

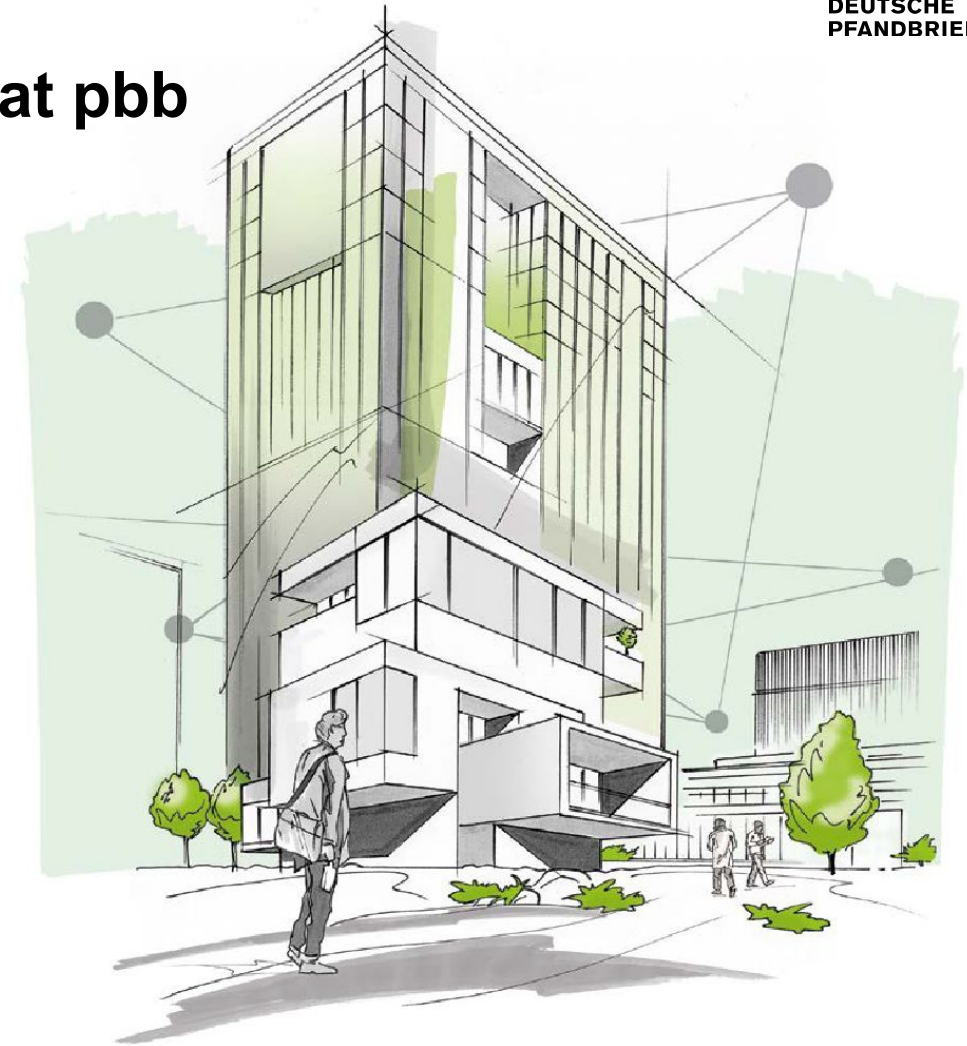
KNIME DataHop Conference



Optimizing Data Processing with KNIME at pbb

(Deutsche Pfandbriefbank AG)

- Nikola Petkov



Frankfurt, July 25, 2024

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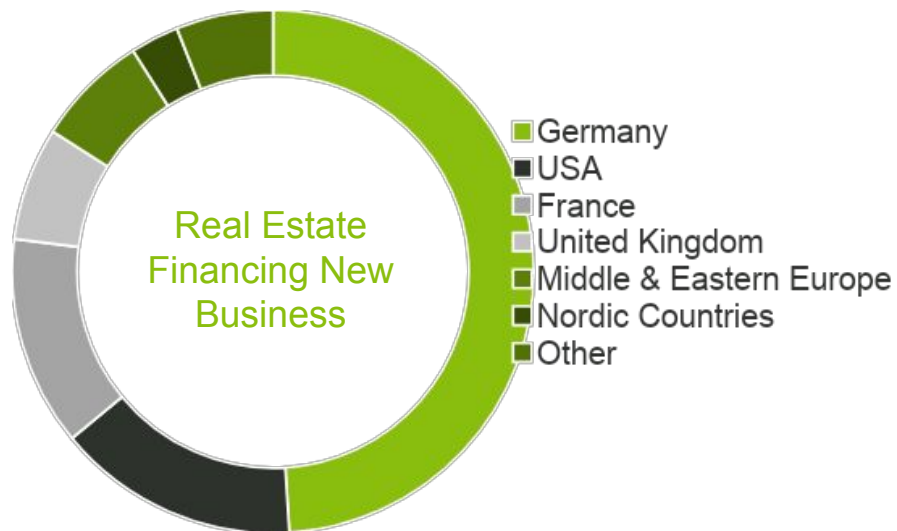
pbb in Figures

