

Endress+Hauser's instruments are ready for IIoT, are your processes ready?

The concept of IIoT (Industrial Internet of Things) is electrifying the mining industry, but what is really behind it? What is the benefit for you?

First came flint, followed by bronze, iron, gold, coal and during the last decades it was oil. The title of “most important” resource has been held by many different materials over the course of our history. And now, at the beginning of the 21st century there is another contender. A player, that in reality is not even a substance at all: Big Data.

You may now think of companies like Facebook, which has become one of the most valuable enterprises in the world and that within the span of only a decade. However, social media is not the only beneficiary. Industrial companies believe they can benefit from this evolution or rather revolution, that some call IIoT, others call it Digitalisation, some call it Big Data or even Industrie 4.0. The manufacturing industry has already embraced IIoT. Digitalisation of the work place has already begun in this sector and now the process industries are getting more and more interested and mining is no exception.

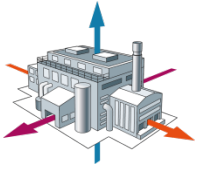


“A number of our clients have asked us about this trend named IIoT and what it actually means. And it's no wonder, if you keep in mind that the whole mining industry is facing huge challenges because of declining ore grades and volatile commodity prices”
Susan Buitendag, Industry Manager for the Primaries & Metals, Endress+Hauser.

Integration as a first step

But how can Big Data help mining companies to master these challenges? If you think about it, data is already produced in abundance within a mining operation: process information from the field, inventory values, plant status and market prices to name just a few. The problem they face is a lot of this data is stored and visible in different systems and platforms. So the first step towards IIoT has to be the integration of this data to open up its real potential. Integration has to be aligned along three axes: Horizontally along the value creation in the supply chain, vertically from the field to the control level and from planning to maintenance to ensure consistent engineering. With the help of Endress+Hauser, you can now feel assured to take this step.

Let's look at the first axis. An exact forecast of consumption based on current inventory values and planned material movements is the key to reducing warehouse stocks and at the same time, improving the delivery service. Reliable measurement technology is the fundamental basis for this supply chain management.



The three axes of data integration: along the value creation chain, from field to control level and from

planning maintenance

Endress+Hauser can provide you with a complete range of measurement technology. For data communication, Endress+Hauser can plug most available fieldbus technologies directly into their smart measurement sensors: in addition the local data transmission unit, Fieldgate, with integrated web server, allows for global data acquisition via private and public communication networks. A standard internet browser is sufficient for querying inventory data.

Fieldgates from Endress+Hauser not only provide current measured values, but also offer the possibility of monitoring device stations, requesting information and sending data directly to a superordinate inventory management software system such as SupplyCare from Endress+Hauser. SupplyCare offers convenient access to the current fill levels in tanks and silos from the comfort of your desk, and offers extensive functions for inventory management. Amongst many functions you can use the option with an integrated e-mail function, you can easily request supplies quickly. With the analysis module, you can also calculate and evaluate Key Performance Indicators (KPIs).

Full control of your basic processes

When it comes to vertical integration, intelligent networking between sub-systems of mine process, from the ERP system to operating and control level and on to field level, is essential for optimised functionality and best efficiency of the digital mine. The reality today is often less than streamlined or smooth operation. It is characterised by closed system silos, missing interfaces and many manual data transfers and thus causing potential errors. These decoupled system silos can be connected to form an elegant overall system with a continuous data flow, thanks to Endress+Hauser's BPI concept (Business Process Integration). BPI acts as middleware beneath the sub-systems and thus forms a shared platform for data exchange between these systems. This is not just limited to the IT world however, by using Industrial Ethernet at field and control level, automation components can also be integrated in the overall system.

Digital communication enables advanced measurement sensor diagnostics which can form the basis of effective process condition monitoring and preventative maintenance measures or calibration requests which can be triggered in the ERP system. Many of Endress+Hauser's smart measurement sensors can be used to monitor process conditions and verify measurement integrity.

