

Fresenius Medical Care Deutschland GmbH

Handling 550,000 highly sensitive datasets a day
to support improved dialysis performance

Fresenius Medical Care is the world's leading provider of products and services for people with chronic kidney failure – with around 3.5 million patients across the globe requiring regular dialysis treatment. The company cares for some 350,000 of these dialysis patients via its network of around 4,000 dialysis clinics spanning North America, Europe, Latin America, Asia and Africa. However, Fresenius Medical Care does not just offer dialysis as a service – it also produces the machinery and components needed to do this.



The Challenge

Managing large quantities of highly sensitive data, managing predictive forecasts; evaluating market data internally



The Solution

High-performance data warehouse as part of the complex IT infrastructure



The Benefit

Massive amounts of data can be analyzed in under 2 minutes



"Exasol inspires us again and again. The system runs extremely smoothly, practically maintains itself, does not degenerate and is always performant - a real quantum leap from the previous database system."

Thomas Lober / Director Center of Excellence Business Intelligence at Fresenius Medical Care Deutschland GmbH

4,000
Dialysis clinics
worldwide

350,000
Dialysis patients
and patients
are cared for

150 - 1,500
User of the
database

550,000
Data sets run through
the database on average

Fresenius Medical Care Deutschland GmbH is an international enterprise that operates in a highly sensitive area, which naturally involves handling vast amounts of data. The company set out on a mission to take its ageing data warehouse for the EMEA and Latin America regions to the next level for its non-SAP data. The aim was to be able to process semi-structured data and to be able to work in a stable and highly efficient way, requiring as little maintenance as possible. The sentence Fresenius Medical Care were impressed by the proof of concept (POC) with Exasol. As well as being able to migrate all data and carry out initial tests in moments, the Exasol solution had several benefits over the company's old SQL database. It's able to provide continuous high-level, stable performance with virtually no maintenance or administration needed. And most importantly, it allows for mass data ranging into the billions to be analyzed in minutes without the need to worry about reaching the database data limit constantly.

The challenge: large quantities of highly sensitive data

The range of data gathered varies widely. Commercial and financial data from procurement, logistics, sales and marketing and accounting is processed in a company-wide SAP data warehouse. Meanwhile, highly sensitive medical data that relates to patients and treatment, is collected at the various clinics and kept in the company's own Clinical Information Center. Exasol helps staff with reading machine data, drawing up predictive forecasts and carrying out internal analyzes of market data collected by the company.

There are two use cases that apply at Fresenius Medical Care – one involving machine data and one for market data:

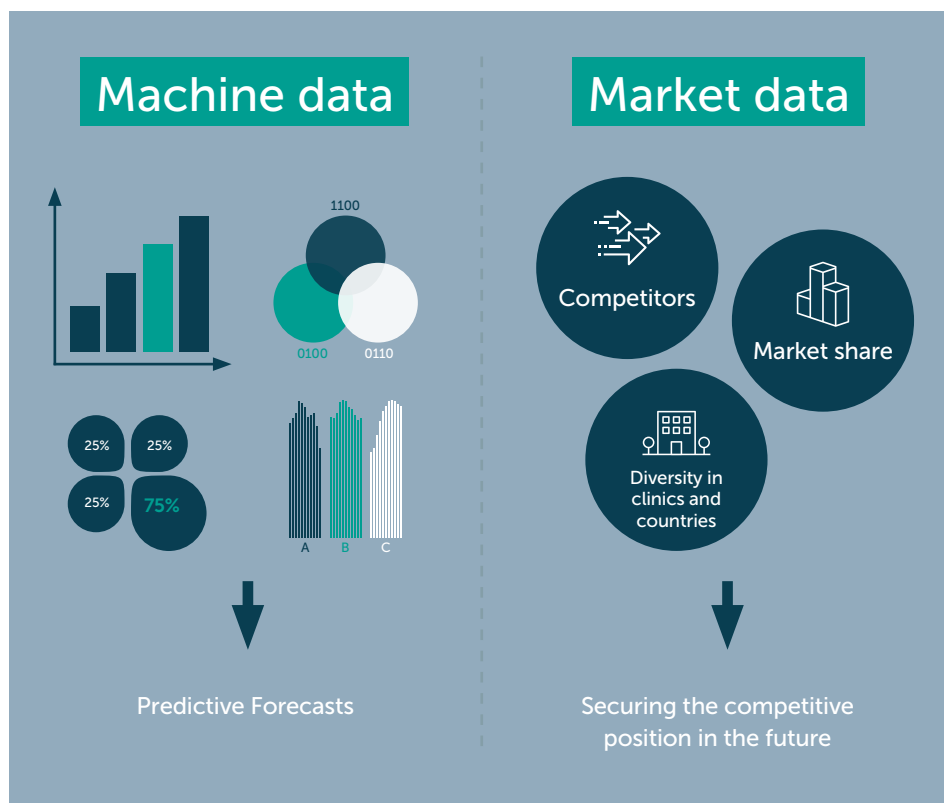
"Our dialysis machines have all kinds of different sensor systems," says Thomas Lober, Director Center of Excellence Business Intelligence, Fresenius Medical Care Deutschland GmbH. "When it comes

