



The simPRO IoT platform: Innovative technology for the field service industry

Executive Summary

“The global industrial sector is poised to undergo a fundamental structural change akin to the industrial revolution as we usher in the Internet of Things. Equipment is becoming more digitised and more connected, establishing networks between machines, humans, and the Internet, leading to the creation of new ecosystems that enable higher productivity, better energy efficiency, and higher profitability. While we are still in the nascent stages of adoption, we believe the Internet of Things opportunity for industrials could amount to \$2 trillion by 2020. The Internet of Things has the potential to impact everything from new product opportunities, to shop floor optimisation, to factory worker efficiency gains that will power top-line and bottom-line gains.” - Goldman Sachs in a report entitled “The Internet of Things: The Next Mega-Trend”

The next industrial revolution is bringing with it a whole new suite of automation, machine learning, artificial intelligence and analytics. The world is powering ahead with all of these technologies which are streamlining operations and assisting people in ways we are yet to fully understand. One thing, however, is very clear: people’s expectations of the services, and value they receive, are increasing and making way for industries to be disrupted. Those at the forefront and positioning themselves to take advantage of these disruptions, are looking at the principles of the industry 4.0 and thinking about their business strategy and model, designing for customers, improving the technology they use, innovating and managing change throughout their business, learning from their data and changing their financial models.

It’s no surprise then that the opportunity that IoT presents is driving many of these changes and innovations. For field service organisations and asset owners, IoT cracks open the box on what is possible to allow these changes to flourish, and provides a tangible pathway for businesses to set themselves apart.

IoT, with all its opportunity and promise, is not a new technology either: in 1982 the first internet-connected device was a modified coke machine! Mining companies, energy producers and utilities have been also operating SCADA systems for decades.

“More than half of CxO executives see IoT as an important technology” - IBM Institute for Business Value, “Redefining boundaries: The Global C-Suite Study”

IoT is enabling field service companies to change their business models to make way for a more OPEX based service model as opposed to the more traditional CAPEX model. Those that are involved in planned preventative maintenance and reactive service on equipment are being offered an opportunity to engage with their customers like never before and offer a much higher level of service and transparency.

Whilst many recognise the change and have heard of the IoT, even having considered what it means to them, not many have worked out the practicalities of making the shift. It seems clouded in technological jargon, disparate systems, multiple vendors and the work to figure it all out and pull it all together is left to the individual companies to work out. This white paper aims to remove the mystery and provide some insight and practical steps to how to transform your business.

What specific benefits does IoT bring to Field Service Companies?

“With the IoT, we’re headed to a world where things aren’t liable to break catastrophically - or at least we’ll have a hell of a heads’ up.” - Scott Weiss

Field service organisations, for the most part, have been much slower than many other industries to start adopting IoT (e.g. manufacturing, transport, logistics). However, this space is one of the best examples of how IoT can really revolutionise how the entire industry works. Traditionally, to manage assets, the owners and the contractors have been using a management system to monitor and manage the work that is performed on the equipment, perhaps a SCADA system to monitor how the equipment is performing, tracking solutions like barcodes or RFID chips to identify equipment and others to do stand alone tasks to monitor the state of the equipment. All disparate, all time consuming.

With simPRO, IoT enabled assets (either existing equipment retrofitted with sensors or existing IoT enabled equipment and deployments), bring all of this together into a more cognisant and integrated unit in a single system. Where they were operating in their own silos now all of this information can come together to provide companies with live visibility, analytics, workflow optimisation, identification and transparency.

Depending on the functionality of the attached sensors, IoT enabled assets allow users to locate where equipment is, how it’s operating, what the outcomes of the operations are, what the temperature of something is, how much it’s vibrating, how much voltage it’s consuming, the list goes on. All of this information is brought to the user to help manage and control the assets’ lifecycle, its state and even help predict when potential failures will occur using analytics and machine learning. This all enables field service companies to tip current business models on their head by focusing on real problems or problems that are about to occur instead of spending extended time and costs working on equipment that is perfectly fine. For example, think about the effort required to get a technician on site at an airport. With IoT enabled assets and sensors on site you only need to visit when required, avoiding those false alarms in the airport lounge because someone has complained it’s too hot, or being able to remotely access thermal imaging on the switchboards in the schools and provide that information to your customer. This allows businesses to offer a higher level of service to their customers, with much better information, and allows them to scale without increasing their operational overhead.

Customers who have assets on premise or spread across geographies have a magnitude of issues that field service companies can easily handle by implementing an IoT solution. These include monitoring the asset health, managing excessive maintenance costs, predicting when failures are likely to occur and resolving an

issue before it becomes a major problem, equipment operational guarantees, high repair times, theft, under performance etc.