Deutsche Pfandbriefbank



828
Employees

10
Locations



32.8 billion €

Loan Portfolio
• *(Insert new bullet point)*

27.0 billion €

Outstanding Covered Bonds
• *Covered bonds are pbb's main financial instrument*

9.0 billion €

New Business in Real Estate Financing
• *Growth despite strict risk parameters*

Real Estate Financing Portfolio Breakdown



53%
Office Buildings



16%
Residential



11%
Retail



12%
Logistics / Warehouses



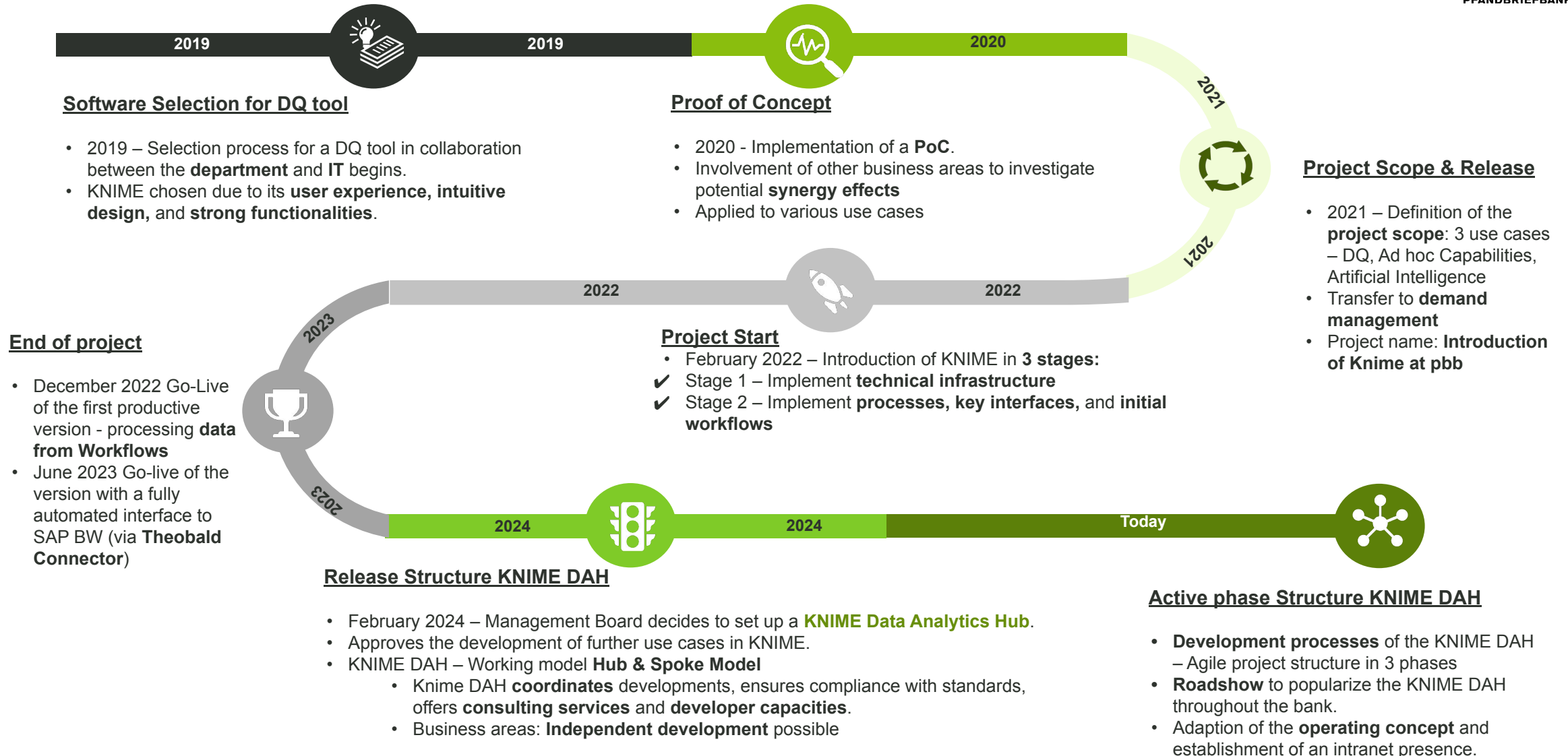
4%
Hotels



2%
Mixed Use / Other

Introduction of Knime at pbb

The KNIME-pbb-Journey: Milestones from 2019 to today



KNIME Setup at pbb

KNIME established at pbb in 2023 as Software Development Platform in the Business Area

Key Messages

Technical KNIME Setup

- Knime **server version** with development, test, and production environment as well as a web portal for executing **WebApps**.
- Access rights via central **Active Directory groups**

KNIME in IT Architecture

- All KNIME workflows = **applications** in the sense of IT architecture – i.e. KNIME workflows are **not end user computing (EUC)**
- Complete integration of KNIME into bank's **application change process (ACP)**
- Approval of KNIME workflows by **AOIT and AOB**