to blood cleansing or dialysis, we're dealing with a highly sensitive area. There are thousands of parameters here. What we want to do is evaluate these parameters and predict maintenance requirements using specific algorithms. Our aim is to be proactive rather than waiting until individual clinics report machine failures to us."

Fresenius is also keen to bolster its strong competitive position in the market long term. "We are therefore taking a close look at our market competitor survey to see what the dialysis market has to offer, how accurate our market share is and how we could develop this over the next few years," says Thomas Lober. "Before Exasol, we used to collect this data manually and store it in huge Excel lists. Now we put it in a new database via an interface and can analyze it from there. The critical issue here is not the volume of the data, but the way it is structured and the diverse range it covers across the various clinics and countries."

The solution: a complex IT infrastructure incorporating a high-performance data warehouse

Thanks to its high-performance, low maintenance administration and stability when handling large data volumes, Exasol's in-memory analytics database has quickly become an integral part of the complex IT infrastructure and is being used for the EMEA and Latin America regions. "Topics such as predictive maintenance and artificial intelligence have also been playing an increasingly important role at our company," says a delighted Thomas Lober. "With traditional databases, it doesn't take long for us to reach the limits of what we can do. By giving us the option to use whichever programming language we want, Exasol gives us maximum flexibility. We can work quite easily with R or Python and data into tens of billions can be analyzed in around two minutes."



In the EMEA and Latin America regions, all non-SAP data is gathered in two large data pools – one SAP and one Exasol data warehouse. These various data sources are loaded into the data warehouses via cloud and web services and provide a basis for a range of reports. Collation can then be performed using standard tools such as Microsoft Power BI, SAP Web Intelligence or SAP Analytics Cloud. For quality reports, for example, the data is extracted up to shop-floor level before being moved into the Exasol data warehouse, where it undergoes additional processing with the aid of Tableau.”

The database is used daily by 150 - 1,500 users and handles average daily volume of 550,000 data sets. Three data analytics experts operate the database.

The benefit: Meaningful reports based on current data.

Comprehensive reports are now available to employees. They are able to find out if all machines are running smoothly or need maintenance; The types of faults occurring etc. Teams across the organisation can access these reports and quickly analyze the data. On the basis of defined KPIs and a concept behind, the KPIs of all countries are compared on a quarterly basis. The data is then summarized on-the-fly so that it can be visualized later. This country comparison is essential for management.

Fresenius are so satisfied with the performance and proven stability of Exasol, that they have decided to take things a stage further and expand its use to cover a global production unit whose staff are responsible for all production and quality sites worldwide. “Since they work in an approved environment, we have set up our own Exasol cluster,” says Thomas Lober. “Quality is an area where everything needs to be precisely documented: every interface, every change, every data flow, every report. We wanted to avoid mixing this kind of data with other data.” The rules and regulations that have to be complied with include requirements set out by the Global Data Protection Agency (GDPA), the good practice (GxP) guidelines that apply primarily to the medical and pharmaceutical sector, and the guidelines issued by the Food and Drug Administration (FDA).

“This is another area where Exasol has impressed us again and again,” says Thomas Lober, summing things up. “The system runs extremely smoothly, practically maintains itself, doesn’t degenerate and always performs to a high level – a real quantum leap forward from our previous database system. We have seen a notable increase in data volume, yet in spite of this there has been no indication that the system is reaching its limit. We are genuinely very happy to have found a future-proof solution that we can continue to rely on in the years to come.”

Learn more about our customer [here](#).