



CASE ANORA

Machine Track becomes a power mill for
production management

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Anora Oyj

In 2016, Anora (before known as Altia) Rajamäki alcoholic beverage factory began a major information system overhaul as part of the Renewal project. A production monitoring and daily management system delivered by Pinja played an important role in bringing the plant's five bottling lines and two boxed wine packaging lines under modern production management.

The main goal of the project was to improve the measurement and reporting of production, as well as the management of the production plant on this basis. Pinja's [MES system Machine Track](#) and the daily management tool Shop Floor Manager, were deployed in May 2017.

SOLUTIONS IN PLACE

Machine Track by Pinja with additional modules for production turnover optimization, quality management, product and order tracking, OEE, operator display and ERP integration (SAP), as well as Shop Floor Manager

From Rajamäki to the world since 1888

With more than 60 million liters of alcoholic beverages flowing through the production line each year with 800 different names, the factory unit must be revved up to the maximum. Opened in 1888, Rajamäki alcoholic beverage factory supplies beverages around the world. The lines pack for shipment products from top brands, such as Koskenkorva Vodka, whose consumer image is consistently based on excellent quality. So, the Rajamäki bottling plant is very much on guard.

In addition to bottling, the Rajamäki factory manufactures mixed drinks, such as Jaloviina and various liqueurs. The grain spirit used by Rajamäki factory is distilled in Koskenkorva. The drinks are stored in their own tanks on the factory premises, from where they are transported by pipeline to bottling.

The bottling plant itself only contains a bottle warehouse, from which the product required at any given time is transferred by forklifts to the start of the bottling lines to await the start of bottling. Inventory management and production planning are handled by third-party solutions SAP and [PES by Pinja](#).

The production of the bottling line is monitored using the Machine Track system. Empty bottles are transferred to the line by forklifts. After that, everything is automated. First, the bottles are rinsed, then they are filled with their actual contents. The bottles are then encapsulated or capped, and labels are attached on the side. Lastly, the products are sent for packing, from where they are transported to an intermediate warehouse and sent out to the world.



MACHINE TRACK IS THE KEY TO EFFICIENCY

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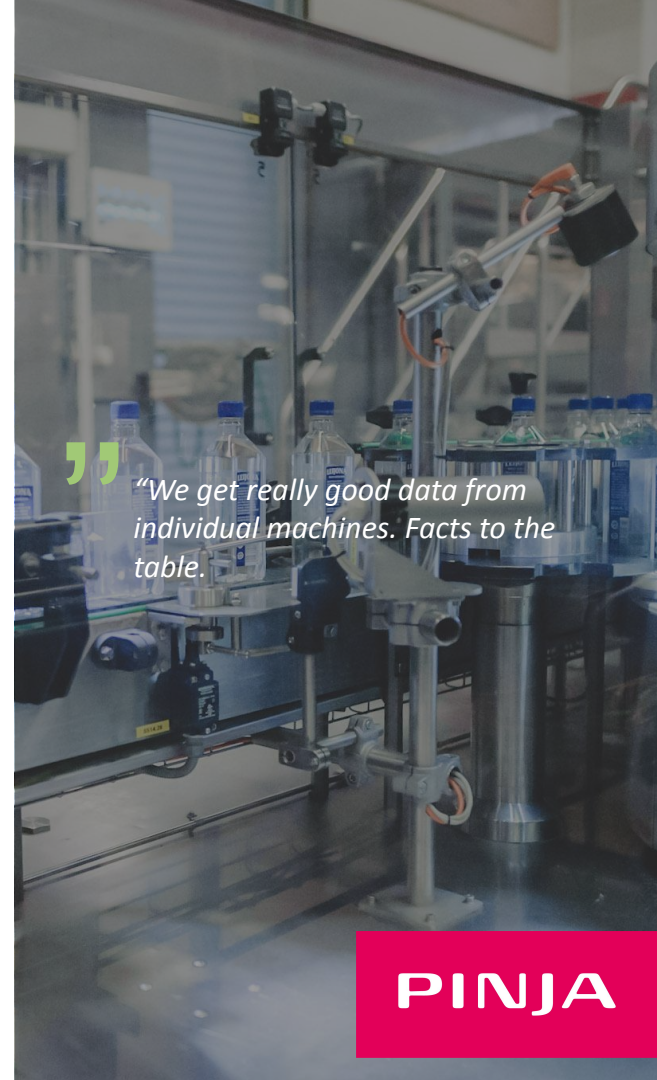
Machine Track is the key to efficiency

One of the main objectives of the Rajamäki bottling plant's system upgrade was to collect factual data and thus improve production efficiency.