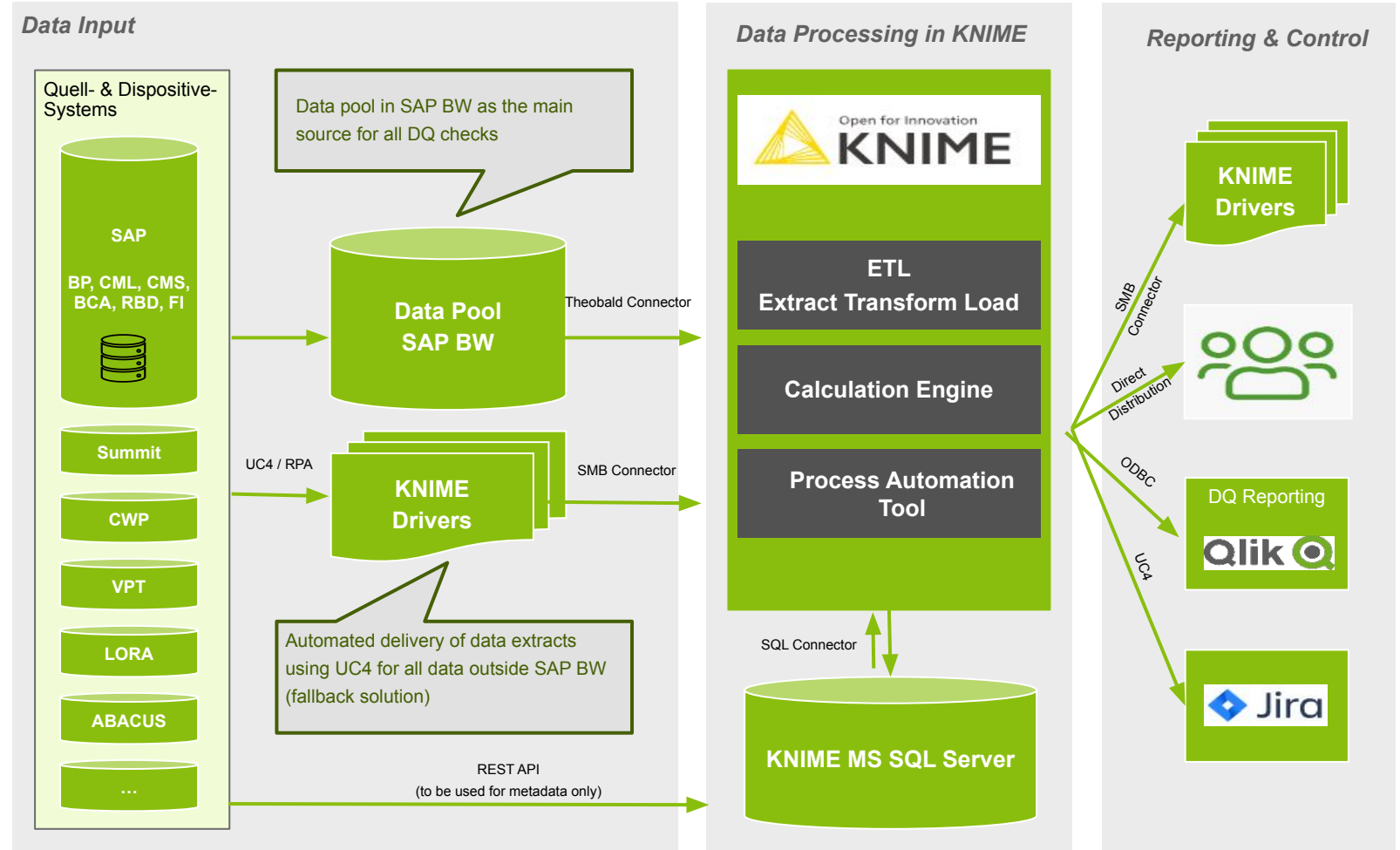
Development in the Business Area

- Knime as a platform for software development in the **business area**
- Departments use their own development capacities, retaining **control** over their KNIME developments

KNIME Data Analytics Hub

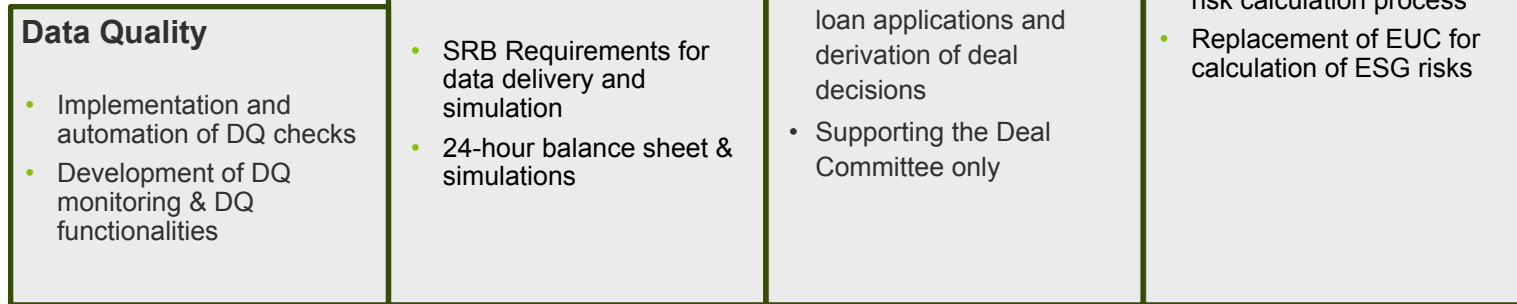
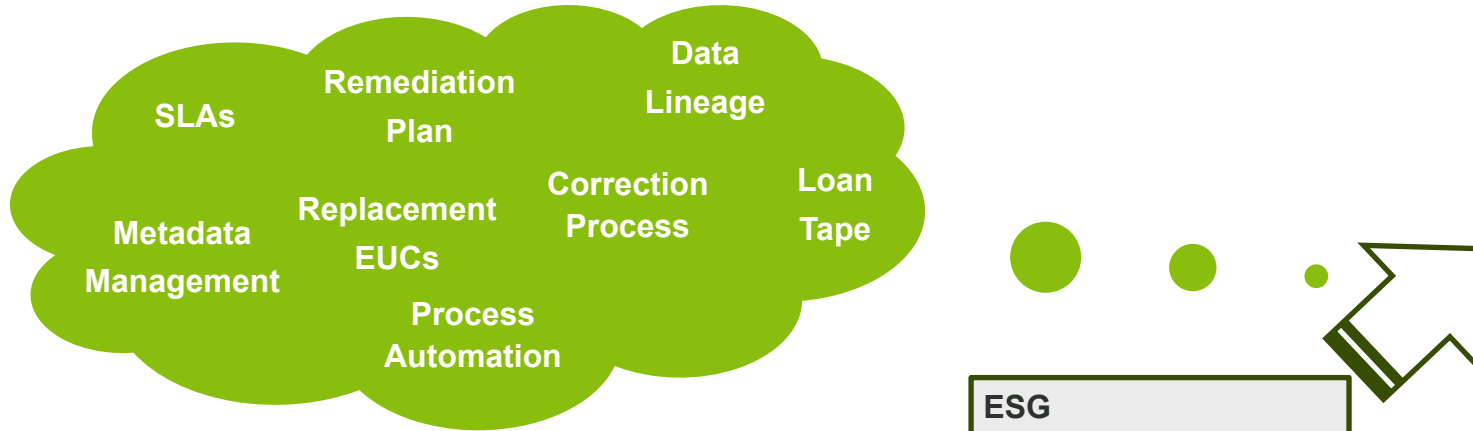
- **Coordination** of all KNIME developments
- Ensuring **compliance with APC requirements** and other specifications
- **Consulting services & development capacities**

Graphical Representation



Current Status of the KNIME USE Cases and Outlook

Since June 2023, 4 use cases with 50+ workflows have gone live.



