



# Machine Learning

## SAP Cash Application & Beyond

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PUBLIC



Utrecht University

THE BEST RUN 



Utrecht University

**NOBEL PRIZES**

12

**SPINOZA PRIZES**

19

**SHANGHAI RANKING 2018**

The Netherlands

1

Europe

14

World

51

# Organisation & people



**ESTABLISHED**

**1636**



**PROFESSORS**

**600**



**FACULTIES**

**7+2**  
teaching institutes



**STAFF-MEMBERS**

**7,000**



**STUDENTS**

**31,000**  
20,000 Bachelor  
11,000 Master  
2,510 International  
100 Nationalities

# *We are part of Utrecht Science Park*



**LIFE SCIENCES & HEALTH  
SUSTAINABILITY**



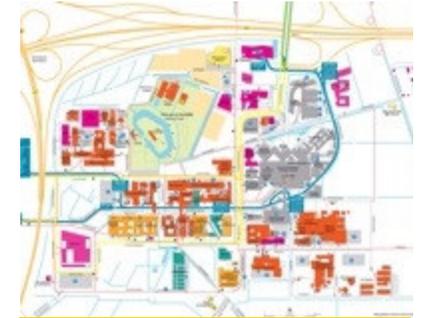
**100+ COMPANIES AND INSTITUTIONS**



**322 HECTARES**



**5,000 NEW JOBS BETWEEN 2015-2020**



**€1,2 BILLION INVESTMENT PROGRAMME  
2016-2020**



**26,000 EMPLOYEES**



**56,000 STUDENTS**



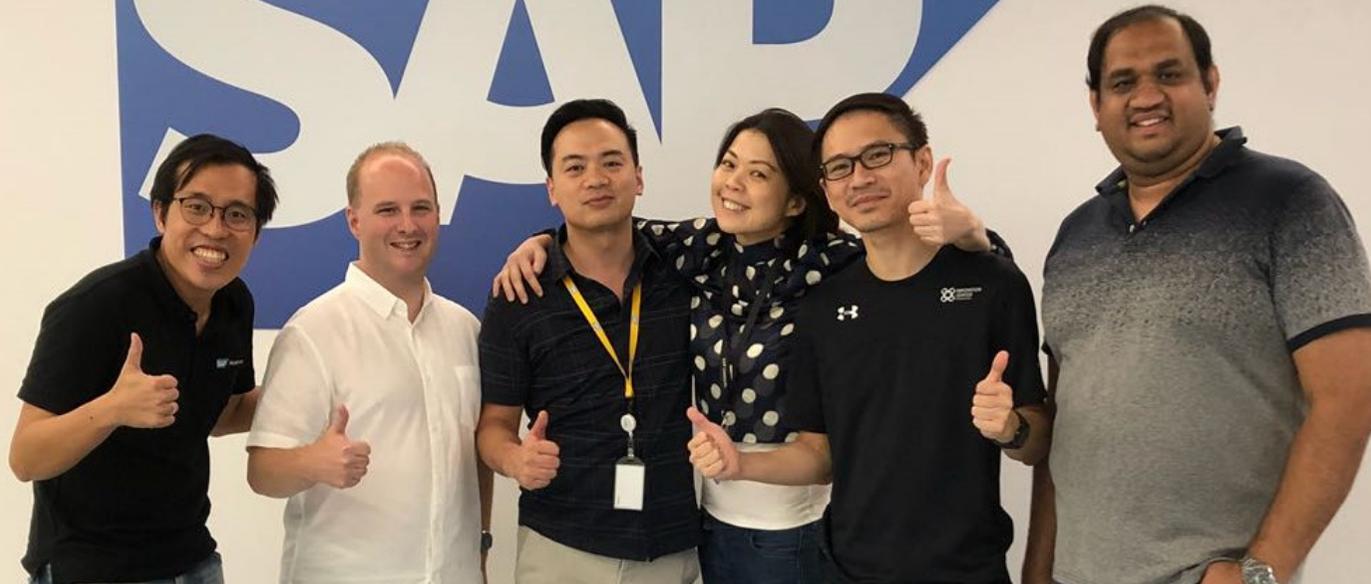
