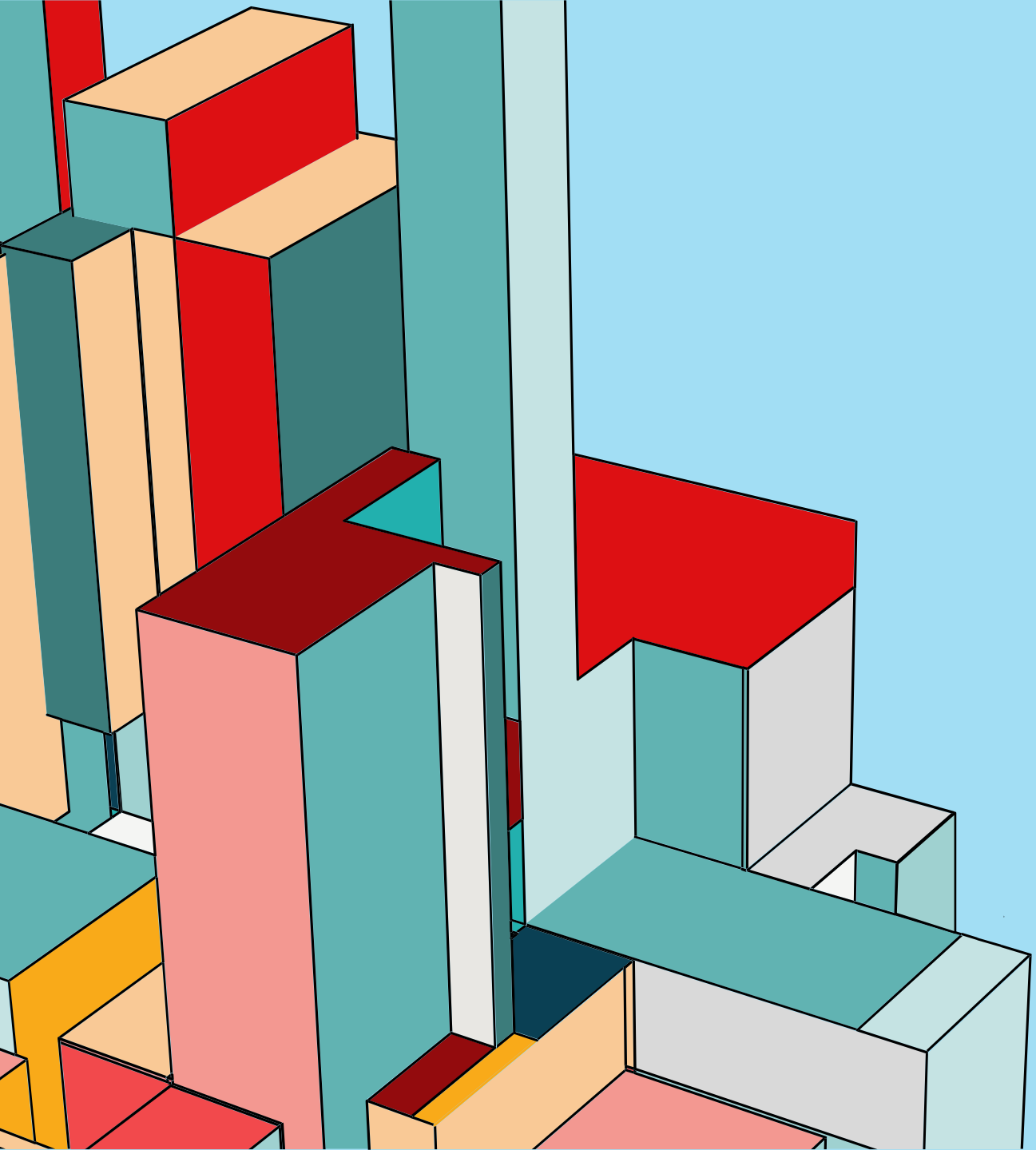

ENERGY SECTOR

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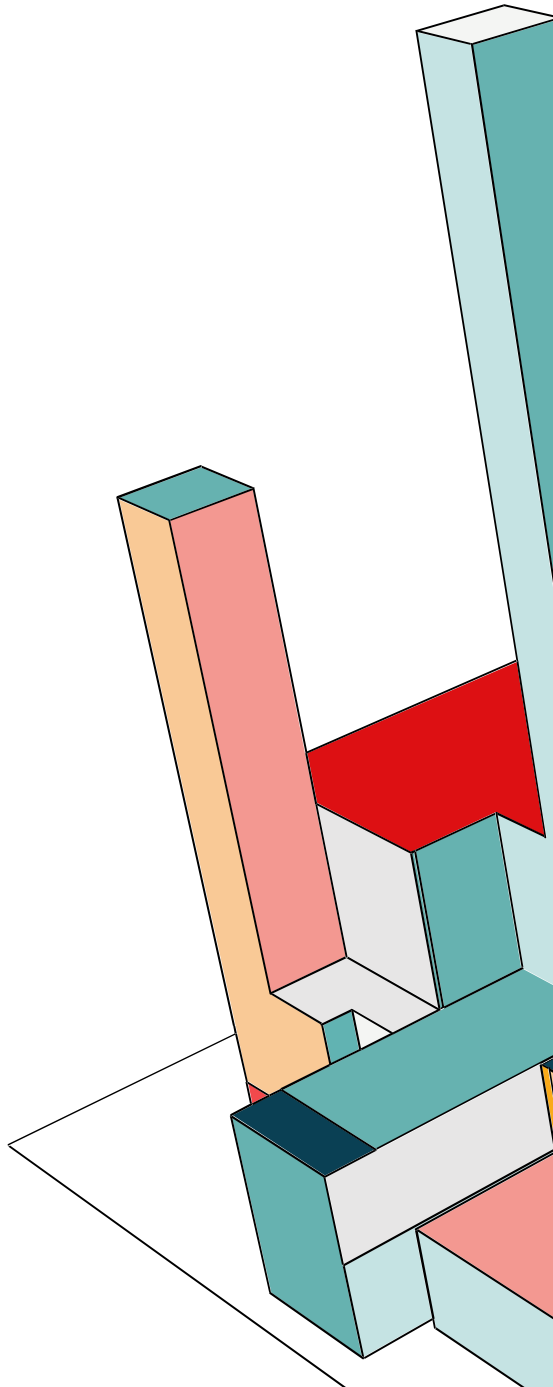
SoSe 2024 | 17.06.2024

AGENDA

- Introduction
- Data Sources and Data Types
- IT-Architecture and Big Data Technologies
- Data Visualisation and Business Value
- Real World Examples
- Conclusion



ENERGY SECTOR

- Largely Distributed Systems
- Widely spaced power-grid
- Increasing importance with renewable Energy
- Integration of distributed energy resources

-> Data Driven Decision-making

DATA SOURCES

- Sensory data from equipment
- Historical maitencance records
- Weather data
- Market demand and supply

DATA TYPES

- Time-series data
- Structured and unstructured data
- Real-time streaming data

IT ARCHITECTURE AND BIG DATA TECHNOLOGIES

Data Ingestion

Data Storage

Data Processing

Data Analytics

Visualisation

DATA ANALYTICS AND BUSINESS VALUE

Analytics Used:

- Predictive analytics to foresee equipment failures
- Machine learning algorithms for anomaly detection

Business Value:

- Reduced downtime and maintenance costs
- Increased efficiency and lifespan of equipment
- Enhanced safety and reliability of power supply

DATA VISUALIZATION AND DASHBOARDS

Visualization Tools:

- Tableau
- Power BI
- Custom dashboards using D3.js

User Groups:

- Operations managers
- Maintenance teams
- Executive leadership

Key Metrics Displayed:

- Equipment health scores
- Predicted maintenance schedules
- Real-time operational status

REAL-WORLD EXAMPLES

Example 1: A utility company using predictive maintenance to reduce turbine failures.

Example 2: A renewable energy provider optimizing the performance of solar panels through real-time data analytics.

CONCLUSION

- Enhanced Efficiency
- Informed Decision-Making
- Sustainability

- Great job opportunitys for us Data Scientist ☺!

THANKS :)!

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