Our Vision



KNIME is established as a flexible and dynamic data processing platform that guarantees the highest standards of quality assurance and efficiency and enables the optimization of data processing procedures.



The Knime framework offers harmonization and quality assurance of pbb's data processing procedures

KNIME Data Analytics Hub: Objective

Provide efficient, flexible, and quality-assured operational organization Structure, taking stakeholders into account.

01 Flexibility and Speed

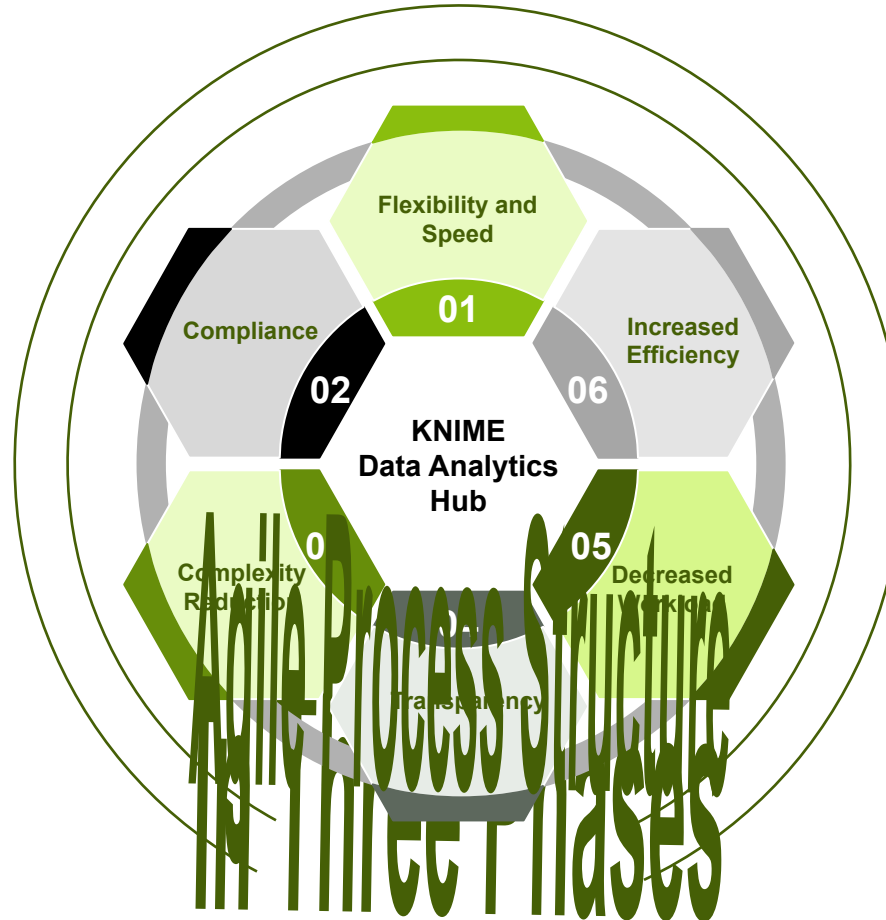
- **Agile, flexible,** and **efficient** working structure.
- **Fast, customized,** and **targeted** software solutions.
- Proximity to **business areas**

02 Compliance

- Fulfillment of all **regulatory requirements** for quality-assured software development
- Integration into the established ACP process.
- **Compliance with BCBS 239**, in particular with regard to **the traceability of data flows and data quality**

03 Complexity Reduction

- **Reduction of error susceptibility** through **low-code programming**.
- Documentation and comprehensibility of workflows and enables automated technical data tracking (**data lineage**).



06 Increased Efficiency

- Leverage synergies through cross-use case reuse of **workflow components**.
- Clustering and reuse of **process steps**.
- **Complete automation** of processes possible.

05 Decreased Workload

- Workflows allow high degrees of **automation** and **user flexibility**
- Convenient operation of workflows via the **KNIME web portal** as web applications.
- Automated **distribution of reports**.
- Automated **connection to Qlik Sense**.
- Connection to **UC4** and **Jira** possible.
- **KNIME MS SQL Server** available and ready for use **as a database** to store interim results.

