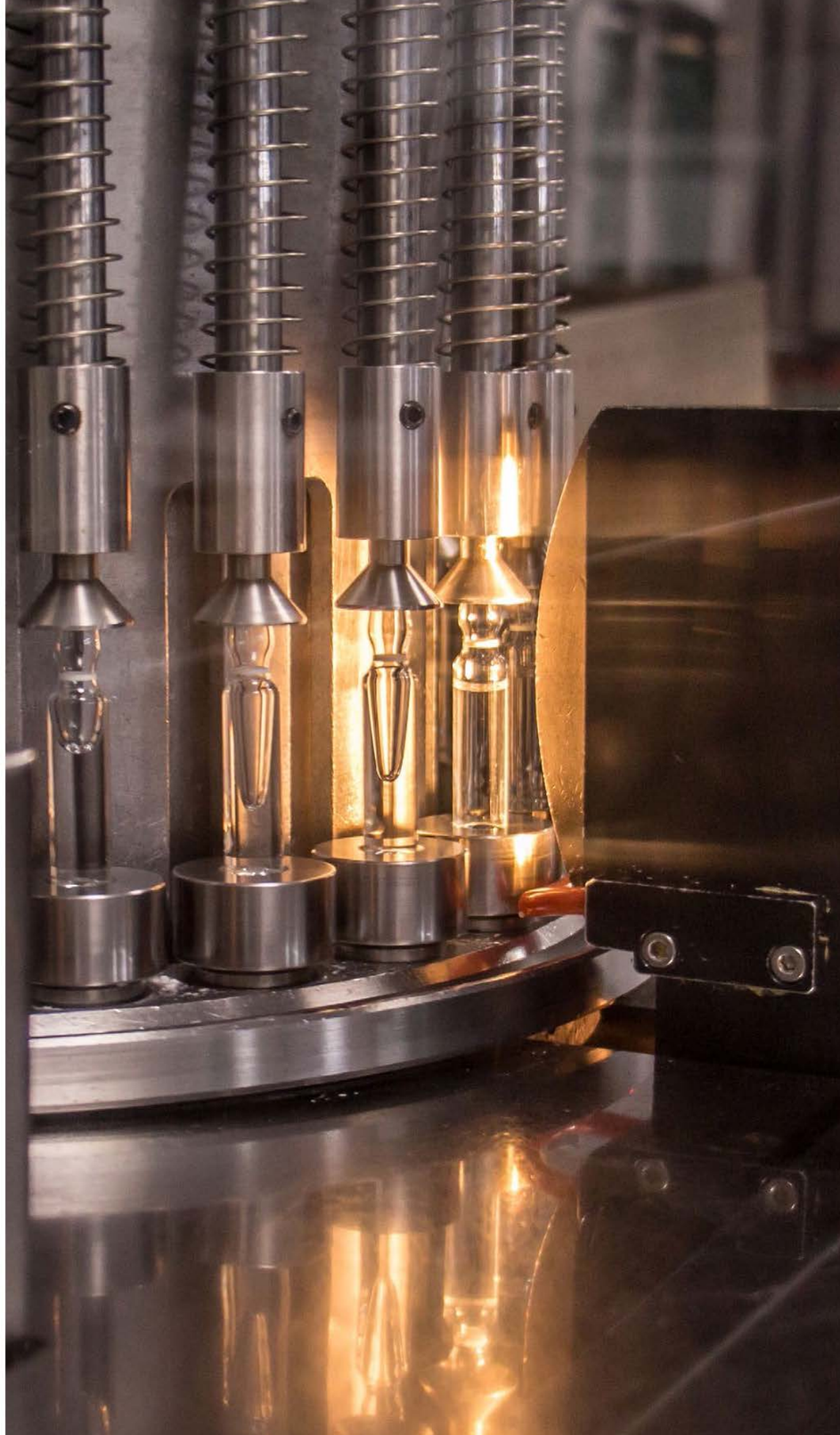
Summing up, setting tasks for Yuria-Pharm was quite classic in terms of the introduction of operational supervisory control as the main functionality of modern MOM systems.

At the same time, the variety of grassroots automation and networks, the limited availability of local staff were significant additional issues for Indusoft-Ukraine in implementing this project.

"The issues of Yuria-Pharm were quite familiar to us. We have been specializing in similar tasks of KPI scheduling and accounting for more than 15 years. Here we immediately saw that one of the main reasons for the inefficient accounting of OEE was the manual input of data. Actually, as the customer pointed out. That is, data on downtime were entered manually and often, quite subjectively.

At the same time, during the priority audit, we realized that the task of data collection will be non-trivial. The number of different grassroots controllers, different networks, unsystematized data and parameters, as well as insufficient level of automation on individual machines – all together, this complicated the task of collecting and processing information from the automatic process control system for issuance to MOM. As the course of work later showed, this aspect of the project was one of the most difficult ones."

