360|THREE

360Three partners with Marlin Technologies to digitalise operations and streamline quality control of life-saving dialysis machines in the South African renal industry

CASE STUDY

BACKGROUND

Marlin Technologies, founded in 1995 (formerly known as Marlin Laboratory Manufacturing), specialises in developing, manufacturing, and implementing reverse osmosis water purification systems for the renal industry in South Africa. Alongside their sister company Pure Care, they are one of South Africa's leading providers of advanced water treatment.

Marlin Technologies recently partnered with 360Three and onboarded their deskless workforce and field equipment management solution, which is currently playing an integral part in their business operations. 360Three provides the necessary checks and balances for their field service technicians. These technicians service and measure the quality of the water for haemodialysis and related therapies.

THE SITUATION – MISTAKES CAN BE LETHAL

As the leading provider of water purification services to the South African dialysis industry, Marlin Technologies supports hospital groups like Netcare, MediClinic, Life Group Hospitals, and various individual and private healthcare service providers.

During dialysis, a patient's blood is cycled through the dialysis machine 6 to 8 times which means there's a lot of contact with the patient's blood. Dialysis machines therefore need ultra-pure water to protect patients from infections caused by micro-organisms in the water as this may prove harmful. Mark Pretorius, CEO of Marlin Technologies, explains:

"Patients who are in kidney failure don't excrete any liquids, and neither do they excrete the toxins that build up in their system. When they go for dialysis treatment, they need to use very pure water in the dialysis machine as part of their treatment. It's a pivotal function of the renal process and it's very important for the patient's health."

Added to the health risk, the operational risk is just as high. Mark explains this at the hand of the following scenario:

"When you have 20 patients all connected to dialysis machines and the reverse osmosis system goes down, the dialysis process has to stop and the facility has to reverse the dialysis machines. They must return blood from the machines to the patients and remove all the paraphernalia that were used to connect the machines to the patients. Finally, they have to destroy the artificial kidney that can only be used once per dialysis. This has an enormous cost implication for the patients and the renal unit. Apart from the obvious patient dissatisfaction, it could cost the renal unit up to R200 000 in losses."

Given the above, the service aspect of these machines is critical. A technician must be scheduled to clean the reverse osmosis machine and it must be performed in a specific manner and in a specific order. The cleaning process uses harmful substances and chemicals which means it can only be cleaned when the renal unit is on standby. This typically happens in the middle of the night. Because of the health risk, the technician must be 100% sure once they've completed the cleaning process that all traces of the chemicals have been cleared out.

MARK PRETORIUS, CEO OF MARLIN TECHNOLOGIES

THE 360THREE AND MARLIN TECHNOLOGIES PARTNERSHIP

Marlin Technologies has offices in Cape Town, Bloemfontein, Welkom, Pretoria, Port Elizabeth, East London, and Durban and uses subcontractors together with a team of 52 specialised staff members. This includes in-field service technicians who handle approximately 2 400 service calls – also known as machine interventions – per month. They do this for about 600 pieces of equipment across South Africa. Before onboarding 360Three, Marlin Technologies used manual paper-based processes and job cards. This was becoming a challenge for the field technicians and administrative staff while increased reporting and compliance requirements further challenged the system. The company needed to transition from a manual paper-based to a digital solution. Initially, Marlin used the services of another international service provider. This was not a good fit –their system did not support Marlin's requirements, it had poor offline capability, their response times were limited, and the services were quite costly. Then they discovered 360Three.

"When we discovered 360Three, we were delighted because firstly, it's a South African-based company and we have quick and easy access to them. Secondly, their product was well suited to our application, and we didn't need much modification for the system to work. 360Three has been excellent in their support and service and their response times are very, very good", says Mark.