04 Transparency

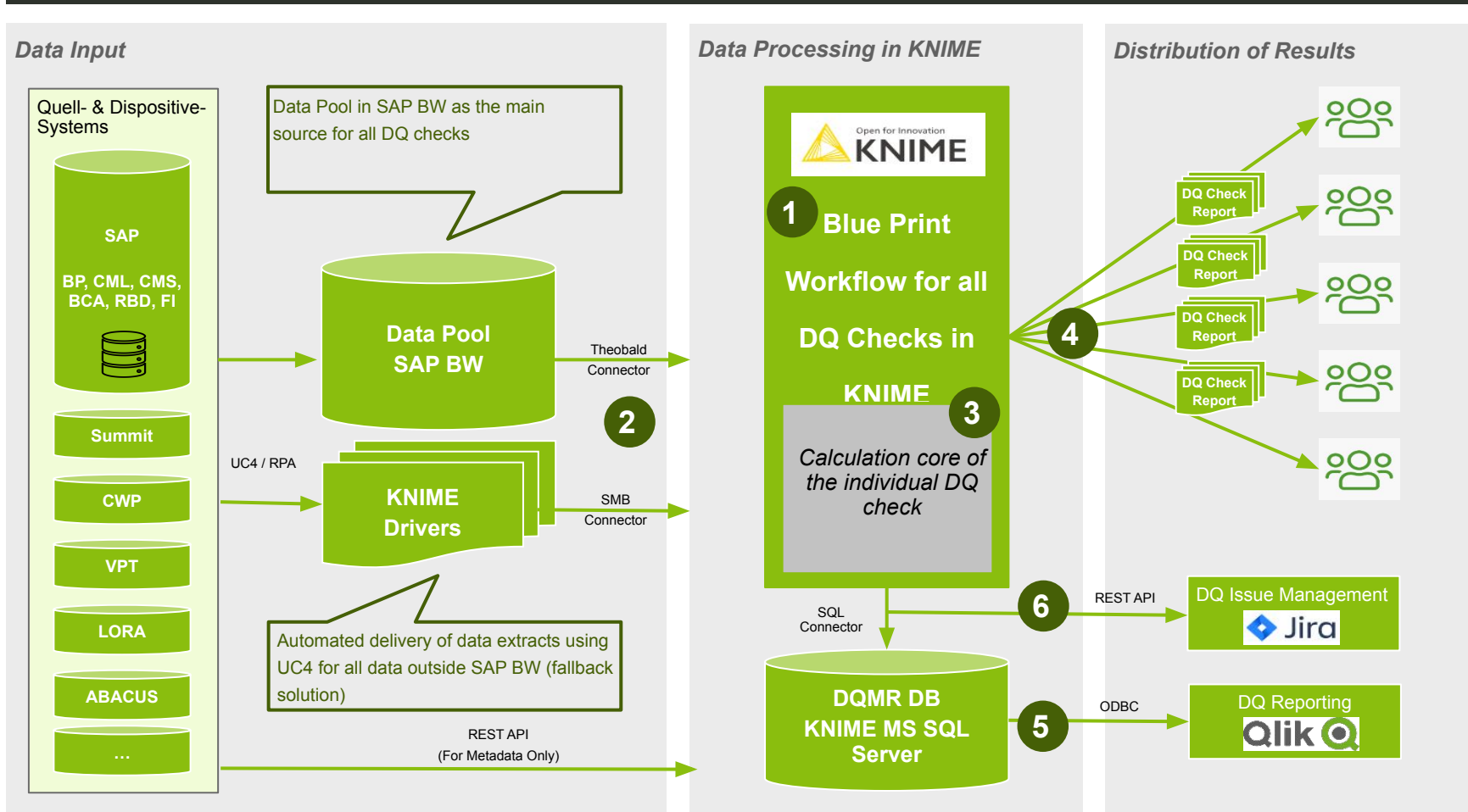
- Clear **overview** of all KNIME use cases at all stages of development.
- Enables efficient **allocation of resources and security planning**.

Example 1: Data Quality Checks

Efficient DQ-Management and Reporting via Complete Automation



Graphical Representation of the KNIME Process



Descriptions

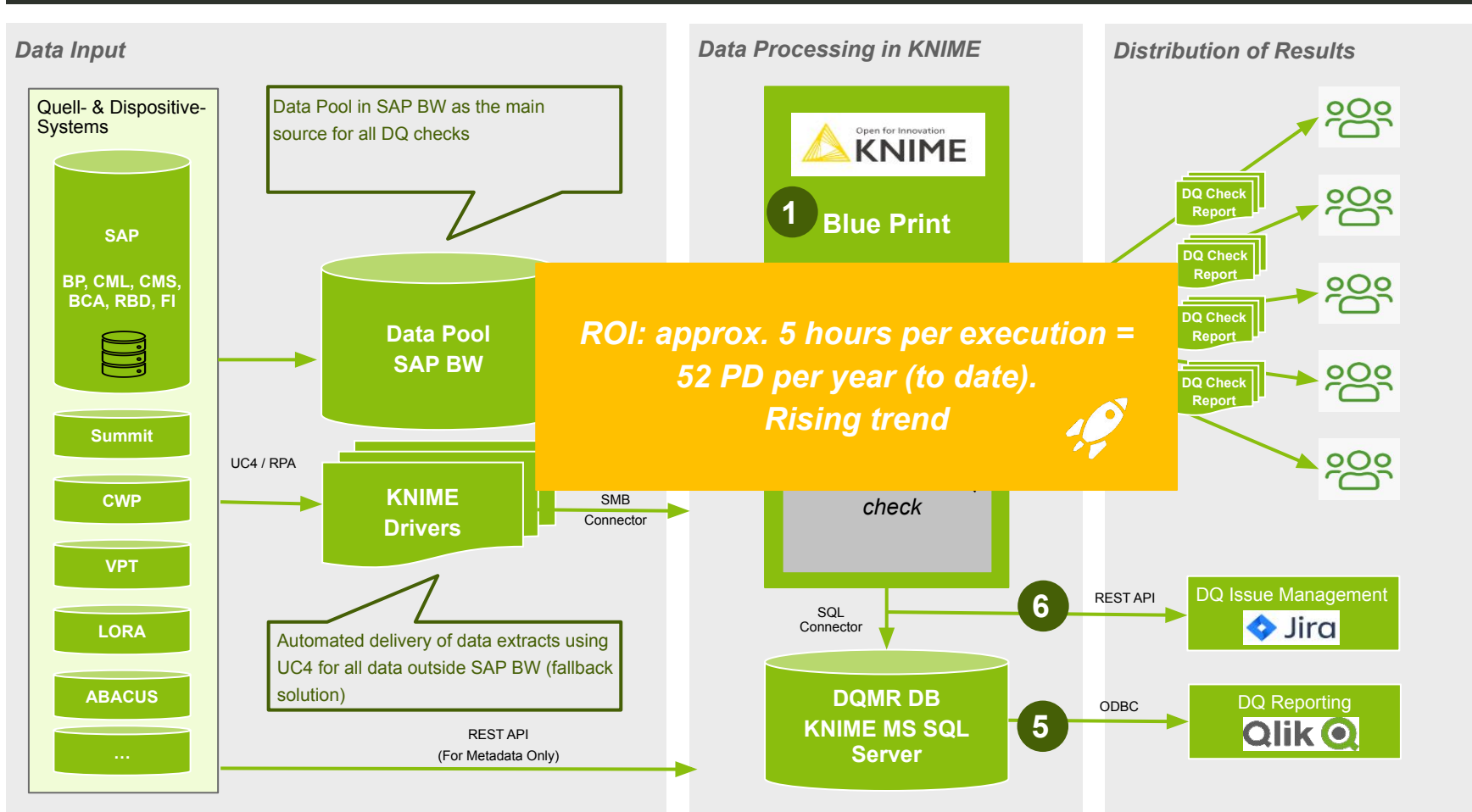
- 1 DQ checks triggered automatically in KNIME by UC4 for defined events (e.g. business date, level of maturity).
- 2 Workflows connected to data sources and automatically pull required input data.
- 3 Automated calculation of DQ checks using rules and threshold values.
- 4 Creation of KNIME reports and automated distribution by e-mail to specialist departments.
- 5 Storage of the results in the DQMR DB and automated transfer to DQ reporting in Qlik Sense
- 6 Automated creation of JIRA tickets for DQ problems.

