How to Build an Intelligent Application with SAP Data Intelligence

DAT300
Speakers

**Las Vegas**  
September 24–27, 2019

Helene Staader

**Barcelona**  
October 8-10, 2019

Helene Staader, Product Owner in SAP DI, SAP SE  
Frank Schmalle, VP & Head of Evonik Global IT Enterprise Data Management  
Dr. Frank Kienle, Head of AI and data Science, Camelot ITLab

**Bangalore**  
November 13-15, 2019

Rahul Lodhe
Take the **session survey**.

We want to hear from you!

Complete the session evaluation for this session **DAT300** on the SAP TechEd mobile app.

Download the app from iPhone App Store or Google Play.
Disclaimer

The information in this presentation is confidential and proprietary to SAP and may not be disclosed without the permission of SAP. Except for your obligation to protect confidential information, this presentation is not subject to your license agreement or any other service or subscription agreement with SAP. SAP has no obligation to pursue any course of business outlined in this presentation or any related document, or to develop or release any functionality mentioned therein.

This presentation, or any related document and SAP’s strategy and possible future developments, products and or platforms directions and functionality are all subject to change and may be changed by SAP at any time for any reason without notice. The information in this presentation is not a commitment, promise or legal obligation to deliver any material, code or functionality. This presentation is provided without a warranty of any kind, either express or implied, including but not limited to, the implied warranties of merchantability, fitness for a particular purpose, or non-infringement. This presentation is for informational purposes and may not be incorporated into a contract. SAP assumes no responsibility for errors or omissions in this presentation, except if such damages were caused by SAP’s intentional or gross negligence.

All forward-looking statements are subject to various risks and uncertainties that could cause actual results to differ materially from expectations. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of their dates, and they should not be relied upon in making purchasing decisions.
Agenda

Introduction to SAP DI

Typical ML Project Workflow

ML Project Workflow aided by SAP Data Intelligence

Customer Use Case: Evonik NexGen Data Management, AI driven process automation via SAP Data Intelligence

Use Case & Solution

Demo AI Solution

Next Steps & Q&A
Intelligent Enterprise

Experience

Analytics
Database & Data Management
Application Development & Integration
Intelligent Technologies

Data

Operations

Data
But it is still difficult to scale it

Can’t Manage the Data

Can’t Manage the Development

Can’t Manage the Delivery
Moving Towards a Unified Data Intelligence Platform

- **SAP Data Hub**
  - Data sharing, pipelining, and orchestration.
  - Including data preparation and cleaning.

- **SAP Predictive Analytics**
  - Operationalization and automation

- **SAP Leonardo ML Foundation**
  - Deep Learning (text, image, video, audio)

- **SAP HANA ML**
  - In-database Machine Learning

- **Open Source Languages and Libraries**
  - R, Python, Sci-kit, Tensorflow

---

**One integrated offering**

**One data science front end**

**Full lifecycle management**

**Integrated with SAP**
Agenda

Introduction to SAP DI

Typical ML Project Workflow

ML Project Workflow aided by SAP Data Intelligence

Customer Use Case: Evonik NexGen Data Management, AI driven process automation via SAP Data Intelligence

Use Case & Solution

Demo AI Solution

Next Steps & Q&A
Typical Workflow of Data Science Projects

Data from Multiple Sources (Structured and/or Unstructured)

Metadata, Exploration, Profiling and Indexing

Data Integration, Wrangling and Storage

Data Preprocessing

Model Training

Model Evaluation

Deployment

Iteration

REST API

Realtime Inference (within an app)

Onetime/Periodic Inference (mostly on a structured dataset)

Further Analysis (enriched data)
Data Science Workflow Aided by SAP Data Intelligence

- Data from Multiple Sources (Structured and/or Unstructured)
- Metadata, Exploration, Profiling and Indexing
- Data Integration, Wrangling and Storage
- Data Preprocessing
- Model Training
- Model Evaluation
- Deployment
- Iteration

REST API
- Realtime Inference (within an app)
- Onetime/Periodic Inference (mostly on a structured dataset)
- Further Analysis (enriched data)

SAP Data Intelligence
Agenda

Introduction to SAP DI

Typical ML Project Workflow

ML Project Workflow aided by SAP Data Intelligence

Customer Use Case: Evonik NexGen Data Management, AI driven process automation via SAP Data Intelligence

Use Case & Solution

Demo AI Solution

Next Steps & Q&A
Data Science Workflow Aided by SAP Data Intelligence

Access any data source: cloud, on premise, IoT, SAP, or non-SAP. Automatically index and crawl any available data asset to find it with ease.
Data Science Workflow Aided by SAP Data Intelligence

Enrich data assets with metadata information so that everyone in your organization can find what they need and minimize duplication of data wrangling tasks.
Data Science Workflow Aided by SAP Data Intelligence

Utilize a rich set of operators to transform multiple data connections in a usable data set for AI modeling. Save and reuse these data sets across your organization.
Data Science Workflow Aided by SAP Data Intelligence

One single tool for experimentation and productization of ML artifacts.
Data Science Workflow Aided by SAP Data Intelligence
Agenda

Introduction to SAP DI

Typical ML Project Workflow

ML Project Workflow aided by SAP Data Intelligence

Customer Use Case: Evonik NexGen Data Management, AI driven process automation via SAP Data Intelligence

Use Case & Solution

Demo AI Solution

Next Steps & Q&A
Hier steckt Evonik drin

▪

In den Trikots der Spieler, im Mauerwerk, in den Lampen, in...

