

# Three steps to smart production in 2021

- Use data to get ahead of the competition and increase OEE

Intelligent production could be the difference between making it and breaking it for production companies in the years to come. Getting access to your production data and using them the right way is the key to unlocking predictive maintenance, machine learning, and achieve increased OEE. In this whitepaper, we will take a look at the three steps you need to master in order to make the most of your production set-up.

## Step 1: Collect telemetric data

If you are in charge of a big manufacturing set-up or a pharma production, you probably use KPIs to determine how efficient your business is. But KPIs are just the tip of the iceberg if you are looking for true OEE insight. By using telemetric data, you get a much more detailed picture of how your production is running. When you digitalize your machines and get access to live and stored data, you have started your journey towards smart production. It is key to find the right IoT software for this job. Make sure you choose a solution that:

- ✓ **Covers all parts of the data flow**
- ✓ **Integrates with any existing components or systems**
- ✓ **Has a user-friendly and customized dashboard**

The data below the surface is full of potential

Key Performance Indicators

01 Events/Alarms

02 Messages

03 Machine Data

04 Patterns, Learning etc.



## Step 2: Start looking at events too

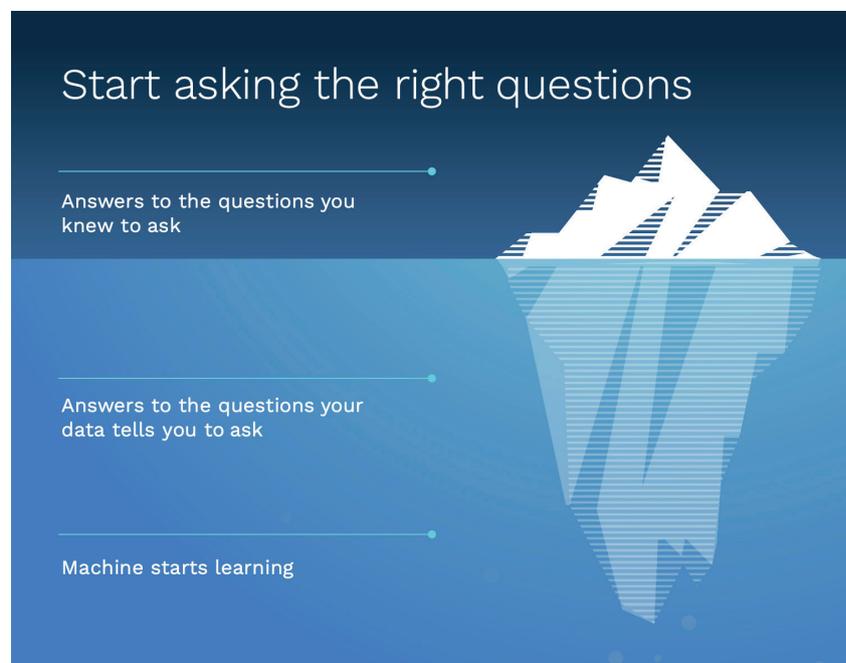
Once you have a set-up for collecting telemetric data, it is time to combine it with looking at events. The difference between telemetric data and event data can be described as the difference between an ocean and navigational seamarks. Telemetric data is all the water in the ocean. It's an endless mass of information that you can look at, but which is hard to navigate in because of its sheer size and complexity. All this data from your production set-up is highly valuable, but it is hard to use the information, because it floats around without any navigation points. It can be information about how hot something is at a particular moment or how much power something is using, for instance. Now let's look at events. Events are the navigational seamarks you need on the ocean to find out where you are. They are the orange buoys floating around so you can see them and they are anchored to the bottom, so they don't move. An event is the message that at a particular time, something became hotter than the limit you've set or that at a particular time, something started using more power than you want it to. Events give you access to look at an exact spot where something has occurred in the ocean of data and the exact time it occurred at. That means they allow you to investigate in depth what exactly led up to a particular event.