**45 MINUTES TO AMSTERDAM AIRPORT**



**SATELLITE LOCATIONS  
IN REGION**



**MOST COMPETITIVE REGION  
IN EUROPE**



## Why SAP Cash App with ML

Proactively follow market developments

Further automate Central Administration Services

Focus on control and quality of service delivery

Ready for the future



# What is SAP Cash Application

Processing and posting incoming payments with Machine Learning

# Example: Time-intensive tasks in accounts receivables

## Incoming payments

## ERP

## AR accountant

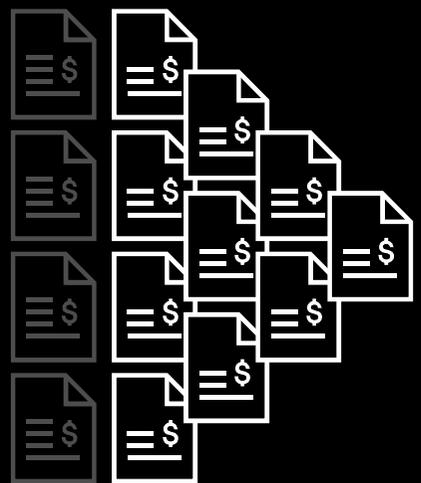
## Result

Customer payments for invoices

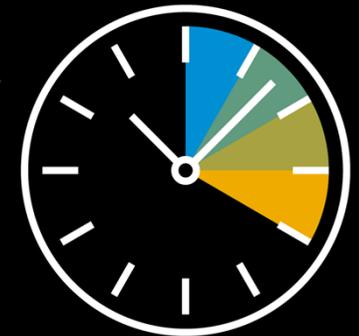
ERP statement generation and clearing

Manual processing: clarification, matching, and posting

Cumbersome and time-consuming manual processing



- Missing info
- Lump sum
- Discounts
- Exchange
- Customer call



### Typical example

100 payments received from customers

30 payments posted by system (full match of amount, invoice no., name)

