



FIELD SERVICE INNOVATION BRIEFING

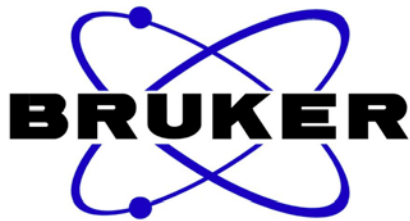
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OVERVIEW

In our reports and conferences, we pride ourselves on giving our audience a behind-the-scenes look at the most successful field service initiatives. The field service industry is experiencing rapid change, and the talent crisis continues to pose a significant challenge to the industry. As a service executive, you've quickly adapted to the changing landscape and we're here to help. This new Field Service Innovation Briefing, gives you an exclusive look at the major trends in service and support so you can stay ahead of what's next.



BRUKER'S ACQUISITION OF OPTIMAL INDUSTRIAL AUTOMATION AND TECHNOLOGIES DEEPENS ITS DIGITAL CAPABILITIES

ACHIEVING NEW LEVELS OF AUTOMATION IS A TOP PRIORITY FOR FIELD SERVICE PROVIDERS LOOKING TO REMAIN COMPETITIVE IN THE MODERN LANDSCAPE. AUTOMATION STREAMLINES WORKFLOWS AND ENABLES ADVANCED PREDICTIVE MAINTENANCE.

Brands with a field force are constantly searching for new ways to automate processes and streamline workflows. This need has grown due to the proliferation of predictive maintenance, which requires new generations of technologies to become possible.

Nearly three-quarters (73%) of field service organizations have incorporated Internet of Things (IoT) into their operations, with some experts estimating there were around 35 billion connected devices installed worldwide at the end of 2021. As a manufacturer of scientific instruments for molecular and materials research, [Bruker](#) understands all too well the need for accuracy and reliability when it comes to its products, and is constantly innovating to discover new ways to achieve automation at every level of its operation.

Bruker

To help make its operation more effective than ever before, Bruker recently acquired [recently announced](#) its acquisition of UK-based [Optimal Industrial Automation and Technologies](#).

Based in Yate, Bristol, Optimal specializes in pharma and biopharma process analytical technology, pharma manufacturing automation and quality assurance software and systems integration. The acquisition by Bruker will help both companies further establish themselves as critical software and solutions providers for small molecule, biologics and new drug modalities pharma companies.

Optimal biopharma tools and automation capabilities complement Bruker's innovative and differentiated high-value NMR, mass spectrometry, SPR, molecular spectroscopy and X-ray scientific instruments, and life-science solutions for biopharma drug discovery and development, as well as for process analytical technology (PAT) and QA solutions.

These technologies working together will not only improve the development and manufacture of these lifesaving devices, but helps Bruker's field service organization become more proactive and agile.

“Optimal has a focus on the automation and optimization of batch and continuous processes in the biopharma industry – from R&D to manufacturing,” continues Bruker. “As an integrated PAT solutions provider, Optimal offers development, testing, deployment and support of quality-centric pharmaceutical production systems.”

Supporting these critical machines through automation will fast become a core benefit of this innovative new partnership and help propel both organizations into the next stage of their digital journey, according to Bruker.

Automation for Support

Optimal’s PAT knowledge-management software, syntq, can interface between multiple analytical instruments (spectral and univariate), multi-variate analysis (MVA) packages, manufacturing control systems, and a range of adjacent software solutions to ensure quality in real time, and can alert field service technicians if anything falls outside of pre-established parameters.

“As a 2021 Pharma Innovation Award winner, syntq is a proven enabler of quality-by-design via PAT. For users of syntq, this can significantly increase productivity and quality, while reducing waste, time-to-manufacture and time-to-market, with proven Optimal use-cases tripling biopharma productivity,” Bruker said in a press release announcing the acquisition.

While remaining a vendor-agnostic biopharma solutions provider, Optimal can integrate bioanalytical technologies such as nuclear magnetic resonance (NMR), mass spectrometry (MS) and FTIR/NIR/Raman systems with Bruker’s innovative drug discovery, development, PAT, and quality control workflows.

Combining next-generation, high-performance technologies with Optimal’s automation and workflow technology solutions also has the power to ease the transition from development to biopharma manufacturing, while remaining in regulatory compliance and at full operational capacity.

“The acquisition of Optimal is a very exciting step for Bruker as it supports more comprehensive solutions for the biopharmaceutical industry, now adding the capabilities to integrate cutting-edge systems into biopharma manufacturing processes and workflows,” said President of the Bruker Biospin Group, [Dr. Falko Busse](#).

