STRATEGIES FOR PROCESS CONTROL & PLANT MANAGEMENT
PROCESS ENGINEERING
in association with Endress+Hauser

Endress+Hauser
People for Process Automation

A tailor-made digital journey

Endress+Hauser's Netilion shows the way

contents

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A guiding hand for 4.0

We stand in the midst of a fourth industrial revolution. One in which the benefits of automation are paired with digitalisation to provide an unprecedented degree of connectivity between machines, systems, plants and entire industrial sectors.

The possibilities in terms of data capture and analysis and the benefits that could accrue appear infinite. What individual and what business would not wish to participate in such a transformation?

In principle, perhaps, very few. In practice, though, there are those whose enthusiasm for embracing Industry 4.0 is hindered by the lack of a guiding hand.

Endress+Hauser's client-focused concept of digital transformation starts by addressing the challenges that might otherwise provide obstacles to adoption, paving the way for partners to realise the practical benefits for their enterprise.

Key concerns for those contemplating migration from an environment largely comprised of older assets and traditional working practices distill down to cost, cyber security and the need to ensure a company's output and uptime is not compromised.

'The Endress approach assumes each customer's digital journey must be tailored to their individual situation'

Addressing these matters is a vital step towards convincing wary customers that digitalisation is not only the future of manufacturing but also ensures their businesses will play a part in and benefit from that future.

The Endress approach, embodied in its unique IIoT ecosystem Netilion, assumes each customer's digital journey must be tailored to their individual situation.

That journey might begin with even a single device. It proceeds with the assurance of a trusted relationship built on the most demanding security protocols. And it culminates in a proven ability to add value in terms of knowledge gain, efficiency, scalability and productivity.

While technophiles thrill to the speed and precision of new products and systems, hard-pressed businesses' first thoughts must be how to guarantee adoption impacts day-to-day productivity positively rather than negatively. This supplement outlines how Endress+Hauser's Netilion provides the way forward. ■

Partnering for a new age

When Endress+Hauser partners you in your digital transformation, its Netilion IIoT ecosystem addresses the key challenges so that you can focus on the many benefits of change

If there's one thing Endress+Hauser customers rarely need convincing of, it's the necessity of making the shift to digital.

Some, however, will be in need of expert advice about where to start on their journey and what concrete return on their investment they can expect. There's also the issue of cyber security; how their accumulated data will be stored, who will be accessing it and why.

Endress+Hauser's IIoT solution platform Netilion seeks to address these issues, with tools designed for a new era of asset management, support and maintenance. A range of Cloud-based digital services enable improved monitoring, record keeping and data management.

But perhaps the key feature of Netilion is its ability to adapt to the needs of each individual partner.

"We offer a full range of services and data integration, but it's up to the user where to start," reassures Julia Grether, Business Development Manager, Endress+Hauser Digital Solutions.

"You could begin, for example, with an overview of your plant or with process monitoring of key assets. Everyone's digital journey will be different, and we can support them step by step."

Netilion's holistic approach, backed by Endress+Hauser's decades of core expertise in process and laboratory instrumentation, means that it can accommodate the most ambitious transformation projects.

But, explains Head of Sales Christian Grossenbacher, it is also ideal for those partners seeking to start their digital journey and who wish to begin in more modest ways before contemplating scaling up their involvement: "You don't need to have everything connected to a big host control system or business system like SAP, although you can do that. You can also make use of different value sets and features with Netilion services, which are simple entry-level systems."

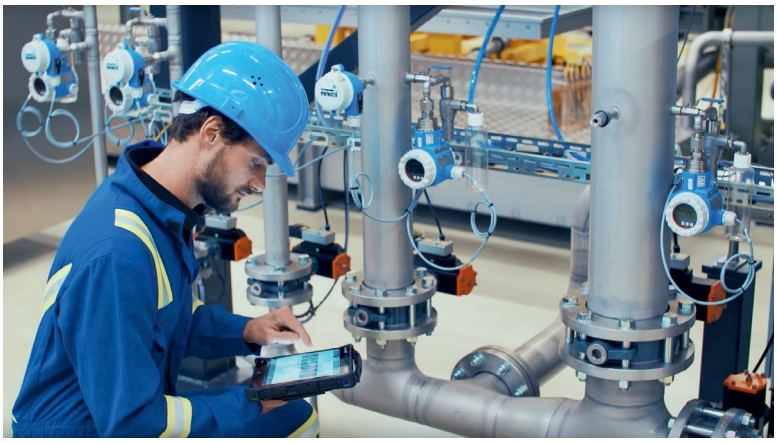
Take, for example, Endress+Hauser's recently launched IIoT-ready device, the FWR30. This battery-operated radar sensor can be used straight out of the box to transfer information to the cloud, bringing data to your fingertips in under five minutes – a world record. Easy to use, it also saves on the usual associated expenses.