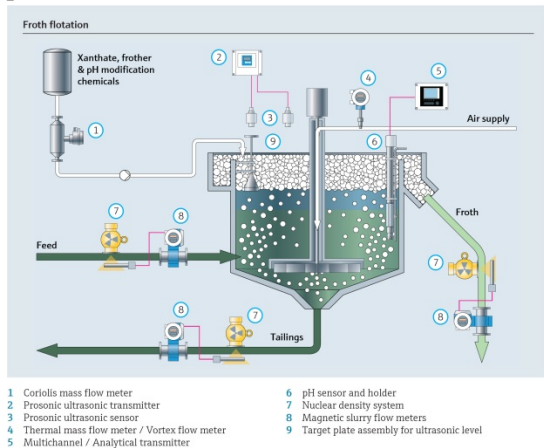


Simply look for the HEARTBEAT Technology logo.

Several examples of HEARTBEAT Technology's benefits are already used in the concentration processes in many copper and gold mines, one example in froth flotation tanks: A Promass 100 Coriolis flow meter will schedule a flocculant batch remix by measuring changes in the medium chemistry. The aim is to produce process optimisation and stability using a combination of smart sensors which monitors their own performance, indicate process anomalies and tell maintenance when things need cleaning or recalibrating.

Big Data made easy

In order to get close to this goal of maximum process efficiency at the lowest possible cost, intuitive and reliable process asset management is crucial. Endress+Hauser offers Big Data asset management software which is manufacturer-neutral: the cloud-based asset management toolbox, called W@M (Web enabled Asset Management) has proven beneficial to management, maintenance, process engineers and metallurgists in generating plant wide process improvements and providing relevant and reliable data on process wide performance.



In flotation tanks a batch remix can be automatically be scheduled by a Promass 100 Coriolis flow meter that measures changes in the mixture

An example is a ten percent proven increase in heap leach and stripping performance in a copper mine when they use W@Ms powerful measurement performance capability to monitor variations in performance of critical measurement parameters such as acid usage, PLS output, organic to aqueous stripping rates against pipeline breakage, filter rupture or other process imbalances.

IIoT already gives us today:

- Quick, visual and targeted access to the right data at the exact time, when it is needed.
- Easy to download cloud based tools – Operations apps for mobile smartphones and tablets.
- Wireless and wired connectivity to smart sensors and other process equipment for diagnostics, verification and condition monitoring.

“Customers are sometimes surprised, that for the first implementation of IIoT they don’t have to completely revamp their whole operation. But the fourth Industrial Revolution is more a gradual evolution than a big bang revolution,” explains Susan Buitendag. “We at Endress+Hauser take pride in being an innovative company, and our R&D engineers take great pride in being ahead of the game in smart sensor development to ensure our instruments are ready for the digital evolution. Our customer’s first step will only be a small one towards IIoT in “digital mining”.

Industry 4.0: The term “Industry 4.0” was first used in 2011 during the Hannover Fair in Germany. It is part of a project within the high-tech strategy of the German government that focuses on the computerisation of manufacturing. The basic idea of the name is that the use of water and steam power mechanised production and was the first industrial revolution. The second industrial revolution introduced electricity and mass production. And finally, the digital revolution which improved the production process with electronics and IT.

Big Data: Generally speaking, “Big Data” describes sets of data that companies produce and that are so huge that traditional methods of processing do not work on them. The term also often implies that these data sets are stored in an unstructured way and on separate systems.

Internet of Things: This term refers to the idea of connecting physical objects like buildings, vehicles etc. and equipping them with sensors so that they are able to collect and exchange data with each other. The Internet of Things was coined by Kevin Ashton, a British technology pioneer.

Digitisation: This basically means the conversion of certain information into digital data. But in recent years it has become the name of the general trend towards the usage of process data to optimise performance of companies.

For further information, please visit http://bit.ly/Endress_IIoT

Enquiries:

Susan Buitendag
Industry Manager - Primaries
Endress+Hauser (Pty) Ltd
Tel: (011) 262 8000
susan.buitendag@za.endress.com

URL Tracking: Please note that if this PR is placed on any digital platform, please use/embed the following URL for our tracking purposes. http://bit.ly/Endress_IIoT