Marlin Technologies has seen several improvements and experienced a number of benefits:

- **Paperless service delivery:** Supports compliance with policies and procedures and digitalise detailed scheduling and advanced interactive checklists. This is in keeping with their ISO13485 medical manufacture compliance.
- **Offline usage:** Offline functionality ensures that technicians can start and complete their jobs even where there is poor reception or no connectivity.
- **The ability to run on various platforms:** With the previous service provider, the system was limited to Windows and/or iPads. 360Three supports Android, which is a great fit as Marlin technicians already carry Android smartphones.
- **Supports predictive maintenance:** The real-time data recorded by 360Three are used to monitor equipment and conduct a trend analysis. This is then used to pre-empt service interventions.
- **Cost savings:** Using the trend analysis data to pre-empt service interventions helps the client budget more effectively for operational expenditure and improves service delivery.
- **Visibility of team performance:** Accuracy has improved, with proof through reports and evidence-based compliance as well as proof of work which serves as evidence that work has been done by a specific person at a specific place and time.

SOME PRACTICAL USE CASES

Marlin Technologies needed a digital, step-by-step process that would guide their service technicians using a question-and-answer approach. For example, have you disconnected all of the dialysis machines from the water system? Yes or No. If yes, proceed to the next step. In this way, the technician works through all the steps until the service is complete.

The steps for a practical use case for 360Three in the context of reverse osmosis water purification would be as follows:

1. The technician arrives at the client site and scans the first QR code that tells his computer or his phone, that he's at a particular site.
2. From there, the technician scans the second code that identifies the serial number of the machine he's working on.
3. Thereafter, the technician proceeds through the service process, replaces the chemicals and allows it to stand for 45 minutes.
4. After 45 minutes, the system will allow them to continue to the next step.
5. On completion, the technician acknowledges that the process is complete and that the system is free of chemicals. They may take a photo of the test strip and can also scan a QR code.
6. Finally, critical metrics for the water treatment plant are recorded for future reference and analysis.

If a technician, for example, had to replace a particular filter, they can scan the QR code attached to the filter and the system logs that part. This information is then relayed to the back office and tied into the stock holding. This can be pulled through to the accounting package and the client is billed for it.

This concisely highlights the difference between a manual job card and a paper-based system. With a paper-based system, a technician can simply complete the form and claim that they've completed the job, and no one would be the wiser. Completing manual job cards is time-consuming and cannot provide real-time information. In addition, it could easily take 2-3 weeks to action a manual job card.

360Three's deskless workforce management solution requires proof of presence confirmed through a QR code system and photo evidence in some instances. It records real-time data that can be made available on demand. This also speeds up the financial processes as invoices can be generated in a fraction of the time it took with the manual job cards.

IMPORTANCE OF COMPLIANCE AND ISO CERTIFICATION

360Three also supported Marlin's ISO certification which was especially important to them. As a certified ISO13485 manufacturer and licensed SAHPRA member, Marlin Technologies adheres to stringent ISO regulations. Being ISO13485 certified means Marlin needs to demonstrate its ability to provide and track medical devices and related services that consistently meet customer and applicable regulatory requirements. This includes tracking serial numbers and part numbers as part of their ISO process, which they can now do with 360Three.

"As a multifaceted system, 360Three allows us to schedule our technicians, to monitor and control their activity on site, to monitor the parts usage and it gives us a reporting function. The reporting function is twofold – it's from the technician himself, where he can report that we need a quotation for a certain piece of work that may be necessary on the equipment. And secondly, the reporting is from the back office, where if a client says we've got compliance, but there've been a number of faults with equipment across the board, then we can actually pull up a history on a particular part", explains Mark.

Although Marlin has an incident-free record, should there ever be an accident or an incident, they need to be able to stand up in a court of law and show evidence that they took all reasonable steps to prevent that accident. 360Three provides them with the peace of mind that they can do exactly that.

GOING FORWARD

Using real-time digital data collection cuts out human error and means fewer mistakes. Setting required fields prevent technicians from leaving out important information and the data is ready to be used in real time for reporting to managers. In this way, quality can be monitored, and informed decisions made. As mentioned above, this also speeds up time to invoice and reduces delays.

Deriving accurate trends from data analysis put Marlin one step ahead as they can now warn clients when a part or filter needs to be replaced. This improves both budget planning, consumable logistics and client satisfaction.

"360Three has become more than a service provider. 360Three and Marlin Technologies are a partnership. Since forming this partnership, it has had a direct impact on patient health, safety, quality control, operational performance, stock management and billing. These are the key areas where 360Three has been an out-and-out solution for us. We are delighted with the benefits that have materialised since onboarding 360Three", concludes Mark.