- Volodymyr Patrakhin, CTO, Indusoft-Ukraine



The process of manufacturing ampoules at Yuria-Pharm

Decision and Progress of the Project

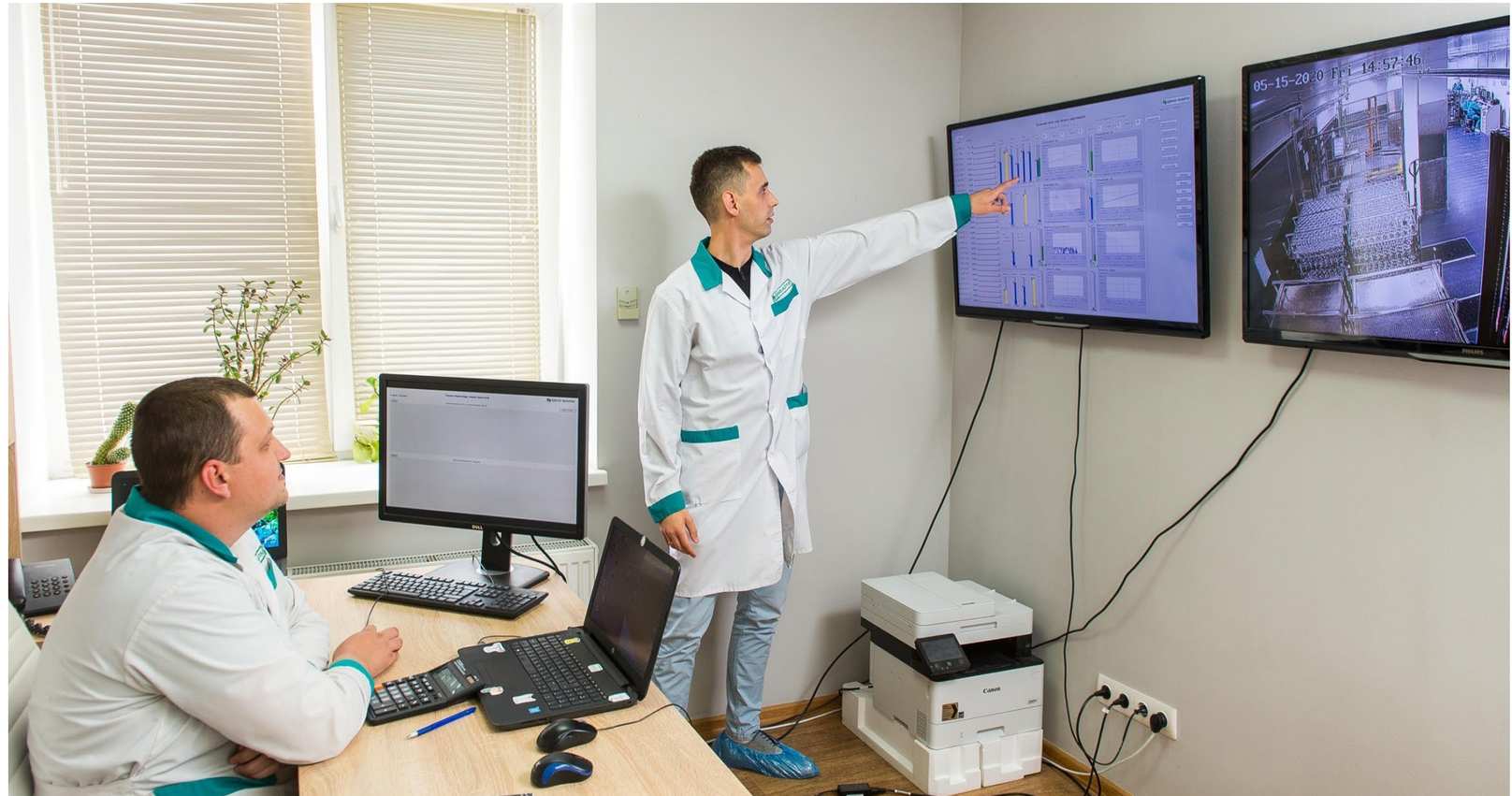
The proposed MOM system is a typical solution of the Ukrainian OT-IT integrator Indusoft-Ukraine for industrial enterprises, and which is based on its own developments and software and hardware from GE Digital.

The system is designed to increase the efficiency of production of the company, increasing the efficiency of equipment use, its productivity, product quality, reducing downtime and material losses, improving the transparency of efficiency and quality of decisions. The goal is achieved by increasing the efficiency of process and production processes of the company, the transition from manual to automated mode of tracking the work of equipment and personnel in real-time and further analysis of the state of KPIs and causation, with appropriate recommendations for managers.

For the pilot project, the decision to implement the MOM system was made at the site of the plant Yuria-Pharm in Cherkasy, and which included 2 production lines: 1) production of drugs in glass bottles, 2) production of drugs in ampoules.

After the audit and specification of the terms of reference, five main objectives of the project were defined:

- Implementation of a full-fledged system of scheduling and calculation and control of OEE in the production in a real-time mode.
- Tracking real-time downtime, performance and materials. Provision of access to operational information for all personnel of the company.
- Automatic tracking of important production events by signals from automation systems.
- Automatic receipt of orders for the production of ERP products, tracking the production process of individual batches and products.
- Provision of display of data on the efficiency of equipment use through the calculation of OEE in the intranet of the company with access through browsers and mobile applications.



Dispatching office at Yuria-Pharm

System Architecture

The solution has three levels. The first level – the level of local control and automation of process sections of the company, based on programmable logic controllers (PLC), operator panels (OP) and industrial computers (iPC), which perform the tasks of managing individual units and process sections. The purpose of the system at this level is to conduct the process. Within the project, the issue of data collection from the most important equipment of these local automation systems to the upper levels of real-time control was solved at this level.

The second level – the level of supervisory control, based on software and hardware of the process server of history and the computer of the dispatching workstation. The purpose of the system at this level is the automatic collection of real-time data, calculation of complex indicators, as well as the accumulation of production history. All important information from local equipment automation systems, automatic meters and terminals is stored in a single production data storage cell and provided to the dispatcher in a convenient and accessible form.

The third level – the level of analytics, based on the analytical server and the means of thin clients, which are involved in the implementation of tasks for the analysis of production data and are responsible for the efficiency of processes. The purpose of the system at this level is the visualization and analysis of production data.

