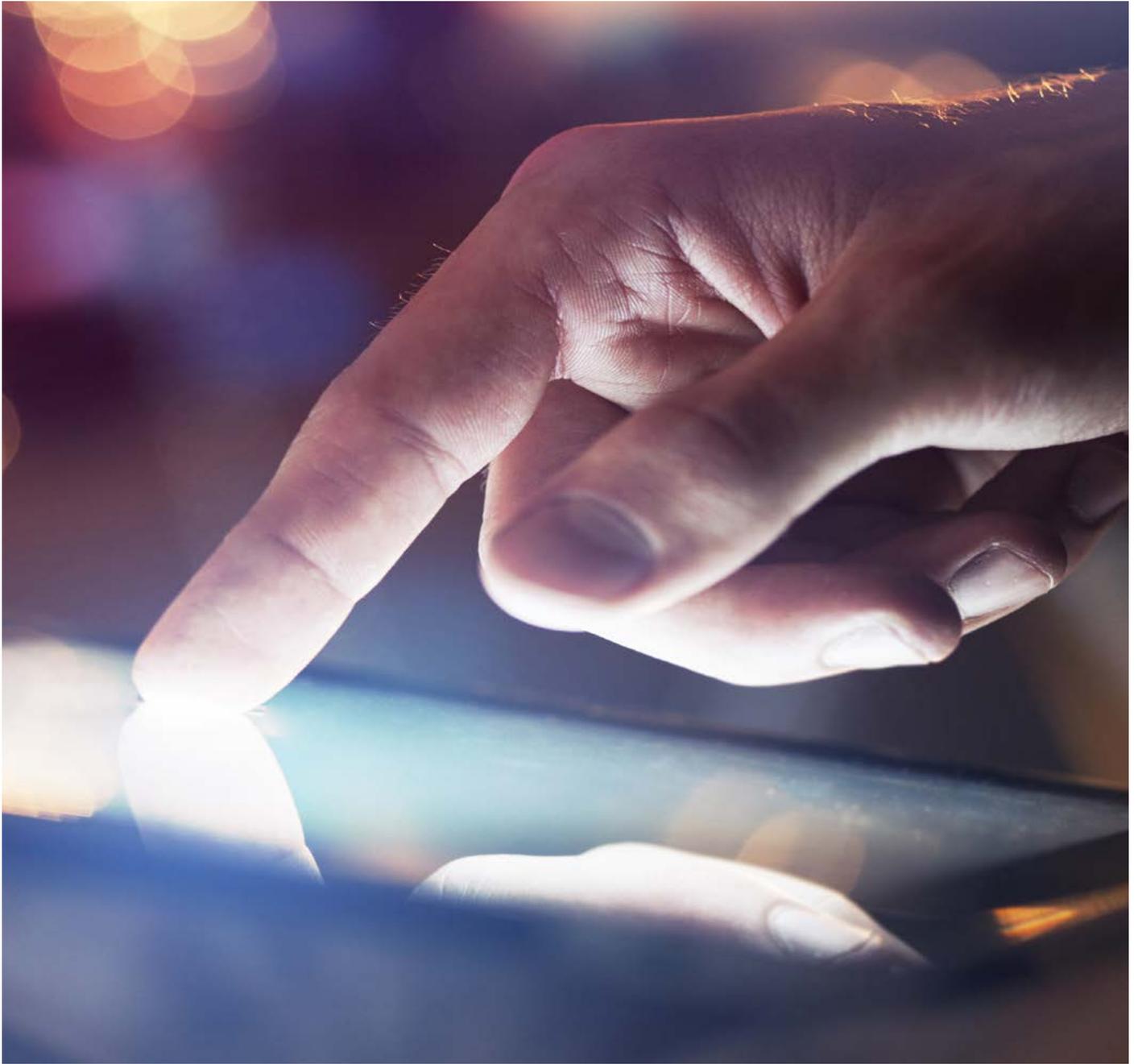




# SMART SERVICES FOR CONTINUOUS GAS ANALYZERS

## Abstract

“A business absolutely devoted to service will have only one worry about profits,” Henry Ford, founder of one of the world’s largest manufacturing companies, once said. If only things were that cut and dried in today’s manufacturing environment. Nearly one century after Ford’s famous adage, companies continue to struggle with a shift towards digital service – not to mention excelling in it. On the other hand, customers are increasingly delegating original equipment manufacturers (OEMs) the task of maintaining and even operating their assets. The goal, of course, is to maximize efficiency and minimize risk. In many cases, the equipment manufacturers are the best partners for their specialized knowledge of the product. Therefore, although there are challenges, companies that can make strategic adoptions of new technologies will leapfrog their competition and drive continuous improvement in the global service businesses.



## Embracing Digital Services at the Asset Intensive Enterprise

Digitalization is revolutionizing products. It wasn't too long ago that the manufacturing world was completely mechanized. Electrical products have today become complex, cyber-physical systems that combine hardware, intelligent electronics, sensors, data storage, processing, software, and connectivity

in new ways. These smart products have unleashed a new era of strategic choices that center on an organization's ability to reap value from technology. One such ability is to connect to a remote asset over a communication network that helps smart services. We therefore maintain that over the next decade, the field of Smart Services will become the major force for growth in productivity and efficiency in services, especially at an asset intensive enterprise.

