– definitions and

ow is it different from IT and at technology?

olutions in manufacturing, stry 4.0, innovations in t mentioning the

at IT is, for people who don't what OT or operational chnology or OT is a category ms to manage, monitor and s on the physical devices and processes they use.

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Operational technology, monitors and manages industrial process assets and manufacturing/industrial equipment. OT exists much longer than IT or information technology, more specifically since we started to use machinery and equipment powered by electricity in factories, buildings, transportation systems, the utility industry, etc. The term, however, is more recent. Essentially, OT is the hardware and software that keeps things, for instance factories, power plants, facility equipment etc. running.

onal technology versus information technology – source

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Operational technology – definition, origins and evolution

While operational technology is about control and safety systems and industrial process assets, IT or information technology is about business and enterprise systems that store, process and deliver information.

The most often used definition of operational technology comes from Gartner: "Hardware and software that detects or causes a change through the direct monitoring and/or control of physical devices, processes and events in the enterprise".

or IT people and that's probably
other definitions of OT whereby
evels of the traditional
rol level, production level,…)

gy that interfaces with the physical world and includes Industrial Control Systems *(ICS),* which in
Selected udes Supervisory Control and Data Acquisition *(SCADA)* and
Distributed Control Systems *(DCS)*.

Operational technology is everywhere around us: you find it in industrial operations in the smart factory, transportation, oil & gas, mining, in the utility industry *(electricity, water….)* and in facilities such as office buildings and healthcare facilities to give some examples. OT might be invisible for most; without it the economy and modern way of life wouldn't be possible.

Originally, OT was mainly a mechanical given. Yet, just like IT, OT evolved through time. In many fields where OT plays an important role, proprietary protocols started to be used and today often still are used. In applications such as building management, communication protocols next started to be used over IP.

ability to monitor and control
on of IT-based technologies such
OT, along with the evolutions in
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elements once were not
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its…and the risks.

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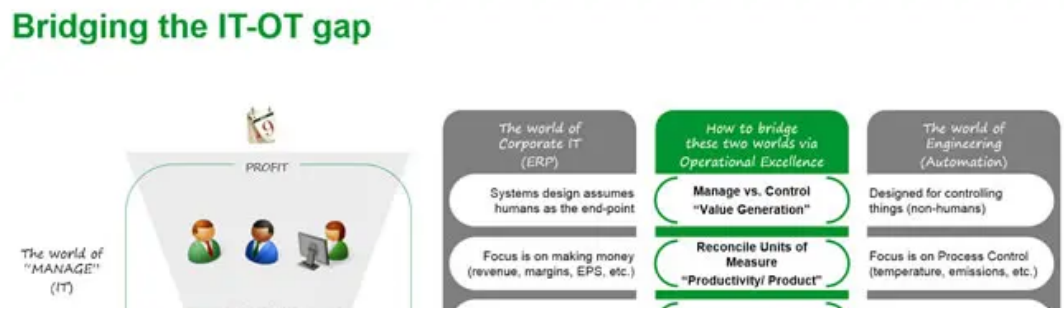
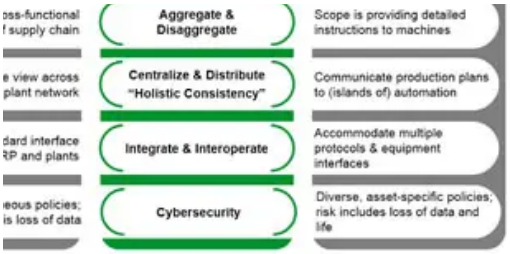
Operational technology challenges as the borders with IT blur

IT and OT networks typically were and often still are separated from each other. IT was always the domain of the CIO with a rather strict difference between IT and OT networks but also between the people working in these respective areas. They have different profiles, different types of systems to work with and different tasks/priorities.





ɒ with IT- source

IT and OT gradually started to
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y mentioned from a cybersecurity
al transformation. With industrial
lex and the ongoing digitization,
security. There are also
important differences between IT and OT security *(without the cyber part)*. The latter traditionally was more about protecting physical
Selected es, safety, uptime/production/efficiency and protection of people while IT security is more oriented on protecting all aspects of data and how information is stored, transmitted, processed and used in business processes.

With the mentioned convergence, these different priorities and resulting approaches regarding security, often prove to be a challenge now that all these aspects become key. It's not unusual that there are conflicts between IT and OT when there are computing priorities.

Examples of operational technology, depending on the definition, include the previously mentioned Industrial Control Systems *(ICS)*, key from a security perspective since they are mission-critical. This OT segment is really an umbrella term for various systems to monitor and control industrial processes across a broad range of applications where availability and uptime are key.

ems *(Supervisory Control and*
Control System) and
s). RTUs *(Remote Terminal*
MI), embedded systems and
physical equipment in plants and
o are operational technologies, as
ial markets.

ty Automation Systems, Building
categorized as operational
gy field devices include valves,

of devices and systems used in
e usage of operational technology
types of industrial processes.

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