Indusoft-Ukraine used the following from GE Digital:

- Analytical module Efficiency from the world-class MES software package, Proficy Plant Applications. It was used to create production models and identify production events of downtime, productivity losses, quality degradation, process alarms and product losses.
- Proficy Historian, best-in-class process historian archive of real-time data. It was used as an integration platform for automation systems (SCADA and others) and a tool for calculating current KPIs and their components.
- iFIX HMI/SCADA, also part of the Proficy family, as the software of the production management workstations.
- Production analytics display system based on a thin universal web client. It allows you to build a modern analytics display system using dashboard, customizable HTML5 and UAA technologies.
- Industrial Gateway Server(IGS) as a set of interfaces for access to production equipment management systems. ORS servers were used to connect to PLCs, operator panels and digital meters of products from different manufacturers.

Yuria-Pharm facility

Implementation Steps

- Determining the composition, characteristics and features of the implementation of control systems for each individual unit, which was planned to calculate the OEE. To do this, it was necessary to obtain information about the code running in the PLC / HMI / iPC, tables of variables in their memory with descriptors and parameters of access and unpacking (addresses, names, types, etc.). In turn, this task required the definition of a possible interface for data collection, selection of ORS servers for communication, and so on.

- At the level of SCADA nodes, work was carried out to determine the content of the Database (DB) parameters, which contain useful information about the equipment operation. At this level, it was decided to install ORS servers in the SCADA database to transfer information to the upper levels. Useful information was considered to be the parameters of the control systems, which indicate the operation or shutdown of the unit or its important components, performance, speed, number of defects, operating data or calculation of operating time, as well as alarms / messages / errors in the equipment operation, which can automatically determine the causes of stops or duration of loss of performance.

- Work has been carried out to install additional meters for products and shortages. According to the Terms of Reference agreed by the customer and the experience of Indusoft-Ukraine, the ideal situation is when there is a meter at the entrance and exit of each work center (unit) and a separate shortage meter.

- Data from ORS servers of SCADA nodes were transferred directly to the archive of real-time data collection (Proficy Historian) through the installed ORS collectors. For data from individual PLCs / HMIs / iPCs, additional data collection nodes were installed on the basis of an industrial computer with the Industrial Gateway Server software installed. This tool is a set of ORS servers and drivers for the most popular industrial controllers, interfaces and other means of automation systems. Proficy Historian OPC collector is installed on the same node.

- Based on the calculation core of Proficy Historian, validation was performed, primary indicators were calculated and logical data from the process equipment were processed. For example, the noise of discrete triggers of events is eliminated, indicators of counters of production and shortages are synchronized, current data of operating time of machines, integrated indicators of operating time, etc. are calculated at this level.

- Then it became possible to deploy the dispatcher's workstation, on the screens of which operational information about the production process, important production events, productivity, equipment loading, data from meters of finished products and shortages was displayed. The interface was developed in accordance with the requirements of the international standard – ISA101 in terms of information aggregation, graphics processing, structuring data on the model. It is important that the KPI of the dispatcher should be such that it can directly make an effect, and it is not OEE but the performance or speed of equipment operation, unit operating time, number of alarms by levels, shortage counters, plan / fact ratio and so on.

- Accumulated and processed through Proficy Historian , real-time data on the equipment operation became the basis for creating and debugging a system of models for detecting production events in Proficy Plant Applications. It is here that the general production and organizational model of the company is created; it is possible to analyze the data in the production context (in terms of the line, individual unit, product, batch, change, that is what). The normative and reference information database is developed (product specifications, content of hierarchical trees of causes of downtime and losses, levels of alarms by priorities, etc.).

- Then the task of integration with the existing ERP system was solved. At a minimum, ERP should provide the planned performance of equipment and orders for production (product, volume, time, production routes, etc.). If the ERP provides for it, it is necessary to transfer data on the progress of the manufacturing process, the transition of the batch from one unit to another, production parameters (products, production and loss, operating time and equipment hours in service, events of loss and downtime alarms, KPI values, etc.) back from the MOM. This can be in real time, or when the order is fulfilled and depends on the configuration of production control functions at the business level.

- Data on the status of KPIs (OEEs) and their components were derived for analysis by key specialists and management. For this purpose, it was necessary to develop the convenient interface so that it could be convenient to make parametric inquiries on sections of the separate equipment, products, performers, etc. Thin web client applications that are convenient to use not only on computers, but also on mobile applications are the best ones. Proficy Plant Applications HTML5 universal client was used within the project for the purpose.

The main challenge in the implementation of the system was the task of obtaining information from equipment automation systems in an objective production context. Control systems based on the PLC and SCADA were supplied by different manufacturers at different times as part of various equipment and did not provide for the transfer of information to external systems. It was necessary to find opportunities for connection, interpretation and retrieving useful information at each of the data sources. The decision was in a joint work with the customer's specialists to develop a technical solution in each case. These solutions included the installation of additional interface means of communication and sensors, modernization of existing control systems where possible, adjustments to the logic, careful analysis of the contents in the memory of controllers and SCADA databases of the engineering systems.

Separately, the solution of the MOM and ERP integration issue should be noted. The feature was in the need for integration with ERP class software that does not support database structures, models, methods and interfaces for data exchange in accordance with the requirements of the international standard – DSTU IEC 62264. The implementation took place through the use of web-services that use SQL-queries.

Packaging line at Yuria-Pharm

Features of Technical Implementation from Indusoft-Ukraine

As a result of the project implementation, Yuria-Pharm received numerous benefits and new production management opportunities.

1. Fast, full and independent integration of all devices of grassroots automation

"Zoos" (very diverse grassroots automation), difficulties in servicing various controllers and devices, as well as issues of integration into a single control system – a traditional issue of Ukrainian companies, was also present at Yuria-Pharm.

The solution used by Indusoft-Ukraine's specialists is based on three elements. First, the distributed Proficy Historian architecture allows the installation of remote archive collectors on data sources (Windows computers), automatic support for communication with the server and the provision of various interfaces (to ORS, SCADA, database, etc.), implementation of local buffering and data compression.

