

## Case Study



## Power BI Implementation – Supported a group of hospitals so that they could understand their data and improve patient service.

### Industry

Datahub have worked with an organisation in the private healthcare sector. An organisation that has 22 hospitals and clinics across the European region. As a private healthcare provider their business comprises of patients with healthcare insurance plans, but also patients without insurance that want to undergo a procedure. In this instance the patient will privately fund. The clinics specialise in cosmetic surgery, moles, and skin allergies. Procedures that don't require an overnight stay. The hospitals provide care to patients that require any medical procedure with overnight stay, close monitoring, or longer recovery time.

### Challenge

As hospitals and clinics have been acquired then there is a number of databases and reporting systems in place. Especially from one country to another. This provides issues and challenges that the organisation wanted to address. These included:

- Data was not consistent through the business.
- A lot of the reports required manual effort in preparing the data.
- Using excel as the main reporting tool.
- Reports were siloed to specific clinics & hospitals.
- Senior management team didn't always get the most up to date data in their monthly meetings.

## Solution

The plan was to centralise the data in one database and then create a data model for reporting using Power BI.

To understand what needed to be included in the data model we conducted a discovery workshop where we sat down with stakeholders. In the workshop some key measures were identified, these were:

- Clinician Utilisation
- Average Patient Wait Time
- Average Hospital Duration
- Bed / Ward Turnover
- Staff to Patient Ratio
- Average Treatment Charge
- Health Insurance Vs Private Payment
- Operation Cost
- Cancellation Rates
- Readmission Rate
- Percentage Follow-up Rate
- Patient Complaints
- Patient Satisfaction Rates

Previously, a lot of the above measures were either manually calculated or was created as a calculation in multiple excel documents. There was no version control on the excel documents so someone could easily accidentally modify the excel formulas.

We observed that the measures could be broken down into three core areas:

- Service and operational reporting
- Financial reporting
- Patient quality reporting

To resolve a lot of the challenges required creating an Azure database. Using the cloud meant that all the hospitals and clinics had access to the centralised data.

Firstly, the data from all hospitals was standardised so that we could put it all into the database. The data was reconciled and an ETL process added so that the database could be updated daily.

A Power BI semantic model was then created from the database that allowed for the business to leverage the visualisations discussed in the discovery workshop.

Within Power BI row level security was used so that hospitals could only see their data and KPI's, whereas the management team could see the data from all hospitals.

## Outcome

The solution allowed the organisation to fully understand their data and have a 360 view of the business from a service and financial perspective.

The amount of manual effort in producing the reports has reduced by 92%, with reporting data available up to and including the previous day. The hospital group are now working smarter with their data, staff can focus their time better on patient care and service.

## Technology We Used



### Azure SQL Server

Azure SQL Database is a fully managed platform with scalability to create table objects, define relationships, and create rules to host the structured data. This is where the data was imported and provided a centralised data solution.



### Power BI

Power BI was used by the business as the reporting tool. This allowed the business to have a 360-degree view of the hospitals from a performance, revenue, and customer service perspective. This in turn allowing for quick and informed decision making.



### Azure Data Factory

Azure data factory was used as an ETL tool to monitor and move the data into the database



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