Final Thoughts

Predictive maintenance is transforming quickly from a nice-to-have feature of field service operations to an essential component that clients will insist upon in the future. When putting field service contracts out for tender, a provider’s ability to offer automated workflows that increase efficiencies while reducing downtime and callouts, will enable those bids to rise to the top in consideration.

With this acquisition, Bruker is ensuring its ability to provide the kinds of automation and technology driven support that modern healthcare providers and biopharma manufacturers demand today.

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HOW CISCO IS USING PREDICTIVE ANALYTICS TO PREEMPT NETWORK OUTAGES

COMPANIES ARE SO USED TO THINKING ABOUT PREDICTIVE MAINTENANCE IN TERMS OF PHYSICAL ASSETS SUCH AS FACTORY MACHINES AND SUCH, THAT THEY CAN OVERLOOK THE MYRIAD APPLICATIONS PREDICTIVE ANALYTICS CAN YIELD.

Field service organization leaders talk a great deal about predictive maintenance – the use of IoT powered sensors to detect asset faults when they are in their nascent stages so that they can be addressed before they result in large-scale shutdowns. These shutdowns cost time and money to repair, and can cost companies even more in downtime and lost opportunity.

The industry typically speaks of predictive maintenance as it pertains to the service and maintenance of assets you would expect to see in a factory or other business that relies on physical machinery to perform its core function. However, this is most certainly not the upper limit of the potential for predictive service technology and many brands around the world are discovering new ways to limit downtime through advanced analytics.

Cisco

One such brand is multi-national technology conglomerate Cisco, a worldwide leader in IT, networking, and cybersecurity solutions. As a company with a global reputation for advanced digital technology in the field of communications, Cisco has been exploring options around using predictive analytics to pre-empt network outages.

“For the last 30 years, Cisco has been powering the internet, keeping the world connected to what matters most,” said the company in a press release. “Networks have evolved to detect and react to issues to maintain performance and reliability. The next logical step is for networks to predict problems before they happen, something that has been difficult until now.”

Cisco has cracked this nut by combining its resources and gathering data from myriad telemetry sources and integrating that information ahead of final analysis. Once integrated, Cisco applies pattern-learning technology to predict user experience and develop models, which make it more agile and able to respond to network disruptions before they affect customers.

Customers have multiple options regarding the extent to which they want to connect the predictive engine throughout their network, which provides the kind of flexibility and scalability modern businesses require.

“The future of connectivity will rely on self-healing networks that can learn, predict and plan,” said Cisco Chair and CEO [Chuck Robbins](#). “Our research for predictive networks has been tested and developed with customers, and early adopters are seeing major benefits saving them time and money. The industry has been waiting for secure, proactive networking and only Cisco can do it right.”

Cisco clearly has the experience and expertise to solve the problem of predictive network maintenance – something many other brands have tried and failed to do – but what is it about the modern business environment that makes this development necessary right now?

Unprecedented Change

The world of IT is experiencing a particularly challenging time in its history. The shift to remote and hybrid work brought about by the global COVID-19 crisis has put extra strain on the workload of IT teams. Combine this with the ever-increasing challenges of cybersecurity – particularly in the face of elevated tensions with Russia following the invasion of Ukraine – a worldwide skills shortage and many other factors. Because of this increased workload, unplanned network downtime has the potential to be more disruptive than ever before and have a significant negative impact on productivity, customer service and revenue. This is perhaps why 45% of IT leaders surveyed in 2021 stated that responding to unplanned network outages would be their top challenge in the coming year.

“Beyond outages, the experience people get from their network connections has become business critical. People and businesses use and rely on applications for just about everything, and often an app is the critical first impression for customers,” said Cisco. “Fifty-seven percent of people

say brands have one shot to impress them and that if their digital service does not perform, they won’t use them again. To deliver on the full promise of digital business, the industry needs a way to better predict network issues, proactively avoid issues, and ensure the best possible experience.”

For these reasons, the latest developments in predictive analytics applied to network outages are sure to be welcomed with open arms by IT teams around the world. The ability to preempt network downtime and implement strategies to prevent them --or at least mitigate their impact -- will significantly impact productivity and user experience across the IT space.