Second, the contractor has installed additional data collection nodes on the basis of an industrial computer with a data collection system directly from sensors and meters that are not included in the standard control systems of work centers. It also includes interface modules for communication with individual controllers over fieldbuses.

Third, the project uses Proficy Industrial Gateway Server (IGS) software, which is a set of almost 100 protocols, drivers and ORS servers to the most popular and used automation tools on the market.

Uniquely, IGS is the comprehensive driver set that can be configured to communicate with different devices.

That is, after the setup, the customer received a single IGS ORS server for the entire production line, in which, as separate channels, separate interfaces to production equipment management systems are configured. Otherwise, the integrator would have to install more than one industrial computer and a set of drivers, and then install a separate Historian collector for each one.

Accordingly, the customer has received significant benefits in performance, flexibility in expansion and ease of use

2. Highly efficient database, fully compliant with MOM requirements

Numerical production management modules (scheduling, quality, maintenance, inventory, etc.) are usually based on their own control subsystems and their own data. But a single management of all production at the MOM level requires the collection, archiving, coordination and uniform accounting of all data and their further processing!

Traditional approaches to relational database integration are not the best approach for industrial companies – they are slow, cumbersome and consume a lot of computer resources. Such technologies are not suitable for the modern MOM.

The solution for Yuria-Pharm is to use a professional product for similar tasks – Proficy Historian software. This software is a historical archive of real-time data – a real integration platform and, at the same time, a tool for calculating current KPIs and their components. The speed of data collection and processing, reliability, built-in data processing tools in

"This project stood out for its innovation, we already had experience in implementing ERP systems in production, but the implementation of the MOM system is the first experience for us, and I think it is successful. One project manager from each side was involved in the project, we constantly coordinated our actions or delays where connection, penetration and help was required. We helped Indusoft-Ukraine understand our difficult infrastructure, they in turn helped us understand the software products that were recommended according to the developed TOR.

As part of the project, we managed to build a MOM system that we can scale to the entire production; the system is currently giving good results to improve efficiency. At the first glance, the system looked complex, but it facilitated our work to collect the necessary process parameters with each day of work with it. We got the opportunity to form trends in critical parameters of production in real time.

In general, the project was not easy, but we learned a lot of new things within the project. In this case, I would like to note the high level of technical training of Indusoft-Ukraine's specialists and the level of their customer orientation. There were cases when we had new requirements and changes – the company always made advances. We will continue to be partners."

- Olexander Katrenko, Business Process Analyst, Yuria-Pharm

Proficy Historian are an order of magnitude higher than these parameters in traditional databases.

At Yuria-Pharm, this product is responsible for combining all important production data from various sources and qualitatively converting of raw data into economically significant information by calculating secondary indicators in real time. A real discovery for Yuria-Pharm was when the team saw how easy it is to work with Proficy Historian to connect and perform an archivation of data with its high reliability and performance. Therefore, it was decided to entrust the work with Historian specialists of Yuria-Pharm's own automation team in the subsequent stages of expanding the system to other lines and production.

3. Modern SCADA system as reliable basis for operational production management

The MOM as a management system of the entire production solves problems of the top level and for engineering managers of the company. But for operative management of technological sites, the traditional SCADA system is required.

It is a management tool for operators and dispatchers. At Yuria-Pharm, the dispatcher's workplace was developed with iFIX HMI/SCADA. This standard product from GE Digital has quickly created an easy-to-use and efficient tool for operational production management.

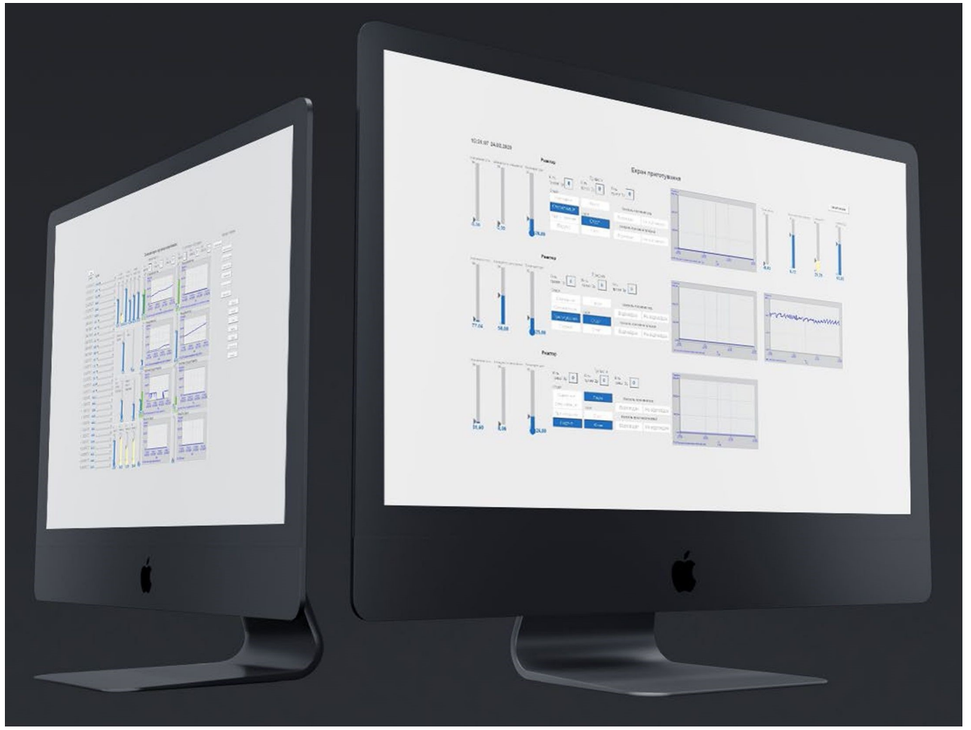
It was agreed with Yuria-Pharm that the development of control screens should provide for a use of the recommendations for a modern high-performance HMI (international standard ISA 101). According to this standard, control screens use less distracting graphics, contain only important aggregate data, and switch between screens according to a hierarchical multilevel production model. Now the dispatcher has all the necessary information about the progress of the manufacturing process and the results of the calculation of KPIs in real time.