---

BRIDGES THAT DON'T CRUMBLE

SOLAR CELLS THAT MAKE MORE OUT OF SUNLIGHT

BUILDINGS THAT REPEL DIRT

ROAD MARKINGS THAT ARE REFLECTIVE

REFRIGERATORS THAT SAVE ENERGY
ROOFS THAT CAN BE USED FOR GARDENING

WINDMILLS THAT GENERATE RESIDENTIAL POWER

TURBINES THAT CAN USE MINIMAL FLOW FOR GENERATING POWER

PUBLIC TRANSPORT THAT ENABLES URBAN MOBILITY
Bridges that don’t crumble

Buildings that repel dirt

Roofs that can be used for gardening

Solar cells that make more out of sunlight

Windmills that generate residential power

Turbines that can use minimal flow for generating power

Refrigerators that save energy

Road markings that are reflective

Public transport that enables urban mobility
What we do
Living better with Evonik

more fuel saving  fluffier  more elastic  healthier  more effective

CAR TIRES  TOWELS  MATTRESSES  NUTRITION  TABLETS

Countless products gain their special attributes through our creative power.
Who we are
Evonik at a glance

15 Billion Euro sales in 2018

~ 80% of turnover gained from leading market positions

active in 100 countries

>36,000 Employees

2.6 billion Euro Adjusted EBITDA 2018

240 New patent applications
Our aspiration

Building a best-in-class specialty chemicals company
Agenda

Introduction to SAP DI

Typical ML Project Workflow

ML Project Workflow aided by SAP Data Intelligence

Customer Use Case: Evonik NexGen Data Management, AI driven process automation via SAP Data Intelligence

Use Case & Solution

Demo AI Solution

Next Steps & Q&A
EDM journey with innovation drivers in collaboration with CAMELOT & SAP

Partnering with SAP & CAMELOT: kick-Off session

EDM roadmap incl. AI innovations

Selection of a suitable case for Proof-of-Concept

PoC finalization & results presentation

Enterprise integration

2-day AI Design Thinking workshop

Out-of-scope for PoC
Problem statement: high manual efforts tied to packaging material creation

Packaging specs. in multiple formats…

…requires a materials master to be created…

…for classification

~ 8,000 packaging materials
= 160,000 lines

Attributes are derived manually by experts

Manually

Manually

Attributes are derived manually by experts
Collaborative approach: EVONIK, CAMELOT & SAP partnered successfully

PoC outcomes

1. Feasibility check for automated data extraction of semi-structured documents

2. Enterprise integration concept SAP Data Intelligence Platform

3. Playbook for internal mobilization
PoC outcome: pre-trained application for data extraction & validation

Validate and correct annotations

Validate and correct extraction

Extraction model
AI-challenge: packaging documents show a semi-structured form

Information learned via machine learning:
- Syntax and semantics
- Keywords
- Geometrical alignment
- Continuous learning via expert feedback
PoC scope: focus was to deploy AI-model on the SAP Data Intelligence

SAP Data Intelligence

Trigger Extraction → OCR → NLP based extraction → Map to classification attributes → Validation

Feedback Loop

Add new attributes to classification

No

Yes

All features mapped?

SAP ERP

Data integration

Storage

Data pipeline

Visualization prototype

Domain Expert
Agenda

Introduction to SAP DI

Typical ML Project Workflow

ML Project Workflow aided by SAP Data Intelligence

Customer Use Case: Evonik NexGen Data Management, AI driven process automation via SAP Data Intelligence

Use Case & Solution

Demo AI Solution

Next Steps & Q&A
Result: end-users take advantage of a much faster & convenient process

Advantages

- Fields are prepopulated
- Values and annotations are displayed in a clear interface
- Can easily apply corrections into the ERP system
- Corrected annotations are played back into the system

= System continuously converges to its best possible state

End-user work steps:
1. Validate & correct annotations
2. Validate & correct extraction
Introduction to SAP DI

Typical ML Project Workflow

ML Project Workflow aided by SAP Data Intelligence

Customer Use Case: Evonik NexGen Data Management, AI driven process automation via SAP Data Intelligence

Use Case & Solution

Demo AI Solution

Next Steps & Q&A
Outlook: leverage SAP Data Intelligence platform for further use cases

Domain-specific extraction has been accomplished and SAP Data Intelligence proven

Additional value cases and implications for the organization & governance to be tackled

+ Use cases
+ Governance
+ Org. design
Continue your SAP TechEd 2019 Learning Experience

Join the digital SAP TechEd Learning Room 2019 in SAP Learning Hub

- Access SAP TechEd Learning Journeys
- Discover related learning content
- Watch webinars of SAP TechEd lectures
- Learn about SAP’s latest innovations with openSAP
- Collaborate with SAP experts
- Self-test your knowledge
- Earn a SAP TechEd knowledge badge
Engage with the **SAP TechEd Community**

Access replays and continue your SAP TechEd discussion after the event within the **SAP Community**

Access replays
- Keynotes
- Live interviews
- Select lecture sessions
  [http://sapteched.com/online](http://sapteched.com/online)

Continue the conversation
- Read and reply to blog posts
- Ask questions
- Join discussions
  [sap.com/community](http://sap.com/community)

Check out the latest blogs
- See all SAP TechEd blog posts
- Learn from peers and experts
  [SAP TechEd blog posts](http://sapteched.com/blog)
Related SAP TechEd Learning Journeys

- AIN2 – Transform your business processes with intelligent technologies

Related SAP TechEd sessions

- DAT364 – Use SAP Data Intelligence to Develop Data-Driven Scenarios from Scratch

Public SAP Web sites

- SAP Community: www.sap.com/community
- SAP products: www.sap.com/products
- SAP Data Intelligence: https://help.sap.com/viewer/product/SAP_DATA_INTELLIGENCE
Thanks for attending this session.

Feedback
Please complete your session evaluation for DAT300.

Contact for further topic inquiries
Helene Staader
Product Owner in SAP DI
helene.staader@sap.com