“We get really good data from individual machines. Facts to the table. For example, we know what things are causing disruptions on the line”, says Production Manager Markus Valtonen.

Machine Track plays a key role in optimizing bottling phases and product changeovers. Filling the bottles is typically the slowest step in the process. For example, the line filling speed is 10,000 bottles per hour, but bottles are loaded to the line at a rate of 13,000 bottles per hour. In other words, a few minutes of downtime in the bottler does not stop the line, but a similar delay in filling the bottles would stop the process almost immediately.

From the production manager's point of view, it is important to improve the monitoring of the bottle type changes. Target times have been set for the changeovers, and Machine Track shows how long it will take. If the changeover takes too long, it must be reported.



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Machine Track is the key to efficiency

Optimization is particularly important in product changeovers. After certain alcoholic beverages, the bottling machine needs to be washed more thoroughly. Typically, it takes between 15 minutes and an hour, but certain wines, for example, require up to two hours. Therefore, the aim of the product changeovers in the line is to start with unflavored wines and work towards increasingly flavored ones. Currently, product changeover planning is done in production planning, but it is also managed with Machine Track.

Recording production events in Machine Track is part of the operators' daily work. According to Production Manager Markus Valtonen, everyone wants and demands that things are done this way.

“We started recording incidents 15 years ago, initially in a notebook and only for major incidents. About five years ago, we gradually started having morning meetings”, says Markus Valtonen.

QUALITY MANAGEMENT

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Quality management

One of the big production themes of the project was quality management and its development. There are 800 different types of bottled products – dozens for the big international brands alone – and the quality management checklist for each product even depends on which country the drinks are going to. This is when system requirements, but above all prerequisites for successful production management, play a major role.

Quality control primarily monitors packaging issues, such as filling volumes, the functionality of closures, and appearance. The quality of the drink is analyzed by sensory analysis in the laboratory. If these things are not in order, a whole batch of production may have to be destroyed.

“In the past, we used to draw lines on paper coupons”, Markus Valtonen recalls.

From a management perspective, the improvement in quality management is perceived as the best change. When data collection, collation and reporting are systematized, there is no guesswork involved. The measures taken are recorded in the system and can be analyzed in parallel with production data, before and after the measures. This is the way digitalization has taken quality management to a whole new level.

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- Markus Valtonen, Production Manager



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INTEGRATIONS

Integrations

Machine Track is integrated with SAP, which takes care of product data, orders and documentation. Machine Track generates information from the line about actual production, quality and disruptions, from which the compiled status information is visualized in the Shop Floor Manager's daily management view.

The morning meetings backed by visual data identify areas for improvement, establish actions and start the development process. This is fed back to SAP, where the new data are also transferred to Machine Track, and the cycle continues. Measurement data from Machine Track, as well as bottling samples, for example, are also transferred to SAP at the production monitoring stage.

All systems were newly deployed as part of the Renewal project. Alcoholic beverage factory has never had a system of this scale before. The smooth flow of information between systems was a threshold issue. In the words of Tomi Vuori, administrator of Machine Track: if there is no data flow, there is no production.

The operator's daily work is not distracted by the variety and complexity of the systems running in the background. All information can be processed and inspected in a single view. For the operators, ERP implemented with SAP is visible as just one part of the MES solution.

DAILY MANAGEMENT

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Daily management is in systematic development

“This bar shows that product changeover has taken 2 hours. We know that it should take 70 minutes, so it’s delayed”, explains Production Manager Markus Valtonen, pointing to a graphic element on the screen.