Analysis of the system application has shown that it is important to display only those KPIs to dispatchers, which they can directly influence. For example, OEE was not very informative for them. It is more important for dispatchers to display data on operating and idle time of each unit of equipment, their current performance, speed, number of defects, promptly report important production events (alarms, stops, speed losses, data of engineering systems, etc.).

4. Modeling, full integration with ERP and advanced analytics of production process

Collecting, processing and displaying important production data in a timely manner is not sufficient to make important management decisions. Today's complex production requires high-quality, efficient and in-depth analysis of deviations from target indicators, failures and other unplanned situations.

In the implementation of the project at Yuria-Pharm, the stage of developing a set of production models, the logic of identifying important production events and the synthesis of databases of regulatory information was the most difficult and long. This work formed the basis of the application of



Sampling of screens from the dispatch system at Yuria-Pharm

analytics to improve the efficiency of equipment based on Proficy Plant Applications. Working with this MES software provided a detailed description of the production process. In essence, we are talking about a model of a virtual enterprise, which describes all the equipment, all production branches, the manufacturing process itself.

Due to the binding of system data (collected or calculated) to the parameters of the models, it is possible to analyze information in the production context, in terms of equipment, products, orders, personnel, etc. The joint careful work of Yuria-Pharm's and Indusoft-Ukraine's specialists allowed to adjust the models of detection and calculation of downtime and losses, calculation of components for availability, productivity and quality of OEE. In accordance with the existing system of accounting and analysis of KPIs at the company, the base of regulatory documents was synthesized, for example, the methodology of KPI calculations, the tree of causes and actions on downtime, losses, alarms.

Also, the issue of integration with the existing ERP system was addressed at this stage. Summarizing these points, it should be noted that the level of integration always depends on the implementation of production accounting tasks in the business system in general. For batch production, the planned performance of equipment and current orders for production (product, volume, time, production routes, etc.) should at least be transferred from the ERP.

If the ERP provides for monitoring of the production process and requires data of the "information loop," then it is necessary to transfer data on the progress of the manufacturing process, batch transition from one unit to another, production parameters (products, production volumes and losses, operating time and service time of the equipment, events of alarms, losses and downtime, the KPI value, etc.) back from the MOM to ERP. This can be done in real time, or when the order is fulfilled. In this project, Yuria-Pharm decided to concentrate the tasks of order management within the responsibility of the dispatcher. ERP orders are received automatically, the manager can manage the status of the order (active, pending, etc.), can edit parameters, combine or divide orders into parts, determine the process route and generate a final report.

5. Visualization and convenient dashboards in different monitoring and control modes

The availability of KPIs in real time and their high-quality visualization for a wide range of system users, ideally for everyone who needs it and remotely is another specific aspect of such projects. Quality criteria here: cost, convenience but also safety.

For tasks in this category, Indusoft-Ukraine offered a product of thin web client applications to Yuria-Pharm – Proficy Plant Applications HTML5 universal client. This does not require pre-installation of any software but uses a standard web browser of the OS. This solution allowed providing specialists with a convenient interface for generating inquiries about the status of OEE and its components in terms of individual equipment, products, orders, personnel, etc.

Dashboards (or visual panels) of the system have a hierarchical model, provide for a certain logic of analysis from a general to a specific one, some of them can be customized by users to their needs.

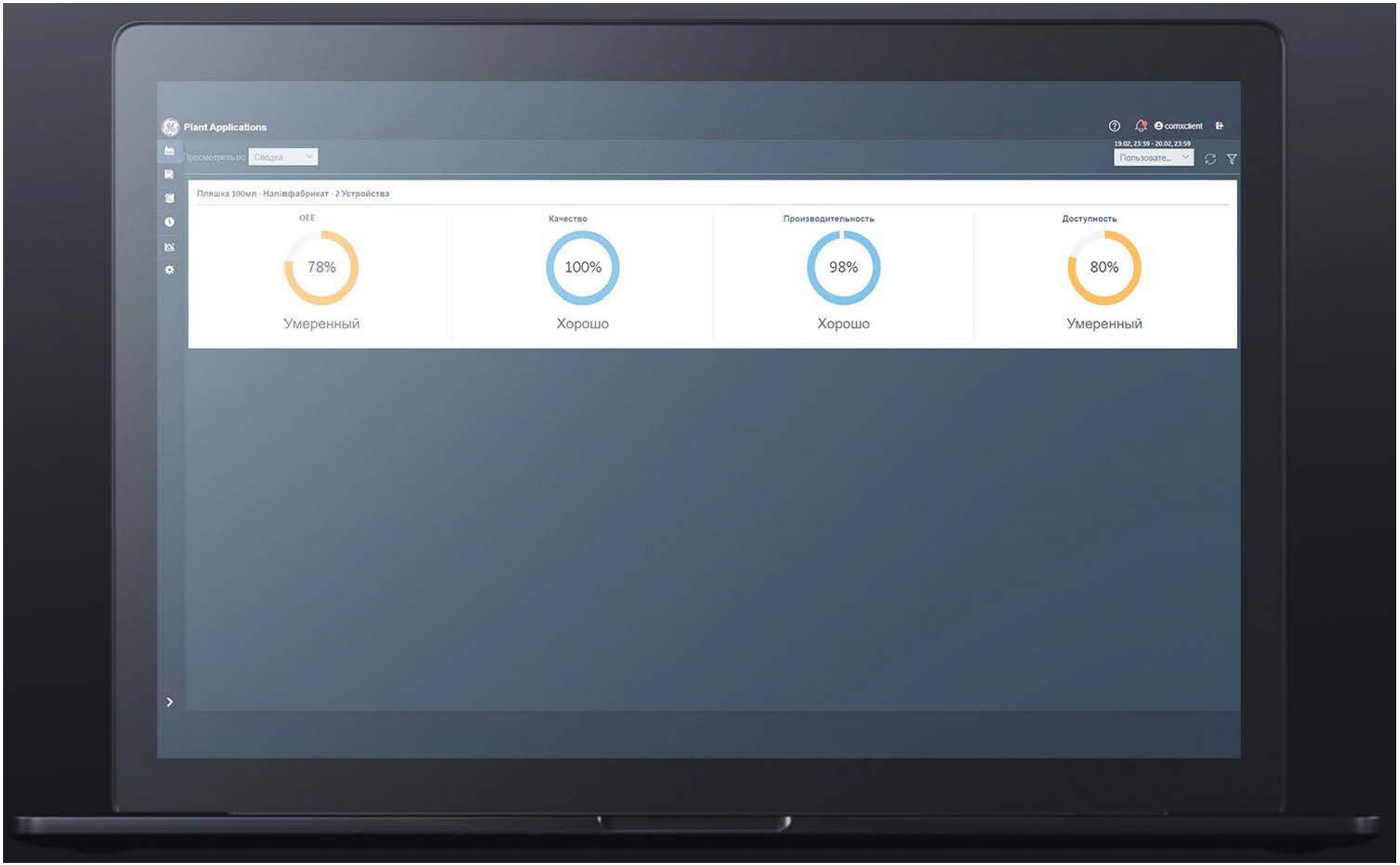
Work with the analytics system begins on the user authentication, determining the list of equipment units and the viewing period of interest. The root screen displays the OEE values and its components within the selected constraints.