Final Thoughts

“Cisco is bringing together new predictive technologies with its broad portfolio of observability, visibility and intelligence technologies to improve reliability and performance across all operational scenarios,” the company said. “Cisco has tuned and tested predictive models with customers across a variety of industry segments, incorporating advanced analytics and machine learning techniques to enable greater precision and ease of use.”

LEARN MORE ABOUT PREDICTIVE ANALYTICS
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Endress+Hauser

People for Process Automation

ENDRESS+HAUSER DEPLOYS MULTIPLE TYPES OF SENSORS TO IMPROVE FIELD MAINTENANCE

AS PREDICTIVE MAINTENANCE BECOMES MORE UBIQUITOUS, THE ATTENTION OF FIELD SERVICE ORGANIZATIONS NOW TURNS TO THE SENSORS, COMPONENTS AND DATA THAT MAKE THE CONCEPT POSSIBLE. BRANDS TODAY MUST CONSTANTLY INNOVATE TO ENSURE THEIR DATA GATHERING IS CURRENT. ENDRESS+HAUSER HAS ESTABLISHED ITSELF AS A THOUGHT LEADER WHEN IT COMES TO SENSOR APPLICATION AND IS RELEASING NEW METHODS OF DATA GATHERING ACROSS ALL INDUSTRIES.

Predictive maintenance has become a big deal in the world of field service and brands the world over are constantly searching for ways to improve their data collection methods and make their service provision more agile and proactive than their competitors.

Of course, the predictive maintenance journey always begins with sensors and it's the quality of those sensors that can have the greatest impact on a brand's ability to gather the data necessary for this type of field service, and therefore improve provision.

As a globally operating process and laboratory instrumentation and automation supplier with net sales of approximately €2.6 billion and net income of €254.9 million, [Endress+Hauser](#) has been at the fore of predictive maintenance since it was first conceived. The company also perpetually innovates when it comes to the sensors it deploys and sells, which make proactive field service provision possible.

Endress+Hauser

Two types of sensors supplied by Endress+Hauser are ultrasonic and radar-based level measurement tools that make sure any company dealing with solids, liquids and gasses that need to be maintained at a certain level can do so, without the need for manual checks or maintenance.

Ultrasonic sensors are an effective solution for liquids and bulk solids and are characterized by easy planning and assembly, fast and safe commissioning, a long service life and reduced maintenance costs. Meanwhile, radar sensors offer on-contact, maintenance-free measurement that is unaffected by medium properties such as density and conductivity, in bulk solids also unaffected by filling noise and dust, have a freely adjustable measuring range, and are suitable for use in extremely high temperatures up to +450°C/+842°F.

While radar level measurement has long been held as a best-in-class solution, Endress+Hauser makes the case that ultrasonic is actually preferable in certain situations and service providers should make sure they are deploying the best solution for the application in question.

“Radar technology is increasingly viewed as the best method of level measurement, but this isn’t necessarily true for every application,” says Endress+Hauser in a [blog post](#) comparing the two. “Radar sensors have certainly made great advancements in performance, accuracy and even cost, but they are not a one-size-fits-all solution and should not be treated like one. Though radar is versatile, there are some applications where ultrasonic level technology is a better fit.”

However, level measurement is not the only area of sensor-enabled predictive maintenance in which Endress+Hauser is innovating with a [recent announcement](#) regarding a new generation of liquid analysis sensors.

Liquid Analysis

In order to leverage Industry 4.0 technology to provide simple, safe, and connected liquid analysis, Endress+Hauser is phasing out older models of analogue liquid analysis sensors and replacing them with a digitally powered alternative, which can improve accuracy, ease calibration, simplify troubleshooting and reduce required maintenance.

“Memosens 2.0 sensors store numerous relevant data points, such as operating hours, minimum and maximum temperatures, measured values, calibration histories and load matrices,” said the company in a press release. “All this data can be used and processed for comprehensive analysis and more precise process management. The sensors also provide a sound basis for predictive maintenance strategies when used in conjunction with Endress+Hauser’s Heartbeat Technology, along with enhanced [Industrial Internet of Things] services via the Netilion ecosystem.”

The new sensors use non-contact digital data transmission which eliminates moisture, corrosion, and salt bridge effects. Instant messaging alerts field service technicians if signal transmission is disturbed by other factors and built-in galvanic isolation ensures accurate measurement in the presence of electromagnetic interference and other electrical noise. If the sensors need to be replaced in the field, lab-based pre-calibration and bayonet connection points mean downtime is significantly reduced, which is the overall goal of sensor-based predictive maintenance strategies.