"With most devices, there are cabling costs, commissioning and configuration – this all takes a minimum of 45-50 minutes at an average cost of £60-80 per hour.

"Being up and running within a few minutes is a significant deployment and scalability advantage," emphasises Grossenbacher.

Thus, digitalisation in a process plant can range from something as simple as using a single device to monitor level remotely, up to a fully functioning IIoT plant with all the values and documentation available in the cloud.

Whether you use it to plan on a grand scale or want



to begin with the immediate goal of more effectively exploiting the information you have, the opportunity is there, reminds Digital Solutions Business Manager for Endress+Hauser UK, Steve Sherburn: "This isn't always about new greenfield or brownfield sites developing a digital strategy. This is about unlocking the information that's out there in the field already and making better use of that data."

In other words, creating added value by collecting that field data which has not previously been transferred to the process control system. Without, however, any interference in the process or manipulation of the process control.

Whatever the scale of operation, two significant and demonstrable benefits are maximised return on investment and increased plant uptime – cloud solutions being much more cost-effective than using local infrastructure. With connectivity's benefits come, of course, two key concerns: the need to interact effectively with third party instrumentation and the issue of data storage and use.

Netilion specifically utilises open industrial communication protocols to access data, ensuring that it can operate with third party instrumentation and also transfer device information into other systems.

This emphasises too the need for effective cyber security. And, in a world where criminal organisations and state actors have developed increasingly sophisticated methods of breaching protective walls, the bar for what constitutes outstanding data protection has been raised proportionately.

Here, Endress+Hauser has cemented its reputation as a world leader. In 2018, it became the first industrial company to achieve StarAudit 4 Star certification for the security and sustainability of its digital services – awarded by EuroCloud, the independent non-profit organisation for the promotion of cloud computing.

The award confirms that a recipient's web-based services rely upon specific security standards and have been correspondingly validated. It also offers a traceable quality assessment of cloud services through a transparent and reliable certification process.

Going even further, Endress+Hauser is now aiming to secure the prized International Organisation for Standardisation's ISO 27001 certification by early 2021, says Business Development Manager Julia Grether: "This will metaphorically take us from the Premier League to the Champions League in terms of cyber security. We want to play on the same level as companies such as Microsoft, Amazon and Google."

Achieving these higher levels of accreditation not only provides impartial proof of Endress+Hauser's capabilities in the field; it also ensures its customer-partners meet all compliance requirements.

Netilion's ability to target specific customer needs and deliver substantive returns in terms of productivity increases and reductions in downtime is founded on Endress+Hauser's own legacy, explains Group CEO Matthias Altendorf.

"Behind our market success is an undiminished spirit of innovation. We invested almost 8% of sales in research and development in 2019. More than 1,100 people are involved in the development of new products, solutions and services."

The result is a suite of digital services available through the Netilion platform including:

- **Netilion Scanner** free smartphone app captures field instrument asset data, utilising QR code or RFID tag, storing images and instrument location and accessibility.
- **Netilion system components** can upload installed base information and create digital twins of the instruments, without having to interact with the control system.
- **Netilion Analytics** provides detailed insight to give complete transparency on the installed based and thus initiate proactive maintenance measures for critical instruments or swap out discontinued instruments.
- **Netilion Health** visualises the diagnostic data provided by an instrument and receives instructions to address the issue.
- **Netilion Library** helps organise working files and documents, providing a file sharing and data management service for the complete life cycle of an instrument. Files can be continuously added to the digital twin in a traceable manner so that they are available at any time and from anywhere. Documents can be available to any device capable of hosting a web browser.
- **Netilion Value** collects process data from the field and displays the values in various features such as the dashboard, history, tracking map and more. ■

> 'This is about unlocking the information that's out there in the field already and making better use of that data'
>
> Steve Sherburn , Digital Solutions Business Manager, Endress+Hauser UK

Making data work for you

The potential for process plants to benefit from digitalisation is enormous. But knowing what data to gather and what to do with it are key, says Endress+Hauser's Phil Waterworth

'By choosing a manufacturer that has proven its commitment to meeting the highest standards in cyber security, you can mitigate any potential risks'

A large percentage of manufacturing plants are still using analogue measurements from instrumentation, which is limiting because each device only provides a single piece of information.

The big advantage of digitalisation is that you gain access to a lot more data, and that doesn't necessarily entail scrapping all your old instruments. Many installed devices – even those that were commissioned years ago – contain much more information than is currently being utilised, which can be unlocked with digital services.

Take a flowmeter, for example. With digital you can access not just the flow rate but also total flow, temperature measurement and density measurement in some applications.