"We installed 1 collection node on each line. The total number of connected data sources is 13, only about 350 parameters that are collected in real time with a frequency of about 1 sec, or per shift. In general, once the collection nodes were installed and physically connected to the data sources, the integration work took only 2 weeks. Prior to that, Yuria-Pharm performed extensive preparatory work to identify useful information in each data source, determine connection parameters (controller addresses, port parameters, etc.) and access to variables (name, address, type, range of changes, etc.).

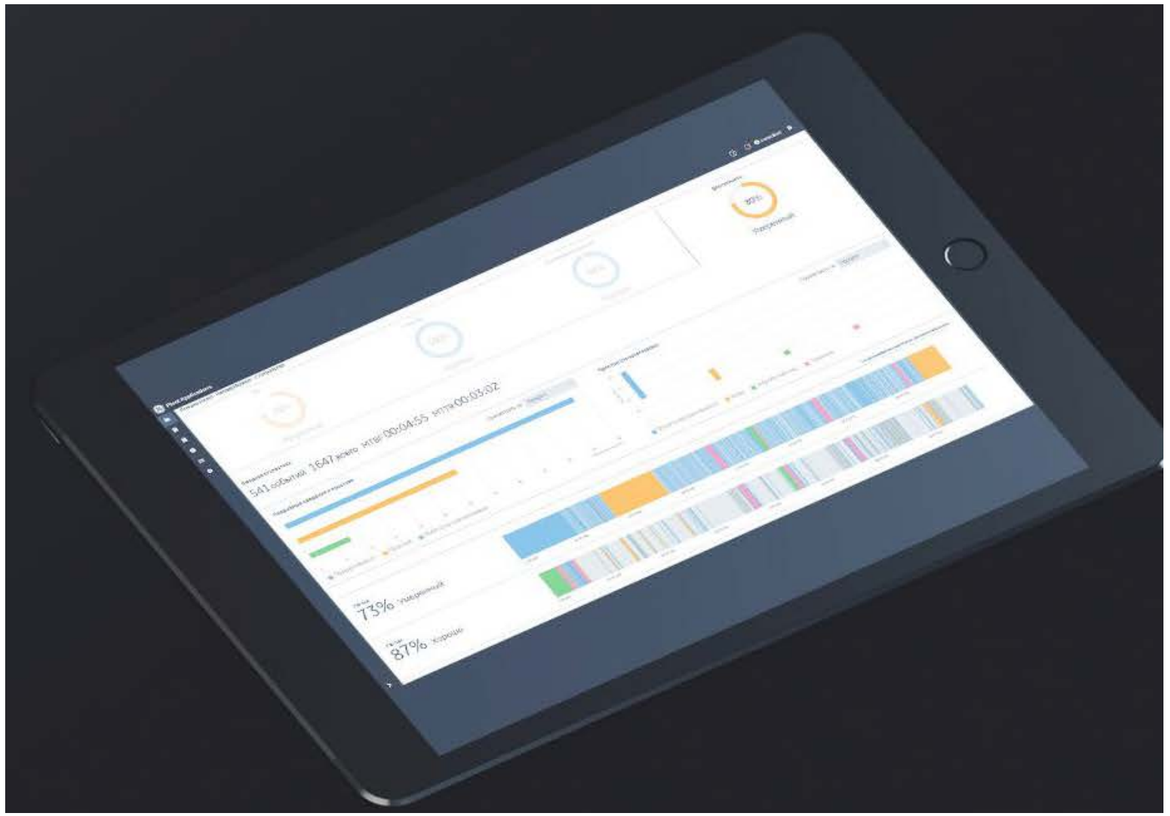
The solution on Proficy Historian, collection nodes and IGS turned out to be very successful, clear and convenient for the Yuria-Pharm automation team.

Although at the beginning of the work, at the stage of the TCP protection, it was not easy to convince Yuria-Pharm to invest, but after they gained experience connecting individual machines with us, studied the detailed instructions provided to them, saw the high performance and reliability of the solutions used, they decided to do all further expansion of the lower level on their own. We are very proud of that. Because it is a confirmation of our technical solutions and a guarantee that our system will continue to live and develop."