Every morning in the “War Room” of the Rajamäki bottling plant, in the operational management meeting room, along the corridor leading to the factory hall, the production reports from the previous day are reviewed. A digital production board is installed on the wall of the war room, where the information collected by Machine Track can be viewed alongside on a single screen as an interactive data dashboard compiled by Shop Floor Manager.

There are still the memorials of the old system on the long wall of the room; the production monitoring boards, on which markings were made with felt markers. However, the marker boards still have a role – they are used for quick task management. This will also come under the control of Machine Track’s tasks eventually.



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Daily management is in systematic development

The data visualization can be monitored from any terminal. Also, on the bottling plant side, at several workstations and in the supervisors' office, the screens show the production figures generated by Machine Track.

“This is something that we're proud of; the yellow color shows the disturbances unaccounted for. If the machine goes into a halt, the operator must enter the reason for the stop into the system. The fact that we have very little of that yellow color in our visualization shows that our operators are really using the system”, says Production Manager Valtonen.

Data visualization helps information to be digested quickly. On the Shop Floor Manager screen, the supervisor can immediately see, for example, how long after the start of the shift the first automatic run can be started, i.e. how long it has taken to prepare the machine.

You can monitor the progress of the entire shift in the same way.

“If there was a longer red bar here, it means that there was a longer stop and a bigger problem. More red here and there would indicate a recurrent disturbance. We can also monitor events per machine, as separate line reports or even for a single run. Here, for example, we have had 80,000 bottles of mulled wine, and this shows the explanations for deviations”, says Markus Valtonen, presenting the data extraction.

The explanations contain interesting details which, when refined, lead to insightful improvements in practice. For example, if the temperature of the bottle is too low, moisture will form on the surface of the glass and the labels will not stick properly.

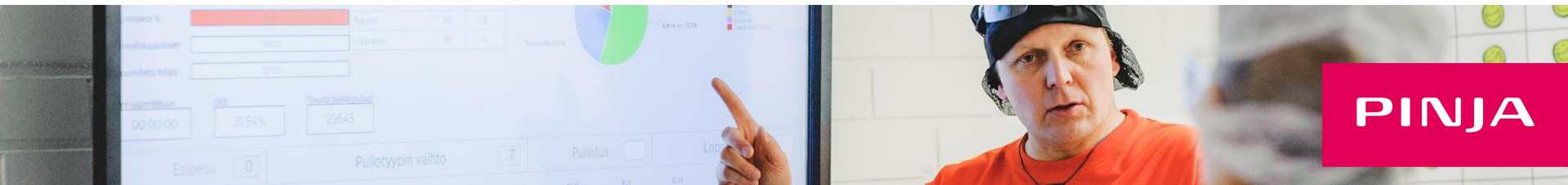
Daily management has developed working methods

In the daily management of Anora, Pinja's systems are considered of paramount importance. When the bottling plant supervisor starts the meeting at 9 am, he has already gone through what has happened on all the lines. For example, if there are a lot of faults in a machine, this information can be used to make recommendations and initiate maintenance measures.

Shop Floor Manager has already brought a change in the way Anora operates. Now the information flows between operators and management. Incidents and anomalies are recorded in the Machine Track system, from where they are transferred to the daily management view for everyone to review. Based on the data collected, management can make plans and improve production.

Operators can therefore quickly see the results of their quality control.

The change in culture was facilitated by the fact that Anora had already decided before the introduction of Pinja's systems that shift meetings would be held regularly, and that the supervisor would participate in the shift meeting for each line. A meeting agenda was created and a process was committed to in order to decide on things and put them into practice.



Daily management has developed working methods

The leap from this to the structured analysis and application of Shop Floor Manager data was easier than a complete overhaul of a stale culture.

“This was crystal clear in our minds when we embarked on this project. We needed to be able to change the way we operate”, says Markus Valtonen.

The same principle applies to all operational activities, from production monitoring to maintenance. If knowledge is not put into practice, i.e. if it is not managed, the potential of great systems is lost. Before selecting the system supplier, the Anora team visited Olvi, for example, where Machine Track has been in use since 2013.