“Memosens 2.0 combines cutting-edge technology with maximum practicability. Because the Memosens sensors are equipped with highly integrated electronics, they can be calibrated and adjusted under lab conditions that are favorable for the operator and stable for precise results,” according to the Endress+Hauser blog. “Replacing sensors in the field is a simple process and can be performed in a timely manner thanks to the lockable bayonet connector and automatic sensor identification by the transmitter.”

Final Thoughts

The case for predictive maintenance has been thoroughly and inarguably made and most field service brands are now deploying the practice or are in the process of their digital transformation. Our attention therefore turns to further developing the components and concepts that make predictive maintenance possible and further improve capabilities in this area

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ENHANCING SPEED TO RESOLUTION IN MODERN FIELD SERVICE

ENHANCING SPEED TO RESOLUTION SHOULD BE A TOP PRIORITY FOR FIELD SERVICE ORGANIZATIONS OVER THE COMING YEAR. WITH CUSTOMER EXPECTATIONS AT AN ALL-TIME HIGH AND COMPETITION FIERCER THAN EVER, REMOVING INEFFICIENCIES AND INCREASING FIRST-TIME FIXES HAVE BECOME KEY BRAND DIFFERENTIATORS.

We live in a world of rapidly declining patience.

The fast-moving nature of modern industry means those who employ the talents of a field service provider expect rapid service when things go wrong and a high percentage of first-time fixes. These factors are in such high demand they are becoming key brand differentiators when contracts are put out for tender.

According to research by [Verizon Connect](#), 56% of field service organizations say that meeting these enhanced customer expectations is the biggest challenge they face today.

On top of that, 38% placed scheduling and dispatching inefficiencies in the top spot, while competitive pressure won out for 34%.

It's easy to see how all three of these concerns are connected to a field service organizations' ability to increase their speed to resolution and the number of first-time fixes they are able to achieve. Improving in these areas will make brands more competitive, help meet customer expectations, and increase efficiencies.

Scheduling and Dispatch

The core of any field service operation lies in its ability to assign jobs effectively and efficiently to technicians and manage last minute emergencies that come in during the working day.

Technicians need to be assigned a route that will take them from job to job in a manner that minimizes travel time and cuts out inefficiencies. Thankfully, there is a plethora of modern digital technology that uses AI software combined with mapping solutions to automatically schedule jobs in preparation for a new shift.

Then there is the matter of emergency jobs. The nature of field service means that situations will often emerge during the day and will need to be assigned to technicians with an appropriate level of priority and in a manner that causes the least disruption to pre-booked appointments. Multiple factors must be considered, such as whether an emergency failure at one client should be prioritized over scheduled maintenance at another. (Hint: Yes, it should.)

Again, AI scheduling and dispatch software can help here as well. With such technology at your fingertips, algorithms can select the technician best placed to accept the job and make sure they have access to all the information they need to attend and resolve the issue in the minimum time possible, all the while keeping the customer updated and informed as to their progress.

Of course, a solid schedule of regular service and maintenance will help make sure emergencies are kept to the lowest level possible. However, nothing is guaranteed in the world of field service, which means your organization needs to be adequately prepared to address emergencies when they do occur, or risk customers looking elsewhere for a more flexible provider.

First Time Resolution

Few things are more frustrating for a customer than to experience an issue with a vital asset, only to be told by the attending field service engineer that they must come back on another day, return to base to collect the right tools, or wait for a critical spare part to arrive.

Thanks to predictive maintenance technology, sensors embedded in customer assets can transmit information back to base and keep your organization constantly updated as to their status. If an asset or component reports early symptoms of a fault developing, an engineer can be automatically dispatched to address it before it grows into a full-scale shutdown.

This means the job is quicker and simpler to resolve, and engineers can arrive on site with a full breakdown of exactly what the problem is, what tools they will need to repair it, and any spare parts required, significantly increasing the chances of fixing the fault in a single visit. Automatic inventory software can also make sure your organization's parts warehouse is kept well stocked and automatically replenished when certain thresholds are reached.

If for any reason the job cannot be fixed on the day it is reported, your office will have the information needed at the earliest possible opportunity and will be able to communicate this to the customer, and not waste their time with an engineer visit that will do nothing to resolve the problem.

Final Thoughts

Increasing speed to resolution requires a combination of making your scheduling and dispatch capabilities more effective and efficient, and increasing the percentage of first time fixes your organization can achieve. Digital technology can assist with both of these challenges, but requires the organizational desire to transform. Convincing the c-suite of this need often is the most significant challenge within the overall goal of increasing speed to resolution.