Volodymyr Patrakhin, CTO, Indusoft-Ukraine

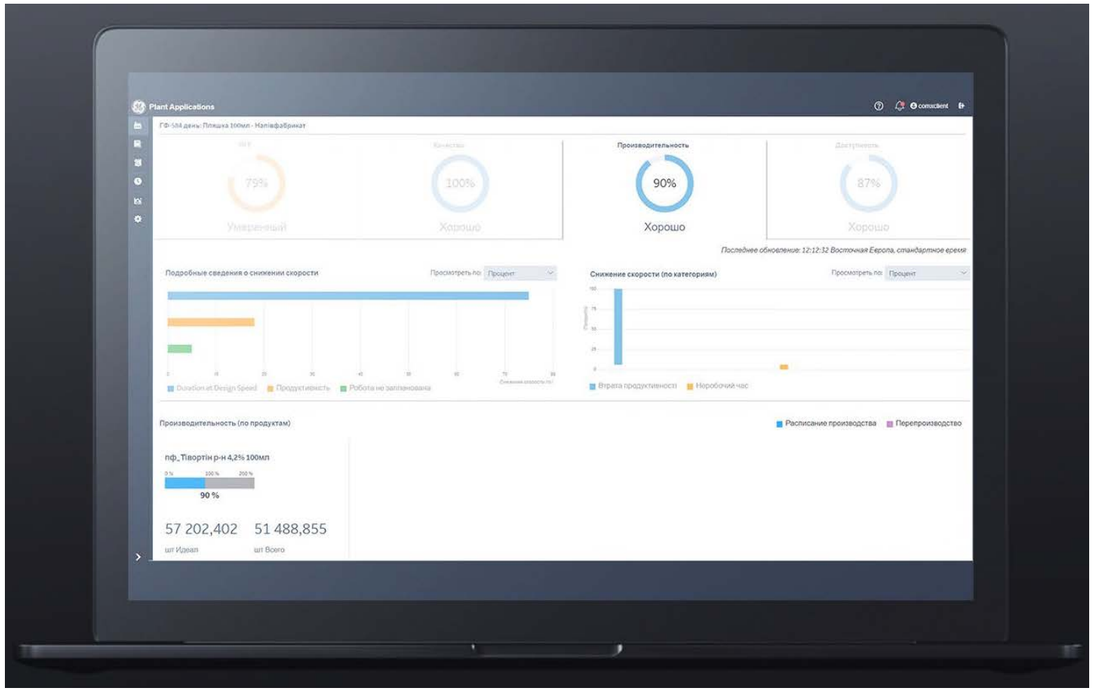


Generalized OEE screen on a line consisting of two units



Availability Screen, part of OEE

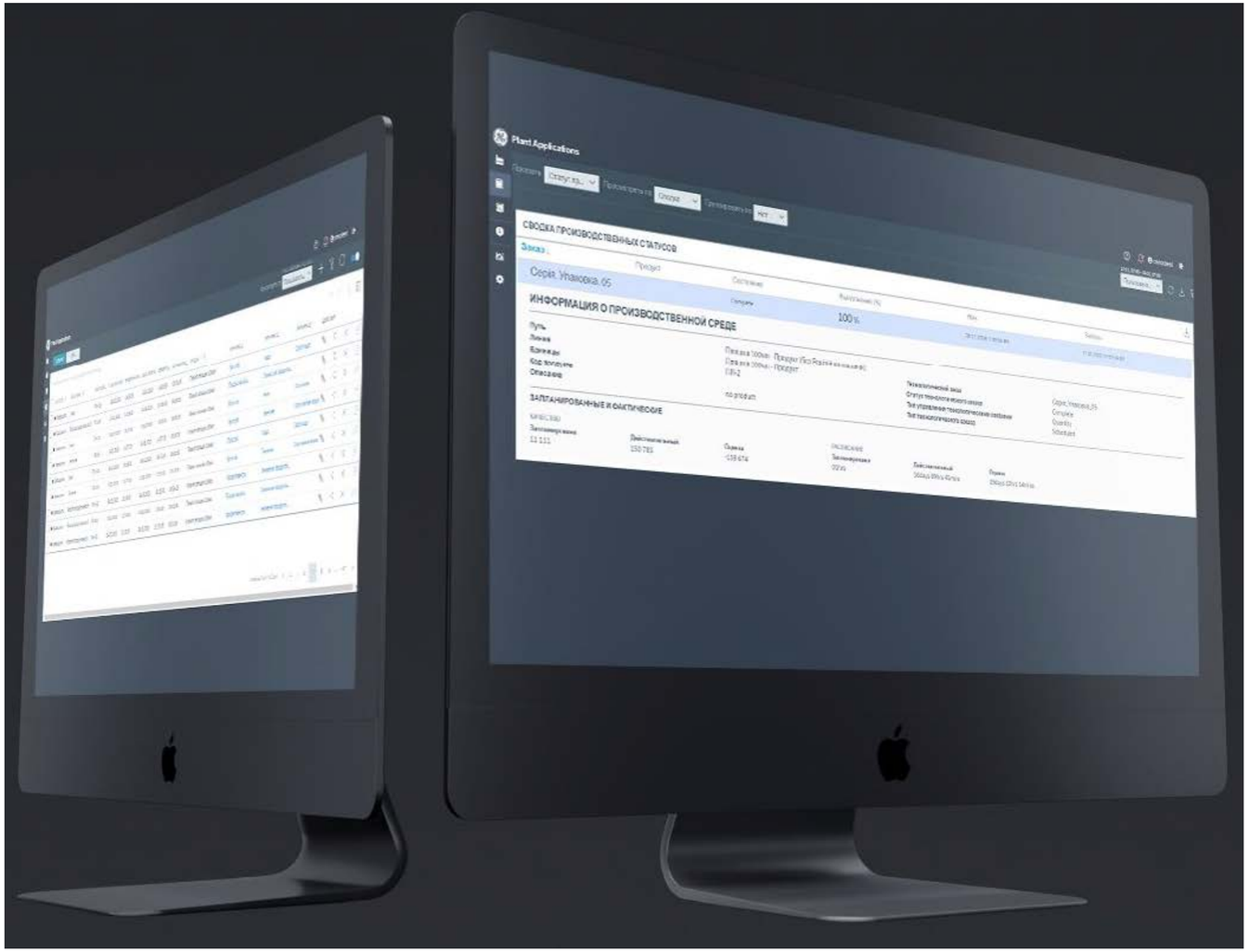
The user can select the OEE component that interests him or her and see more detailed information. The "Availability" screen allows you to determine the root causes of downtime and their distribution by category. Statistics on the total number of downtime events, their total duration, mean downtime period (MTTR) and period between downtimes (MTBF) are displayed here. The horizontal Gantt chart shows the availability history of the selected equipment for the user-selected time period. When you hover the cursor over the chart, a tooltip appears that shows detailed information on the selected segment and the idle event recorded at that time. Very conveniently, with the mouse wheel, you can zoom the display of history data to take a closer look at the time period of interest.