A second benefit is asset information: you can instantly extract information about an instrument, including the type of device, the version and the manufacturer. Third is health or diagnostic information. Many Endress+Hauser devices can tell you whether they are operating correctly and even whether they are installed in a suitable process. Crucially, as well as identifying the problem, they can show the operator what the issue is and how to resolve it.

Improving efficiency

Having access to all this extra information is great, but it's only worthwhile if you use the data in a meaningful way to improve your operations.

With the right support, you can develop spare parts and migration strategies for obsolete devices, receive a warning in advance of an event that could shut down your process or reduce expenditure by simplifying your inventory. There are numerous ways that digitalisation can improve efficiency and transparency, so you always know how your production plant is performing.

Endress+Hauser's IIoT ecosystem, Netilion, can help to make your data more useful, and your process more autonomous. By using our application programming interface (API), known as Netilion Connect, information can be shared with other systems.

We recognise that process plants often have an installed base comprising several different manufacturers' instrumentation, and other systems, so the technology needs to work with these. Just as important as the products is our consultative role in helping plant operators to achieve their aims, because we understand that everyone's digital journey will be different.

Keeping data secure

Many people in the process industry are embracing digitalisation and are already starting to benefit from it. Where there is some reluctance, it's usually due to concerns relating to expense, complexity or security. From a cost point of view, digitalisation doesn't have to mean ripping everything out of your plant and starting again.

With services based on the NAMUR open architecture principle, you can gain access to your information with just a small amount of additional hardware.

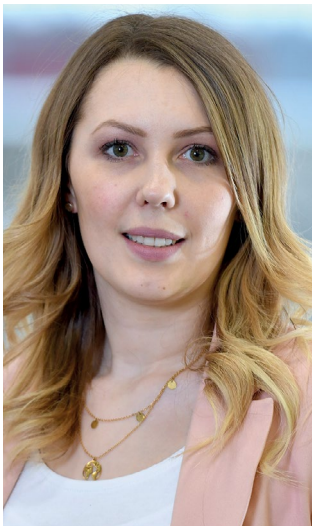
In terms of security, the same steps are being taken to protect process networks and process devices as IT networks. By choosing a manufacturer that has proven its commitment to meeting the highest standards in cyber security, you can mitigate any potential risks.

The process industry is typically slower to adopt new technology than some other industries, but change is inevitable. If a company gets digitalisation right, they will have an edge on their competitors because they'll be more efficient and agile, and those who don't adapt will lose out. It's time to take the topic seriously and investigate how it can benefit your operation. ■

▸ Phil Waterworth is a project engineer and digital technology specialist at Endress+Hauser

The future of digitalisation

Although it has taken root in our private lives, digital's integration into the process industries is in its infancy. The real benefits are still to come, says Endress+Hauser's Julia Grether



'As long as you have the right support, there is no limit to what you can achieve with data'

Digital transformation is a mammoth task, and it's clear that it can't be completed overnight. It's a huge undertaking for every company, not least because the technology is evolving so quickly.

That's why we are taking an iterative development approach to our digital portfolio. We are constantly gathering feedback from customers and monitoring trends that are appearing in the market in order to be able to react quickly to changes.

The Covid-19 pandemic has had a major influence on people's mindsets regarding digitalisation. Companies now recognise that they need to change their business models, and people have adapted to remote working.

However, because of the necessary investment, companies need to be convinced of the benefits. In reality, process plants won't go completely digital: it's not possible to manufacture products remotely, for example, but you can monitor process values away from the plant.

Reducing error

The major change on the horizon is automation. The degree of automation will increase, reducing the likelihood of mistakes and increasing efficiency.

For example, you will be able to integrate data from the field directly into your system. If a device is in a failure state it will send the error code straight to the system, which will automatically trigger a work task and inform the responsible person.

This removes the need for the maintenance technician to check the error code on the device display, search for the remedy back in the office and return to the device to fix it, saving time and reducing errors.

This automation of workflows and optimisation of the entire business process to turn insights into action is something that we will see a lot more of in future. This will also generate new opportunities and potential for service business: more and more customer service tasks can be taken over by external field technicians so plant operators can focus on their key activities. The additional benefit is the likelihood of reducing errors as the services tasks are completed by service experts.

As for Endress+Hauser's digital ecosystem, Netilion, we'll extend the existing services and integrate features such as Heartbeat verification, which allows a device to be checked without interrupting the process, but we're also working to add more third-party content.

The bigger an ecosystem is, the better it becomes. But that doesn't mean to say whoever has the most data will be the most successful. It's not about data volume but about creating something of value out of this data. We are working to add more services for predictive maintenance precisely because that brings real optimisation benefits for our customers.