How to implement IoT with simPRO

“If you think the internet has changed your life, think again. The Internet of Things is about to change it all over again!” - Brendan O’Brien

The simPRO IoT platform is for field service contractors and facilities managers alike. It has been designed to move past simply looking at graphs, to actually automating workflows in the business and doing something with recorded data. The platform allows enhanced visibility on equipment status, improved prediction of future problems for planning, or imminent issues for attention, data sharing between contractors and customers for better collaboration, and triggering events based on what is happening, live.

With that broad scope in mind, if you are a field service contractor, it pays to stop and think about whether you are working on sites that you alone service or whether there is any power in collaborating with other contractors in different disciplines. The simPRO IoT platform allows for multiple systems to work together to pool IoT data and share it across systems to give you a bigger view, and your customers better visibility of what is going on from all of their contractors system. Alternatively you can use it as a unique value addition to help upsell your services to the client for now.

If you are the site owner / facilities manager, have a think about who is going to own the data i.e. which system does it originate from, who needs to see it and who needs the information shared with them in order to effectively service your site. These decisions will all impact how you should deploy the system and how you engage service contractors to carry out maintenance and repairs.

Next we need to consider how we are going to get the information from the equipment in the first place. What we have seen a lot of is existing facilities with equipment that is not IoT ready, and a big quote to replace it all to get there. Obviously this is not ideal, so we have partnered with sensor manufacturers who can provide sensors to retrofit on existing equipment without even turning it off! Or, perhaps you already have IoT enabled equipment and want to use the streams of data they are already transmitting. It’s important to think a little about what kind of sensor is needed. The temperature sensor you put into a room for ambient temperature versus one you put into an oven obviously needs to be a little different.

Once the IoT platform in simPRO is enabled the gateways for each site then need to be configured. The gateway is the device on site that is there to receive the transmissions directly from the sensors and forward them through to us - again we have options here if you don't have something already ready to go. Once that’s configured simPRO will either start subscribing to the data stream or the gateway will start transmitting to simPRO. Major milestone reached, the data is now streaming into simPRO!

The sensors can now be associated with the assets within simPRO and the streams of data are then linked to the appropriate equipment within the system and this can either be done on site from a mobile device whilst the technician is still on site installing the equipment, or can be done in the office.

At this point we have visibility within simPRO as to what is happening on that equipment based on the information being transmitted from the sensor and companies start getting some actionable insights and automated scenarios occurring. Within the system there is a powerful rules engine which can trigger alerts, emails, SMS or jobs based on a whole range of different events - a reading going out of range for a defined period of time (or into range), the sum or average of all readings within a specified time window has reached or not reached thresholds or ranges, for instance. So, take for example the temperature of a cold room has become too hot for the last hour. Instead of waiting for the customer to notice everything is going off, you can have a technician automatically dispatched from the system to go to site to make necessary repairs before all that waste occurs. Is the oven in a kitchen not hot enough, is the water temperature out of range, has a fire panel reported a problem or is a plant item vibrating too much? Think about the power of a system automating those calls to action or even just knowing that information before your customer does!

On top of that, keeping an eye on the trend of readings coming from various equipment, the system keeps track of when it believes the readings will permanently trend out of range and therefore a replacement could be warranted. Let's get that quote out and into the budget well ahead of time!

Through clustering, simPRO will also help notify you if our machine learning algorithms have picked up an imminent failure, before it has even happened!

By way of a mapping and sharing process, site, asset and sensor data can be linked and shared across multiple systems to give facilities managers and owners a bird's eye view of what is happening across all of their monitored equipment regardless of who is working on it. This can also be shared amongst the service providers to provide a better level of service, collaboration and insight across all contractors working on equipment.

Conclusion

There's no doubt that to implement IoT into a field service business will require considerable change. A change that is as exciting as it is daunting to the industry and to individual businesses. It involves thinking through a unique point of difference, or problem you can solve, thinking through the commercial aspects of how you will benefit from the change and how you are going to implement it. However on the same coin, it's also a fantastic and rare opportunity to do so, and the benefits are huge.

Large, forward thinking organisations are already working in this space and there are a lot of smart people progressing the technology at pace. According to a survey found in The Service Councils 2015 report 'IoT-Powered Field Service': 55% of executives working in field service stated IoT will become a fundamental part of

field service, 82% believe early adopters will gain a competitive advantage, 15% already have a strategy in place and 45% believe that IoT will have a bigger impact than any other technology for field service companies.

There is a window of opportunity where innovative and creative organisations can get in front of the curve and take advantage of what IoT has to offer. How long will it be before it's expected that this level of service and information is made available to your customers from your competitors? Partnering with simPRO on your IoT strategy allows field service companies to have an out-of-the-box solution and gives you the grunt to make meaningful and effective improvements to your and your customers' business.

If you would like to find out more about simPRO IoT and how it can support your business visit <http://www.simpro.co.nz/features/iot> or email iot@simpro.co.