## Telemetric data and events belong together

Just like an ocean without navigation marks is hard to navigate, a navigation mark without an ocean makes very little sense. Telemetric data and event data work in the same way. Your event information is not useful unless you use it to investigate the data stream around a particular event. And a data stream becomes much more valuable if you look at it through the lens of events. Let's say your production flatlines for ten minutes. No new products come through the machine. Your sea of data will give you a vast amount of information about various KPI's all over the machine, but you need to navigate the order of events to understand why the production stopped. If you have the right software, you can both understand when something happened and where it happened – and that will give you the key to why it happened.

## Step 3: Enable predictive maintenance and machine learning

One thing is collecting data, another is using them in a smart way. To do that, we need to add a new layer of intelligence to our production system. We have already covered the tools you need to collect telemetric data and event data – now we need to add the tool to analyze it, learn from it, and teach what we've learned back to the machine. Basically, you have to start creating rules for when you want an alarm from your production set-up.

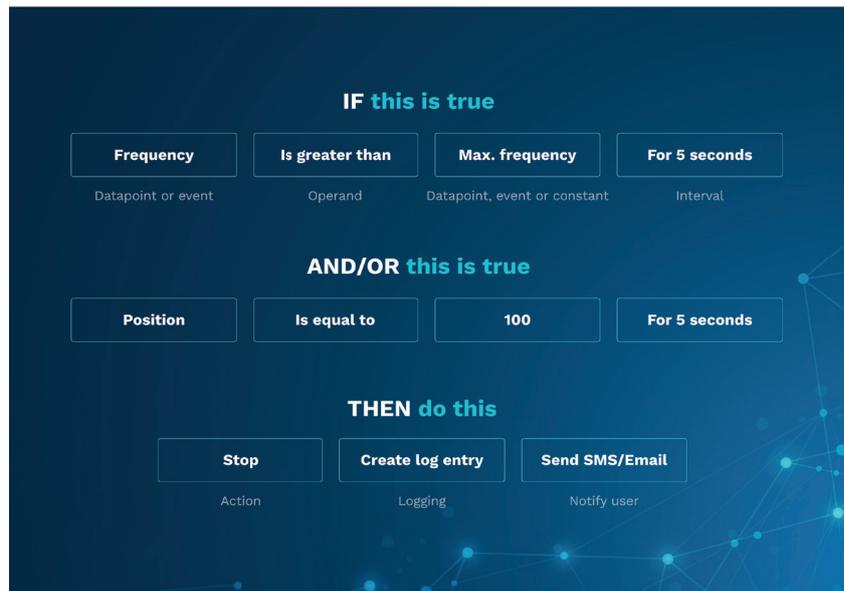


A great tool for that is what we call the Rule Engine. The Rule Engine allows you to define a series of parameters and ask the system to categorize them as events. We can combine any number of parameters and create events. We can make simple ones that will cause an event if “value a” becomes greater than “value b”. Or we can create more complicated ones that cause an event if “value a” becomes greater than “value

b” over a period of time (c) and combined with parameters x, y, z. These new events will trigger an alarm whenever something is about to get out of control – and that’s how you see problems before they hit you.

## From logging to analyzing to machine learning

We started by logging events and learning from the data that was supplied for us through telemetry and events. Based on what we learned from that data, we can generate new events and teach our learnings back to the system. We now have knowledge about our production set-up that we didn’t even have when the machine was built. This is where machine learning starts, and the advantages are very tangible.



## Intelligent production is visible on the bottom line

There are two major advantages of adding intelligence to your production system in the form of data analysis and rule creation:

- ✔ **Your production system becomes increasingly smarter and better at discovering irregularities that could turn into problems if they are not handled in due time. This can have a major positive impact on your OEE**
- ✔ **Instead of spending your time looking for problems in a sea of data, you now have an alarm system that alerts you before something unwanted happens. That frees up a lot of your time – what will you do with that time that can benefit your business?**

## Get in touch

Please contact us to find out more about how data collection and data analysis can help your business perform even better. We are eager to tell you about our software solution called CATCH.AI which can help improve your OEE drastically.

## The company behind CATCH.AI

CIM makes end-to-end software solutions that enable our customers to make business-critical decisions based on solid data. We create the necessary connections between data acquisition, data analyses, and data presentation so our customers can efficiently and consistently create products of superior quality – and make decisions based on true insights.



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