Performance Screen, part of OEE

The "Performance" screen is designed to analyze the reduction in the efficiency of equipment use due to loss of performance.

Here are the root causes of productivity losses, their distribution by category and statistics on the ideal and actual number of products for the selected time.



Event Review Sequence Screen (left)
Batch Data Review Screen (right)

The Quality screen is used to analyze the amount of shortages. Here are the root causes of shortages, their distribution by category and statistics on the number of products produced and the resulting shortage for the selected time. The combination of these products from GE Digital together with their skillful adaptation by Indusoft-Ukraine specialists to the specific needs of Yuria-Pharm created a scalable, flexible and deeply integrated production management system, one of the best ones in the pharmaceutical industry of Ukraine.

Results of the Project

- Launch of a modern, unified system of production scheduling with MOM functionality per Terms of Reference. The customer received scheduling, equipment monitoring and management of the main process modes, with advanced analysis of downtime and other deviations from process regulations.
- Significant improvement in key operating indicators – in particular, the improved OEE indicator increased by 20%, particularly due to the reduction of productivity losses (by 70%) and downtime (by 80%).
- Qualitative changes in the production culture. In particular, the chief technology officers record a more responsible attitude of the plant's operators and technical services to the information from the dispatching system, which leads to more efficient and faster management decisions.
- A new level of flexibility and ability to respond to change. In the COVID-19 era, the capability of such a rapid response is ultimately reduced to the availability of certain functionality (such as remote monitoring – control, rapid reconfiguration of lines to new products, effective management of all KPIs, etc.) and training of plant personnel. The plant has reached a new level of production flexibility thanks to the new system.
- New knowledge and prospects for development. Accumulated experience and new knowledge allow us to see new perspectives. In particular, the management of Yuria-Pharm plans to scale the technical solutions obtained on 2 project lines to other sections of the plant. We are also talking about the unification of software solutions at the level of all production management.

"I am completely satisfied with the results of this project. We have received a modern production management system that complies not only with our Terms of Reference, but also with the best technical level that we see in Europe and other developed countries. From now on, our production is 'in the palm of your hand,' and it is easy for me, as a manager, to see what is going on and why, where the bottlenecks are and what the real reasons for the deviations are.

It is also difficult to overestimate the contribution of the system to the growth of production culture. Accurate and relevant data, ease of analysis, the ability to see everything in the dynamics – it not only leads to better management decisions. This significantly reduces the time spent by managers, but importantly – increases the responsibility of all staff."

- Volodymyr Shevchuk, CEO, Yuria-Pharm

Project partners at Yuria-Pharm

"During the project implementation, the entire stack of the system was built, including the ACS - MES and MES - ERP integrations, thanks to which there were reliable data for making correct and timely management decisions at each level. Well-established MES-ERP integration allows you to receive orders from the ERP, track their status, performance parameters in MES in real time, and transmit the necessary information to ERP.

Separately, the impressive results in improving the efficiency of production lines should be noted. Main issues that are present in any production where there are production lines include a large number of small downtimes lasting 3-8 minutes, they reach several dozen cases per day in some cases; in the absence of an automated system, they are not recorded or monitored. Another issue is the line productivity deviation from the planned one in a direction of a smaller indicator, which is also quite difficult to measure, and this leads to a significant reduction in production. After the introduction of the MES system at the company and calculation of the OEE indicator (the overall efficiency of the equipment) at once, specialists of Yuria-Pharm analyzed problem issues and operational actions allowed to significantly increase the productivity of lines with the approach to the planned values, and significantly reduce the number of short downtimes. This has led to increased production efficiency and a faster return on investment in the implementation of the system.

Sergey Yevtushenko,
CEO, Indusoft-Ukraine

To date, managers and key specialists of the company have received an effective tool for monitoring, control and promotion of production efficiency in general, in terms of individual lines, units, as well as directly the work of operators and specialists involved in the production process.

We express our thanks to the management and specialists of Yuria-Pharm for good joint work on this interesting project, which turned out to be very useful for both parties and the pharmaceutical industry at large."

About GE

GE (NYSE: GE) is the world's Digital Industrial Company, transforming industry with software-defined machines and solutions that are connected, responsive and predictive. GE is organized around a global exchange of knowledge, the "GE Store," through which each business shares and accesses the same technology, markets, structure and intellect. Each invention further fuels innovation and application across our industrial sectors. With people, services, technology and scale, GE delivers better outcomes for customers by speaking the language of industry.

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