This white paper explains how an Innovative handheld device equipped with Smart Service Solutions can efficiently monitor the health and effectiveness of a continuous gas analyzer, one of the critical devices for the process industry. This solution is a joint research project between ABB Automation Systems GmbH, FIR Aachen GmbH, and Infosys Limited.

## The Background

The continuous gas analyzer is a technically complex class of instruments that determine the qualitative and quantitative composition of gas mixtures. Industries are increasingly realizing the critical need for gas analyzers to monitor their processes, enhance safety, increase efficiency, monitor emissions, and improve quality. They are used in all major material processing industries such as refineries and petrochemicals, chemical plants, cement, iron and steel, pharmaceuticals, and thermal power stations or waste incinerators. With stricter emissions monitoring standards and tighter regulated environments, it is critical that these analyzers have 100 percent up time and are able to determine in real time the gas composition in the process stream. It is also important that they are regularly monitored and calibrated to ensure that the analyzers are operating efficiently by monitoring and correcting any sensor drift or loss of sensitivity. This makes it imperative to have a real time monitoring and Smart Service solution for such critical field devices.



## Our Solution

Infosys Limited, ABB Automation Systems GmbH, and FIR Aachen GmbH brought together their interdisciplinary skills in engineering, Information Technology, and academic research to develop a solution demonstrator for Smart Services based on QR codes. The team, with its extensive industry and academic expertise, brought together the principles of Industry 4.0 to build a state-of-the-art Smart Service Solution. This solution is intended for health monitoring of critical continuous gas analyzers deployed in the field, also lending a higher degree of device up-time and improved safety and reliability in hazardous industry environments.



- User-friendly mobile application with seamless experience for the customer and the field engineer
- Multiple workflows to manage and maintain a complex gas analyzer
- Cloud-based self-service experience
- QR code scanning to understand the current device status
- Integrated Security Solution
- Quick access to best-in-class service support

- **Faster and relevant service support from OEM**
- **Significant reduction in MTTR**
- **Enhanced quality monitoring and reporting**

## **A demonstrator to show the relevance of Industry 4.0 in Smart Services**

## The Features

### 1.1 Benefits for Customers

The fundamental focus of Smart Services is to empower customers with an autonomous service option and provide fast and reliable response from the OEM when needed. With the advent of technology and physical systems becoming more cyber-physical, this is of significance, as otherwise the customers are more dependent on original equipment manufacturers (OEMs) to service and even operate their equipment and products.

### 1.2 Benefits for Business

With the increasing adoption of technology at physical products whereby they become cyber-physical systems, Smart Services solutions within various industries are experiencing tremendous potential and growth. In fact, OEMs and users alike find that the challenge of maintaining high quality and cost effective products strains their already overburdened resources. OEMs benefit from reliable design partners

that help rapidly respond to shifting market demands while maintaining the highest level of customer service. With the right partner that will maintain secure operations and protect your intellectual property, your team can focus on driving further technological innovation across your self-service business. It is therefore key for OEMs to include self-service as a strategy to optimize management of customers, staff, and processes to address the industry's changing service and business requirements.

Utilizing Smart Services on the move can significantly enhance the work of an engineer carrying out maintenance or service requests, whether they are in-house staff, remote engineers, or contractors. They can receive, update and complete jobs remotely, via a tablet or smartphone device, thereby improving job rectification times, enhancing service levels, reducing administrative and operational costs, and achieving greater job satisfaction. Smart Remote Services functionality enables users to log, view, and update jobs

themselves, and therefore traffic coming into the help desk is significantly reduced. This allows the help desk to be proactive rather than reactive; staff are able to concentrate on ensuring that work is being completed on time instead of spending time manually logging jobs.

## Industry 4.0 & the Impact of Technology

One of the important aspects of Industry 4.0 is the adoption of cutting-edge technology in a big way at the core engineering industries. This would therefore drive manufacturing more to a service driven model. Services will become more advanced and sophisticated through the use of data analytics that will provide new opportunities to optimize operations. This transformation towards technology adoption is a great opportunity for enterprises to build new service models that implement improvements in collaboration with partners and customers. The disruptive impact of technology



enabled services which is very much visible in the consumer services industry is fast influencing traditional asset-intensive industries. The outcomes are therefore significant in terms of operational efficiency, maintenance efficiency, energy efficiency and information efficiency, in addition to service efficiency. One interesting facet is the rapid growth in Smart Remote Services that allows

consumers to take on the traditional role of a service worker in the provision of a service, powered by technology.

However, even though Smart Services technology has generated a wide range of benefits, it is only the beginning. In the next decade, Smart Remote Services technology has the potential to be the next big differentiator for leading enterprises.

It will also continue to improve in quality over time. In fact it would be an interesting facet to observe how Smart Products, Smarter Systems and Smart Services converge to build the smart choice for the future manufacturing.

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