“The on-site experience was reassuring, as we discussed with Olvi’s employees who already had the system in action. Every supplier can provide curves and pointers, but the work that revolves around it is absolutely essential. It’s not worth buying new skis if you’re not going to ski.”

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OPERATORS

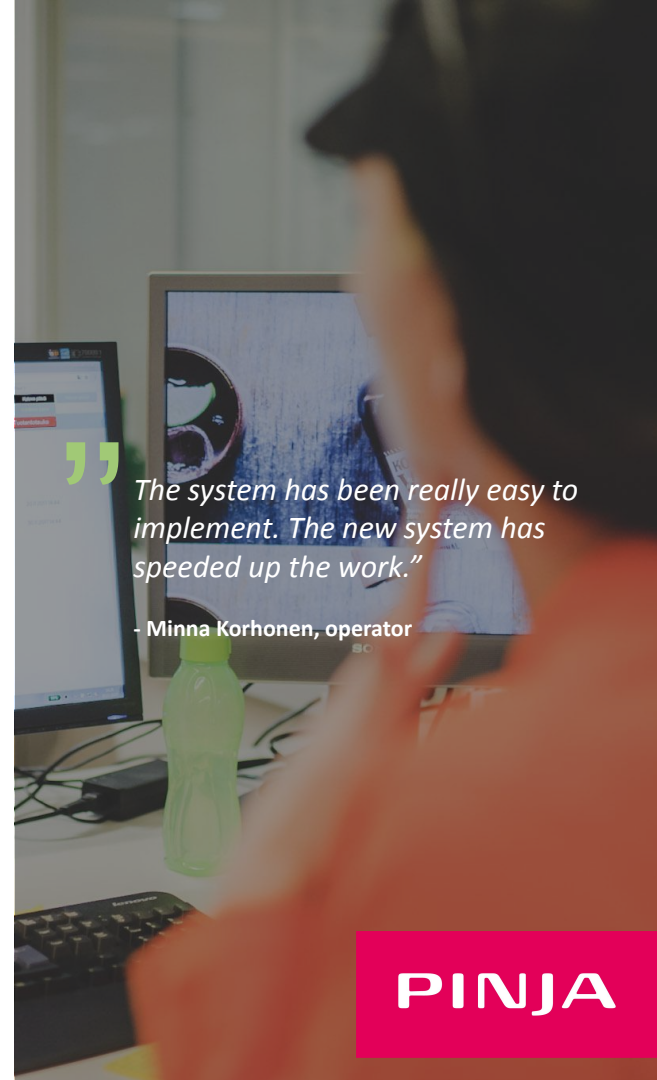
Operators value the flow of information

The fact that operators no longer have to think about what to do and how to do it on the basis of scribbled notes has made their work much easier. It is also important that all information is now available in one place.

“The system has been really easy to implement; we were well trained. The new system has made the work faster”, says operator Minna Korhonen.

The possibility to record incidents and, above all, to pass on information is something that operators find motivating. Machine Track can also make work easier where needed.

“The system shows all the times, so you don’t have to wonder how long the disruption has lasted and what the disruption was. All you have to do is sign them off and that’s it”, says Korhonen.



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Operators value the flow of information

The flow of information has also improved. Operators feel that things are now moving forward.

“The biggest problems of the day are immediately visible in the system. For example, the packaging machine is our biggest problem and we start focusing on it immediately. That’s why we’re eliminating these disruptions in the system”, Minna Korhonen says.

Pinja collected a database of anomalies and incidents by interviewing operators and now the data are readily available in the system. This has been perceived as a significant improvement.

Of course, Machine Track did not immediately become a seamless part of the Rajamäki factory’s bottling lines, but the learning curve has been steep. Pinja has responded swiftly to feedback from operators using the system and the user experience has improved rapidly.

For example, the latest version of the system includes more options for information on quality.

“The system has been improved over the past few months, taking into account the needs of employees to make it even easier to use”, confirms operator Kevin Pesonen.

“I work in packaging, so Machine Track has certainly made my job easier. There is a kind of routine to the checks that you already know by heart, but especially for the first-time user, the system provides the details in writing that is easy to follow”, Pesonen continues.