Thanks to its modular structure, KNIME enables simple and efficient integration of additional DQ checks – all that is required to replace the calculation core!

Example 1: Data Quality Checks

Efficient DQ-Management and Reporting via Complete Automation

Graphical Representation of the KNIME Process

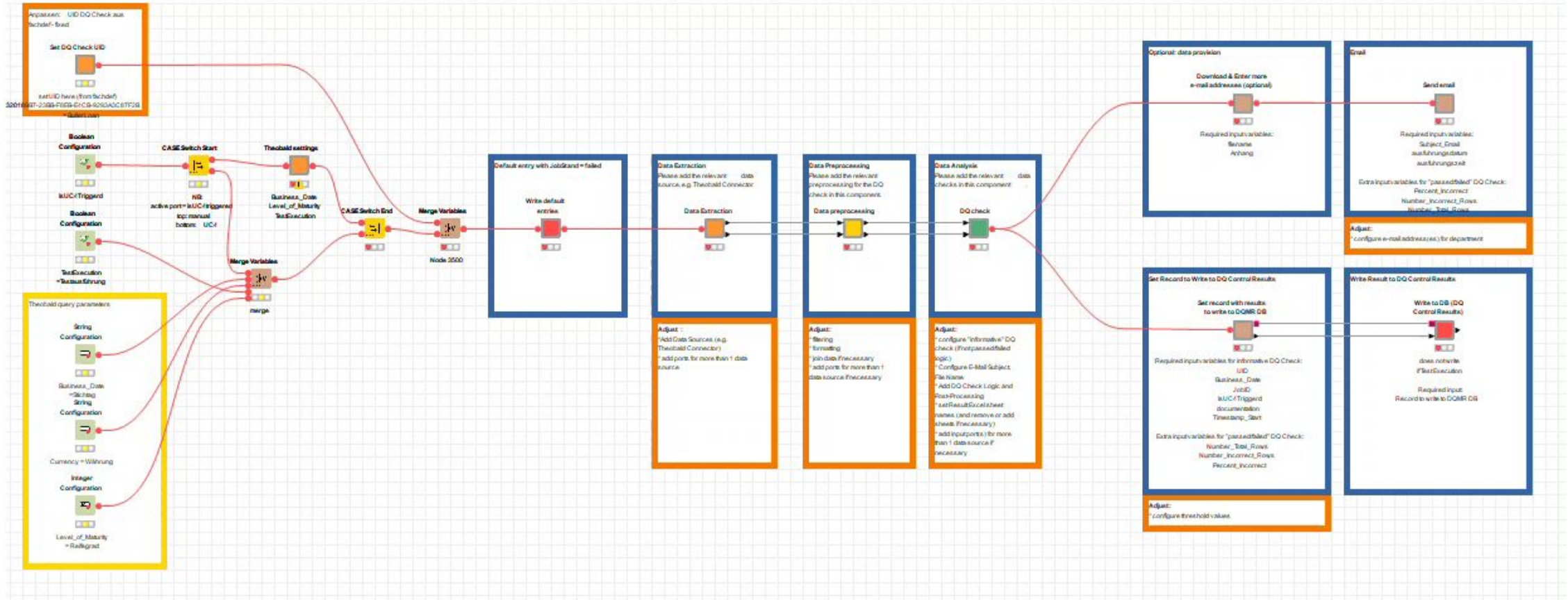


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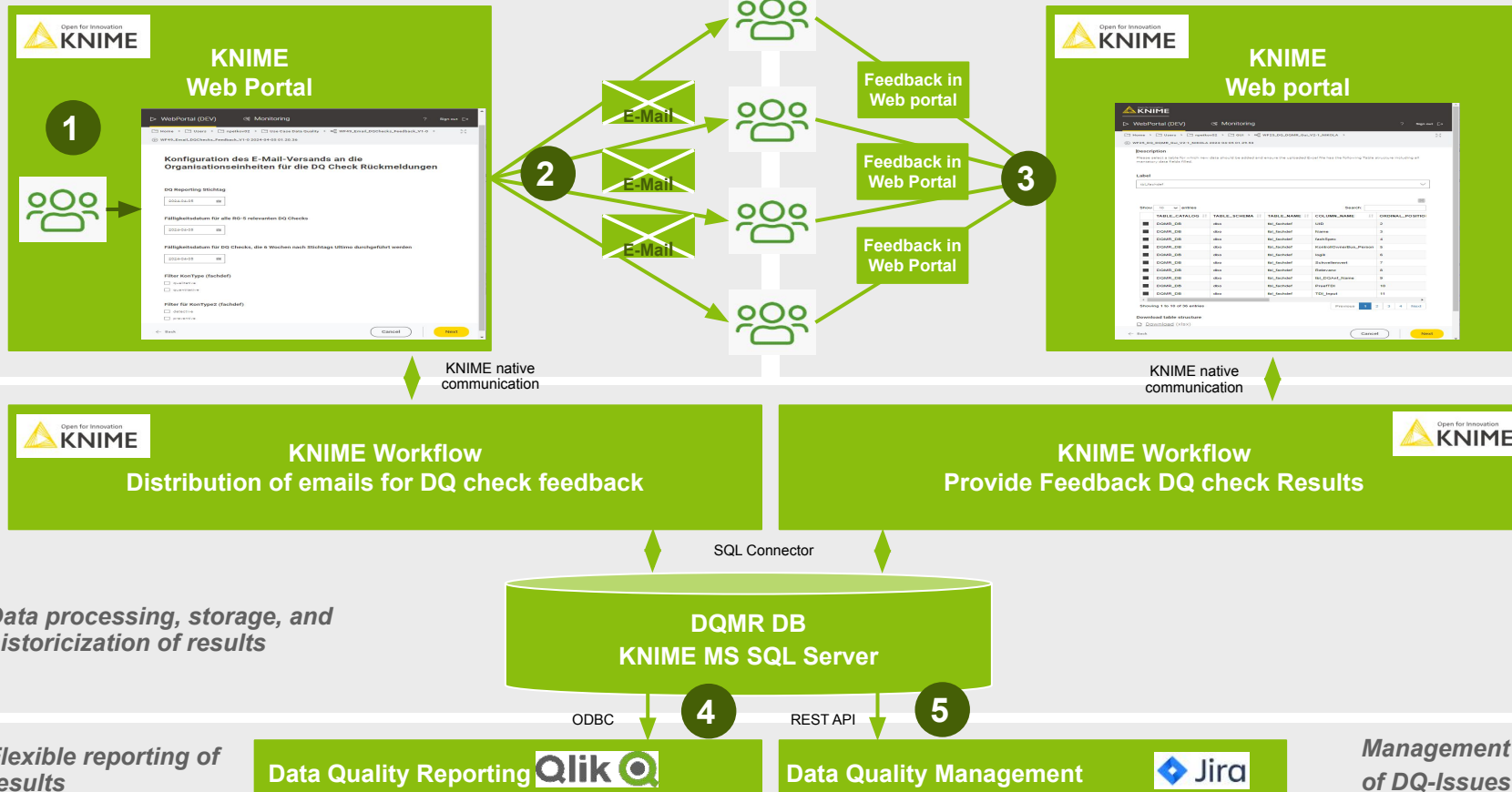
Example 2: DQ Check Feedback Process

Complete Automation of Feedback for Decentralized DQ Check Results

Graphical Representation of the KNIME Process

Flexible control of the e-mail distribution directly via the KNIME web portal

Flexible and secure feedback of DQ Check results directly via KNIME web portal



Description

- 1 Start of the feedback process via central data quality unit from the KNIME web portal. Web portal allows dynamic control of the workflow for different situations.
- 2 Automated generation of e-mails to business areas with links for feedback.
- 3 Individual departments can process their DQ checks from the web portal. Here, they only see their own DQ checks and can delay processing by returning to the last processing status if needed.
- 4 Automated storage and processing of feedback for DQ reporting.
- 5 Automated creation of JIRA tickets for DQ problems

