OEE: Actual or Estimated Efficiency?

One of the first steps in every industry that wants to move towards 4.0 is having automated productivity and efficiency measurement systems. Today, any manufacturer can find opportunities for improvement if the challenge of detecting and analysing non-productive time intervals and micro-stops is overcome.

Industrial OEE: the standard of manufacturing efficiency

When studying the parameters of the OEE, you get an overall look of the **availability, performance and quality** of the machine or line. One of the main purposes of the OEE is to obtain maximum productivity from the manufacturing processes. This directly impacts the improvement of ROI in any investment in machinery.

In today's industry, OEE calculation has become the solution that allows the production and continuous improvement teams to increase the **efficiency** of their assets and lines.

The OEE measurement function consists of three variables:

1. **Availability**: execution time vs. total planned production time.
2. **Performance**: ratio of net execution vs. execution time.
3. **Quality**: ratio of correct units vs. total number.

These three KPI's cannot identify the cause of unscheduled shutdowns. However… combining OEE and technology can lead to more efficient traceability systems that will allow tracking the origin of quality loss. The ability to reduce rework and defective products generates enormous **cost savings**. Knowing the real performance of the machinery equals knowing if it works correctly or if there is any defect that could lead to a repair.

The continuity of classic OEE calculation systems raises fundamental questions such as being able to identify **stoppages with precision and accuracy** or whether there is a chance to **react in real time**.

Data management: the 4.0 challenge

Interpreting and treating data can sometimes be a challenge. Factories generate lots of data which can be lost, unclassified or distributed and diluted in different plant systems.

Over the years, the OEE focused on identifying the reasons for each of the unplanned stops that affect the represented KPI's. This effort is often tedious, unreliable and ultimately unhelpful. It is generally carried out by the operators who must also deal with bigger problems such as changes, maintenance or repairs.

A clear strategic approach must be defined for proper disposal of this data, hence the importance of having a **useful**, **truthful** and **automated** OEE.

Strategy 4.0: the success of digitization

Strategy means building a stable solution design that includes a deep understanding of the process combined with **data structure and availability**. This strategy needs to consider the following items:

1. Automatic stop detection: capture of all machine stops (e.g. planned, unplanned and micro stops). All information related to stoppages is automatically recorded.
2. Operator interoperability: having a digital system that is easily adoptable by operators.
3. Ease of use: the tool must facilitate the operator's task.
4. Roles for OEE users: it is necessary to define which user is going to enter information and how.

Once defined, the technology is ready to be used. The correct use of existing technologies becomes the success of any digitization effort.

Decision making is the responsibility of manufacturers and they must be able to obtain reliable numbers. So that they can transform OEE information into a source of improvement and the baseline for any continuous improvement strategy. The OEE allows to **quantify the efficiency** and to know the **real** operation of the productive processes.

Only the beginning ...

In a more developed phase, this approach will allow **access** to information and **alarm management**. Thus it will be possible to relate the detected unplanned stoppages and the alarms registered in the automation system. This allows a much deeper analysis of the **root of the problem** and will uncover unknown causes of unplanned stops.

At AG Solution we design and implement strategies and good practices based on industry standards to guarantee the success of digital transformation and to fully exploit the capabilities of technologies. Learn more about how to successfully implement an OEE in the next AG Webinar session:

https://attendee.gotowebinar.com/register/3413503524214337551

In this session we will also go through the **Golden Batch** solution. Learn how it can boost the quality for process industry by monitoring, in real time, the critical process parameters against the golden ones and compare them to historical batches at the same time.

Feel free to share this registration link with all your process co-workers.