SUPERVISOR

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It is easy for the supervisor to keep an eye on the big picture

Sara Palonen, Bottling Plant Supervisor, has found the MES system to be a very useful/beneficial innovation in production monitoring.

“Machine Track has made the work easier. Here you can see the downtime very clearly, the system provides the exact time in minutes, the reason for the downtime, and the time it took to make each product.”

Palonen, a recent graduate, did her thesis on engineering quality tools.

“MES enables quality checks, for example, with these buttons that direct the operators. In addition, you can review the previous checks. It has been a really positive experience overall.”



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It is easy for the supervisor to keep an eye on the big picture

The supervisor monitors Machine Track on a daily basis. Palose has views of the different production lines open in the browser tabs. This allows him to monitor the progress of production, where the disturbances are, and so on. The system also acts as a kind of alarm, for example if the malfunction takes place for a prolonged time, so that the supervisor can go see for himself what causes the stoppage.

“It helps us keep track of the whole; there is one system that receives all the data. This is not just a tool for measuring and control, but also for development and management. This enables us to find the reasons why certain things happen” Sara Palonen says.

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The cooperation has gone well

The most important person in the deployment of Pinja's Anora system is system administrator Tomi Vuori, who is also the voice of the client towards the supplier. The cooperation with Pinja has gone well.

"I would almost describe it as praiseworthy. Pinja is open to any development suggestions that we have, and they come up with a solution to implement it the right way" he says

"Operators' wishes have been listened to, and things have been taken forward. The idea is to make the system work for the operators, not just for the administrative people. We could manage with this for a long time, but of course we want to take things further and develop" Vuori continues.

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- Tomi Vuori, administrator of Machine Track

The cooperation has gone well

One of the goals of the project was to have a single data aggregation system that automatically distributes data for use in meetings. Now staff no longer need to compile separate memos on the previous day's events, and this has been a welcome addition.

“After years of producing all kinds of incident reports and other documents manually, this is a big step forward. The goal is to take this to the point where we have data available at any meeting” Vuori stresses.

“It has been really easy and good to work with Pinja's team. We are still in weekly contact for further development” says Markus Valtonen.

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Centralized information benefits the whole factory

Now that information is readily available, administrator Tomi Vuori has witnessed a change in his own work. One big thing is that MES data is visible to everyone, not just production people.

“It is easier to move things forward when the access to information has improved. Other departments also get the data they need from Machine Track” Vuori says.

Markus Valtonen calls for the Anora team to improve their own work. The system enables data collection and structuring, but significant leaps in production efficiency can only be achieved when a systematic method for problem solving is established.

“Based on the data collected with MES, we found a dozen reasons why a packaging machine, for example, may not work properly. There are technical and material issues, as well as operator and maintenance issues” Valtonen explains.

“A year back, in morning meetings, we were not very good at explaining what was going on. There were even situations where you didn’t know what to do. We had an electronic fault logging system before, but the machine would not tell us the stop time, so the operator had to put in an estimate. Now the situation is different. The flow of information between the evening and morning shift has also improved a lot.”



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A leading star of the MES Renewal project

Production Manager Markus Valtonen says that the MES system has been the most successful of the three main components of the Renewal project's system upgrade. One of Renewal's key objectives was to develop automated reporting. The systems provided by Pinja have played an essential role in this.

The Rajamäki beverage factory started by improving efficiency. The next step is to minimize wastage. The awareness of one's work is quite different now than it was a year ago. Knowing what, when and why is happening, allows us to develop it in a planned way.

"The MES is now over and the actual development work can begin" says Markus Valtonen.



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The purchase of a production management system is always a strategic decision that has an impact on the daily lives of many people working in a company. Not only does thorough familiarization make it easier to choose the right system solution for your company's needs, it also speeds up the implementation of the software.

We create system solutions for the operational management and development of the manufacturing industry and technology. Our Operational Excellence concept focuses on improving productivity and day-to-day management through data digitization and visual management. With the introduction of the system solution, the productivity of our client companies has boosted by 30% or even more.

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