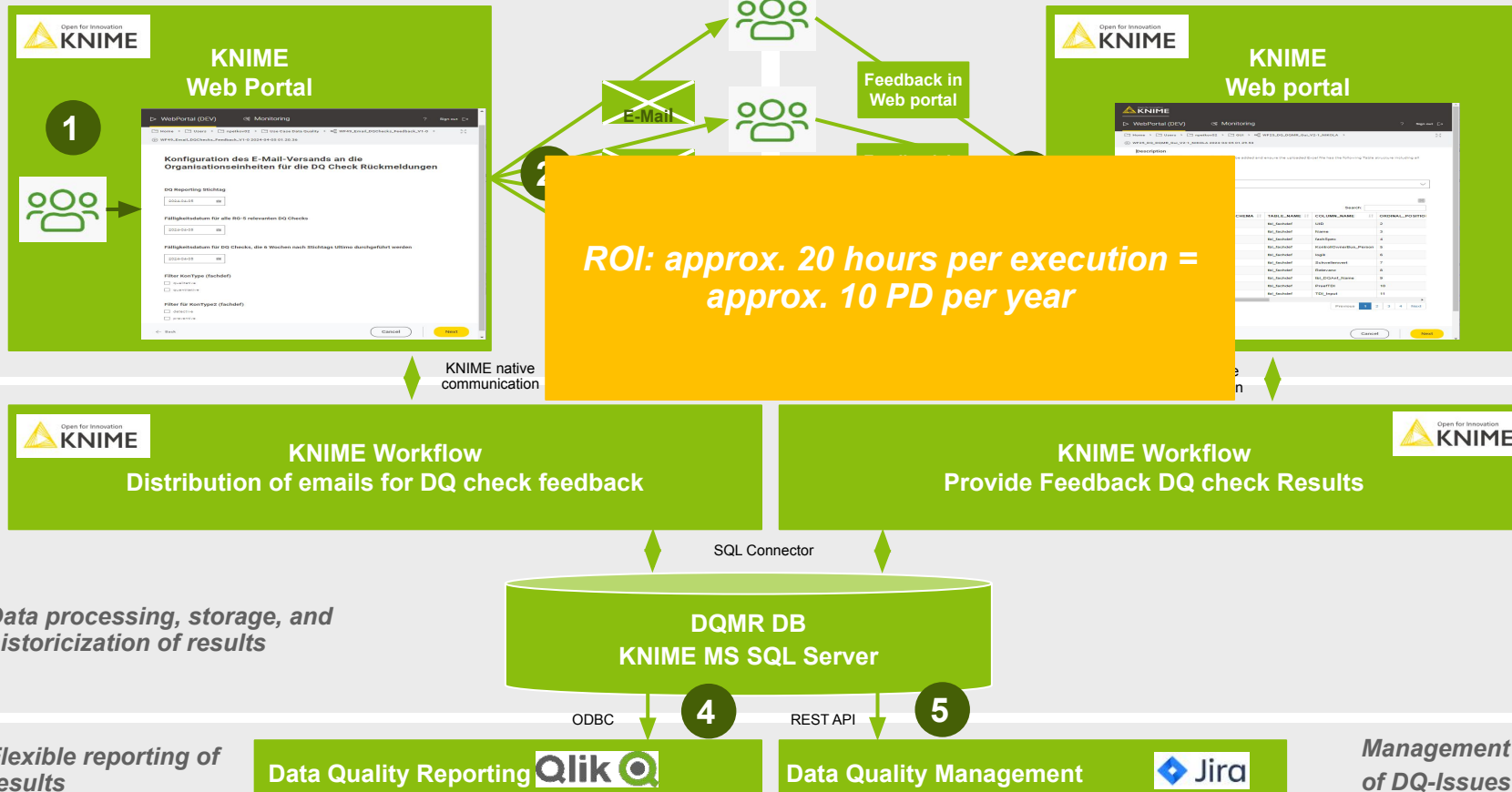
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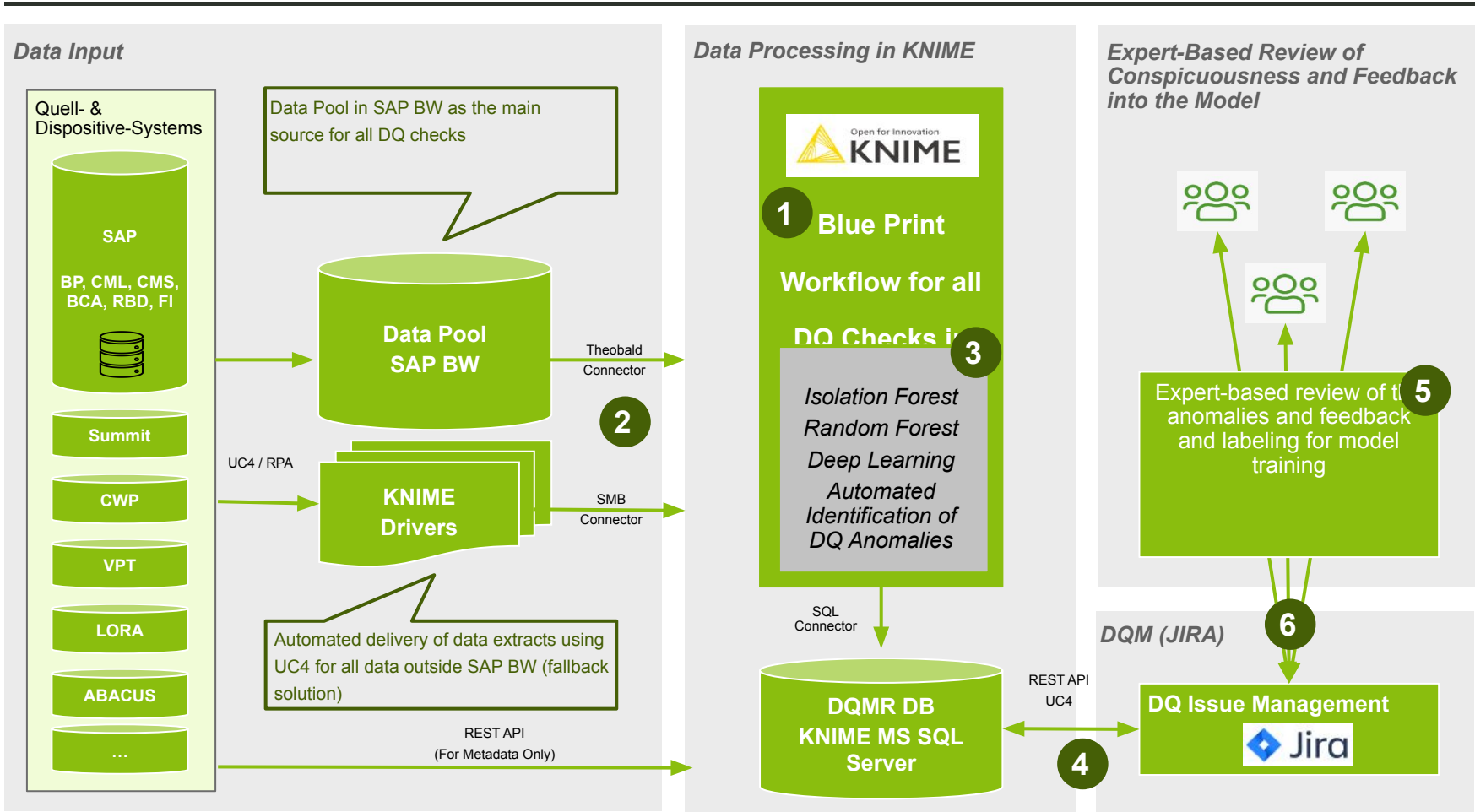
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Example 3: Identifying DQ Anomalies

Integration of Machine Learning Models to Automatically Identify DQ Anomalies

In Implementation

Graphical Representation of the KNIME Process



Description

- 1 Automated triggering of DQ checks in KNIME by UC4
- 2 KNIME workflows connect to data sources and automatically pull required input data.
- 3 Use of ML methods such as iForest and deep learning to identify the anomalies
- 4 Automated saving of results and opening of JIRA tickets if required.
- 5 Analysis and assessment of the anomalies by technical experts.
- 6 Feedback of the expert analyses into the models for continuous improvement (model training)

The existing infrastructure can be used cost-effectively and efficiently for various applications!

Questions / Comments