Further integration

Currently we have Netilion on our smartphones, on tablets and on laptops. The next step could be to integrate it with smart watches, for example, or even smart speakers with virtual assistants.

The digital tools that we're familiar with in our personal lives will move into the process industry at some stage, because they're convenient and make our lives easier. It's not a reality yet, but the ability is there to achieve this kind of integration.

As long as you have the right support, there is no limit to what you can achieve with data. The targets of improving performance, reducing costs, mitigating risks and ensuring plant uptime are all within reach. ■

▸ **Julia Grether is a business development manager at Endress+Hauser Digital Solutions**

At your service...

Introducing the web-based applications that comprise Endress+Hauser's Netilion services

At the heart of the Netilion platform are Netilion services, web-based applications that make all field instruments and their data accessible from anywhere. The apps help users carry out tasks such as capturing and managing all instruments in a plant, organising device documentation or monitoring the instrument status and responding correctly in the event of a malfunction.

Netilion provides a complete overview of the installed base. Digital twins of the field instruments, which are often difficult to access, are made available in the cloud where they can be seen from various devices – from the office PC, the industrial tablet and even from the technician's smartphone.

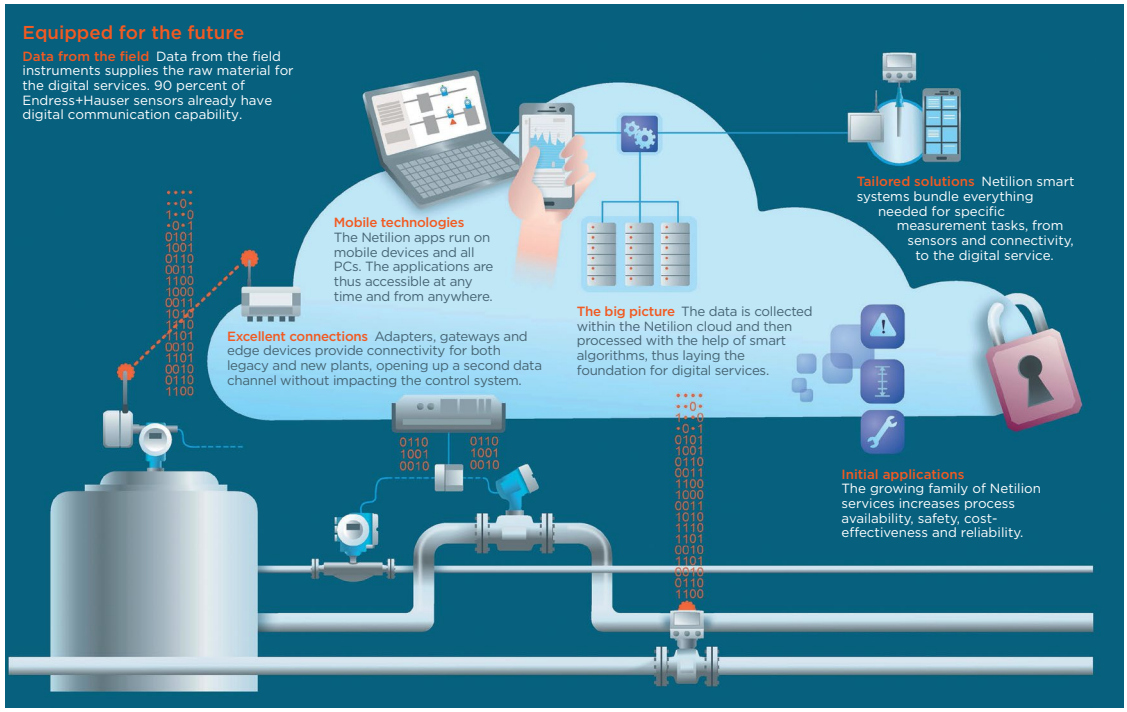
Netilion also opens up access to new applications beyond conventional process engineering. Endress+Hauser offers cost-effective packages that include IIoT-enabled measurement technology and digital applications designed to solve simple measurement tasks. The complete preconfigured packages contain the sensors, including installation material and the transmitter, plus a subscription to the digital service. One example is Netilion Smart Systems for analysing bodies of water, which is currently in pilot operation in two communities in Switzerland.

Endress+Hauser offers an additional digital solution for remotely monitoring the levels in portable or remotely located plastic tanks with wireless technology.

The solution comes with the new battery-operated, radar-based Micropilot FWR30 level instrument, which transmits the measurement results via an integrated mobile wireless interface. The data is displayed and monitored with the Netilion Value cloud-based monitoring system.

Further 'Netilion-ready' devices, including the Promass 800 flowmeter, will be capable of sending data direct to the Netilion cloud without the need for separate interface modules. ■

'Netilion also opens up access to new applications beyond conventional process engineering'



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