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Sparx S1E1: Factsheet

How a Smart AI & Analytics Workspace is supporting AtemReich children's care facility

by Lukas Fuchs and Yves Mauron

Watch episode

At the AtemReich children's care facility, interactive reports are generated with the help of analytics and artificial intelligence, which can be used to analyse the children's vital data in depth. An overview of the solution architecture and cross-sector application scenarios.

The 18 children who live in the AtemReich specialist care facility rely on machines that help them to breathe. These machines measure respiratory function and vital-sign data such as blood pressure, heart rate and pulse. Thanks to the Internet of Things and a modern data analytics solution, these measurements are collected on the Cloud, where they can be comprehensively analysed. In addition to analytics, artificial intelligence is also used to identify new patterns and anomalies in the children's data, which may have led to problems in the past. Together with input from respiratory specialists and nurses, Trivadis runs training based on the latest approaches from deep learning AI model research. Thanks to this new data perspective, it is now easier for users of interactive reports to understand why something has happened and specialists such as cardiologists can now for the first time carry out in-depth analyses of long-term data records thanks to seamless recording, which was previously impossible due to manual logging.
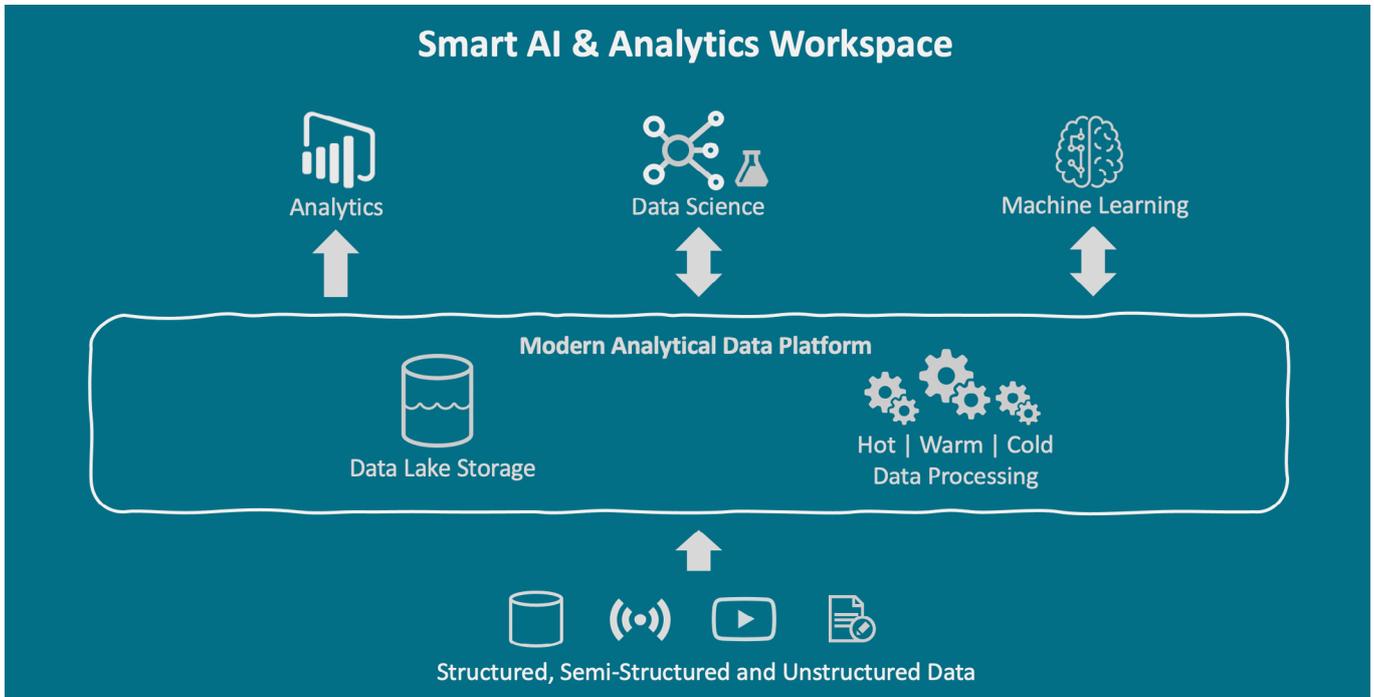
Smart AI & Analytics Workspace in the children's care facility

"Big data and artificial intelligence don't have

to be expensive – if they are scaled and used in an intelligent manner." This exact principle is applied to the design of the Smart AI & Analytics Workspace, which is why this approach is also very interesting for a non-profit company such as Kinderhaus AtemReich. For instance, despite hundreds of gigabits, structured data such as sensor data and semi-structured medical data, as well as unstructured data such as video recordings and care protocols can be efficiently used for a wide range of use cases in the areas of big data, business intelligence & analytics, visualisation, stream analytics, data science and machine learning. Thanks to the Smart AI & Analytics Workplace, the children's care facility has a new insight into its data and can use this new knowledge to improve the children's lives.

Solution components used:

- Microsoft Azure Cloud
- On Premises Data Gateway
- Azure Event Hub
- Azure Data Factory
- Azure Functions
- Azure Data Lake Store
- Azure Databricks
- Azure ML Services
- ML Flow
- Python / Pytorch
- Logic Apps
- PowerBI

Smart AI & Analytics Workspace

Modern Analytical Data Platform

- Analytics
- Data Science
- Machine Learning

Data Lake Storage

Hot | Warm | Cold
Data Processing

Structured, Semi-Structured and Unstructured Data

Visualisation of the Smart AI & Analytics Workspace as it is used in the AtemReich children's home.

Smart AI & Analytics Workspace architecture pattern – an approach for many use cases

The architecture of the Smart AI & Analytics Workplace enables data from a wide variety of sources to be used in a number of different ways with a wide variety of formats. Here, the benefits of the Cloud are used to employ new functionalities and examine new ideas and approaches within a very short space of time. The possibilities of demand-oriented, time-controlled scaling as well as the decoupling of storage (collection of data) and computing (analysis of data and AI training) ensure cost-effective operation. Very smart!

How could you benefit from the smart AI & Analytics Workspace?

Cross-industry deployment scenarios:
- Predictive maintenance (e.g. sensor data analysis and prediction of faults)
- Pattern recognition (e.g. identification of new customer group clusters)
- Anomaly detection (e.g. fraud detection)
- Structured/semi-structured/unstructured big data processing & analysis (e.g. use and evaluation of social data such as product feedback)

About the authors

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