

# Introduction to IIoT?

What is IIoT and maybe more important, what is it not? IT, OT, IoT, IIoT are different abbreviations that are all frequently used in combination with Industry 4.0 and digital transformation. To start at the highest level, Industry 4.0 refers to the 4<sup>th</sup> industrial revolution where factories, machines and equipment get connected, (big) data is generated, analyzed and used to make the process smart.

Digital transformation is the use of digital technologies to improve processes and customer experience as part of the industry 4.0 movement.

IoT or Internet of Things is one of the technologies available to do so, it refers to connecting “things” to the internet to capture the data. When applying this in an industrial environment, the term IIoT (Industrial Internet of Things) is used.



## IT and OT

In an industrial environment IT and OT are often used, OT (Operational technology) refers to the hardware and software used to change, monitor, or control physical devices, processes, and events within a factory or production facility. Examples in the process industry are Scada, DCS and PLC systems.

IT (Information technology) refers to anything related to computer technology, including hardware and software. Access to IT programs and connected devices are typically less restricted than to OT devices.

The main difference between OT and IT devices is that OT devices control the physical world, while IT systems manage data.

### IT can improve OT operations

IIoT is a technology to easily connect devices and increase datapoints at relative low cost. Today this is mainly in the IT domain and this data can be used to analyze the processes, monitor trends or make process smart through AI.

In many industries additional data can have a predictive and preventive impact on maintenance, safety and the environment which has a direct impact on OT. According to McKinsey, increased throughput and increased efficiency are the largest opportunities in industries like chemical, petrochemical and refining.

For example, predicting maintenance activity rather than reacting to an issue and preventing accidents and environmental spills reduces downtime and cost related to these incidents. For example, adding sensors to pumps, can be used to monitor trends like vibration or sensors on valves can be used to alarm misbehavior like wrong valve operations.



### What it is not

IoT technologies are introduced to compliment OT, an OT system cannot rely solely on IT data. For example, LPWAN (Low Power Wide Area Network) wireless communication technology is so-called nondeterministic and therefor latency cannot be guaranteed which can be critical in the OT domain.

Since IoT technologies are more cost efficient they could be used to reduce cost but that is not correct usage as it would replace traditional OT and it should be used to compliment, enrich and improve OT data.