SPEED TO RESOLUTION IS SURE TO BE A HOT TOPIC AT [FIELD SERVICE EUROPE 2022](#), TAKING PLACE 30 NOVEMBER – 1 DECEMBER AT THE MOVENPICK HOTEL, AMSTERDAM.

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THE CHALLENGES OF THE FIELD SERVICE TALENT CRISIS

AS THE TALENT CRISIS CONTINUES TO BITE, FIELD SERVICE ORGANIZATIONS NEED FRESH WAYS TO ATTRACT, TRAIN AND RETAIN THE BEST TALENT AVAILABLE. WITHOUT CONSIDERABLE EFFORT, THE LABOR CRISIS WILL ONLY DEEPEN AS TIME GOES ON.

The field service industry – like many other sectors – currently is experiencing a catastrophic talent crisis.

A combination of factors including, but not limited to, the global COVID-19 crisis, changing attitudes to work, generational differences, and an aging workforce hitting retirement age, has created a perfect storm where job sites are packed with unfilled positions for field service technicians. And the situation is not expected to resolve itself any time soon.

There are more than [21,818](#) Field Service Technicians currently employed in the United States, with the average age being 43. The number of young people entering the business is simply not matching pace with the volume of business growth and aging technicians retiring, which is deepening the talent crisis.

Nearly half [\[47%\]](#) of all field service organizations say acquiring quality technicians and drivers is the biggest challenge they face today. Fully 73% of service organizations identified the aging workforce as a potential threat to their field service organizations and, of those young people that have entered the industry, 60% of workers between the ages of 24 and 44 indicate they are considering leaving.

Why?

The reasons young people are not considering field service as a long-term career goal are many.

With an increasing number of young people choosing to take the university path of further education rather than entering apprenticeships or similar training programs, there is a pattern of moving away from blue collar work and a preference for jobs that offer attractive benefits such as flexible working arrangements, remote work options, and more.

The idea of working 40 hours per week and sacrificing the parts of their lives that are not connected to work is rapidly becoming an outdated notion. Contrary to a widely held belief, it is not laziness driving these shifts in thinking, but rather disillusionment with the nature of work and one's value being defined solely by productivity.

Field service brands must be cognizant of these shifts in attitude and at least attempt to meet young people halfway if they want to stand a chance of attracting the best talent out of schools and universities. Meeting students where they are at careers fairs and the like, and demonstrating how the field service industry is a modern, technology driven machine is a good start to addressing the talent crisis. Likewise, implementing flexible working policies and the option to work from home when possible could also make the industry more attractive to young people.

If the field service industry fails to evolve to meet these expectations, the talent crisis will only get worse, increase the stress on existing technicians and the chances of those employees also turning their backs on the business.

Brexit

The UK's exit from the European Union has also put pressure on many industries in the U.K. – including field service – to recruit enough staff for their vacant positions. With thousands of European citizens returning to their home countries or other member states, the job roles being vacated are simply not able to be filled by UK residents alone.

Skills Transfer

Once you have acquired fresh talent, the challenge then becomes how best to train them and facilitate the transfer of knowledge and skills from one generation to another.

AR technology can help with training. Not only will the use of this kind of technology be attractive to younger people, but it also means that more experienced technicians who perhaps no longer wish to work in the field anymore can offer guidance to new employees from remote locations.

Thanks to AR devices, schematics and guides can be superimposed onto physical assets and, with an experienced technician communicating via a headset, young people can receive the kind of on the job training they need to gain the skills necessary for the role.

With 75% of field technicians reporting that products have become more complex and more knowledge -- specifically more technical knowledge -- is needed to perform their jobs now as compared to when they started in field service. With older people naturally being more conservative [with a small c] and resistant to change, this creates a situation where younger employees and older technicians can share knowledge for the betterment of both.

Final Thoughts

The field service talent crisis is going to continue to pose a significant challenge to the industry. To stand any chance of beating the crisis, the entire industry needs to rethink how it structures its technician roles and better communicate the opportunities of a field service career to young people.

THE TALENT CRISIS IS CERTAIN TO BE PART OF THE CONVERSATION AT [FIELD SERVICE EUROPE 2022](#), TAKING PLACE 30 NOVEMBER – 1 DECEMBER AT THE MOVENPICK HOTEL, AMSTERDAM.

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