70 payments to be cleared manually

**100%**

**30%**

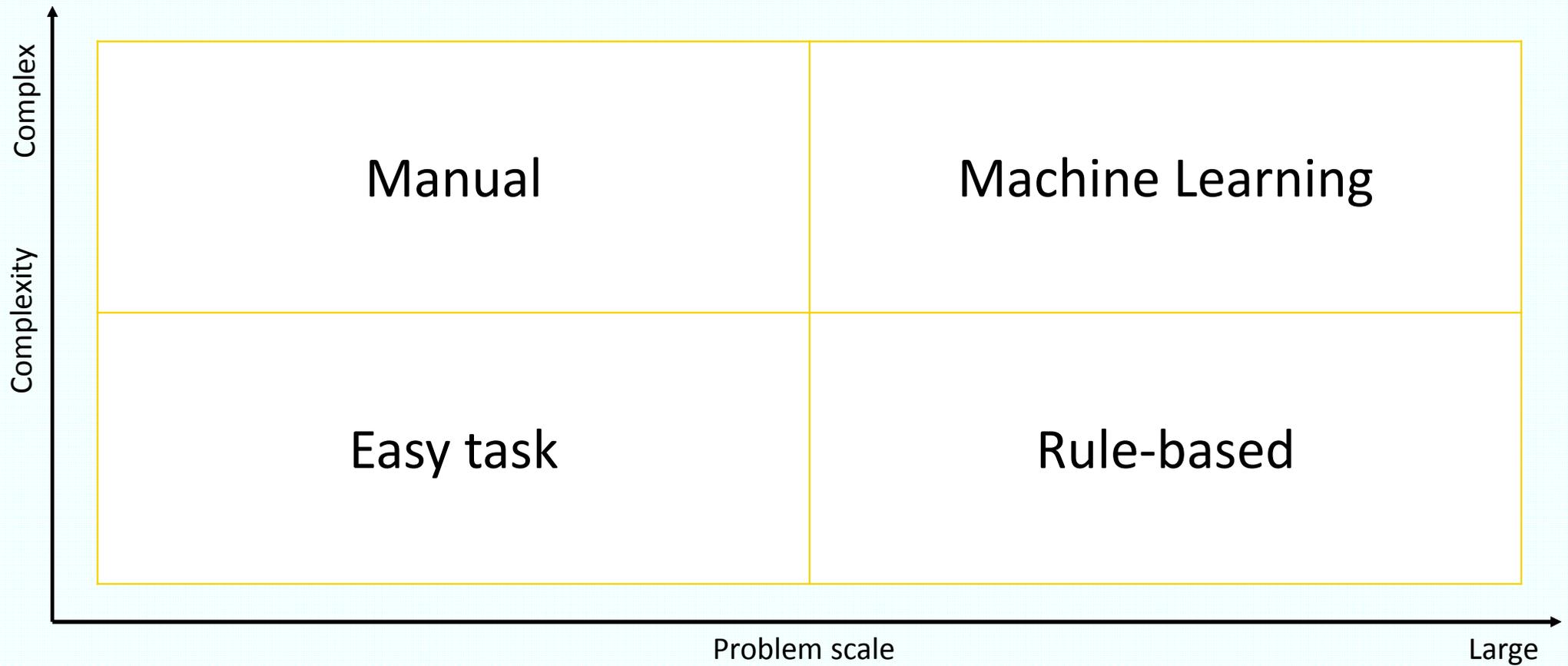
**70%**

**Automation rate: 30%**

**Manual rate: 70%**



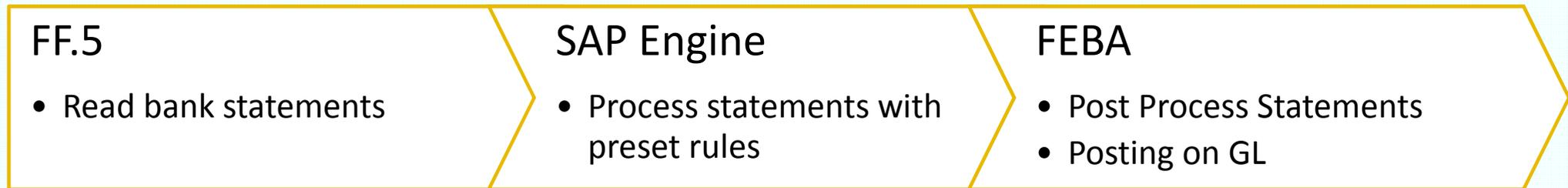
# When to apply Machine Learning



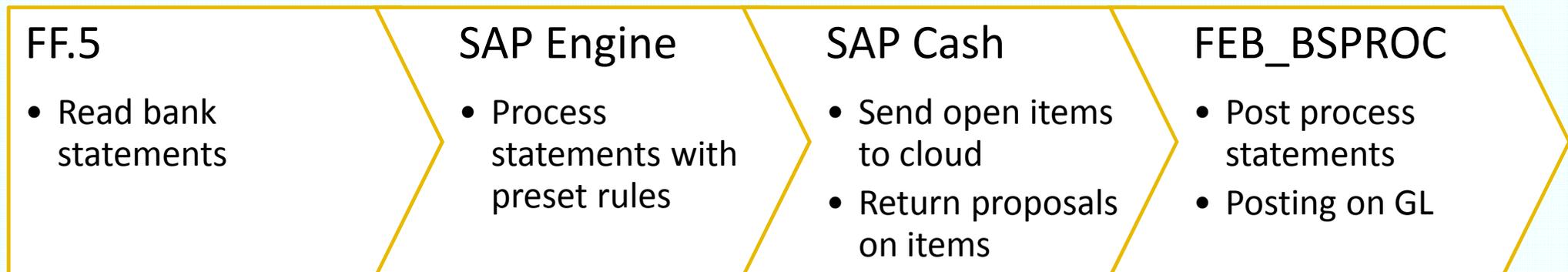


# Process in SAP

Before



After

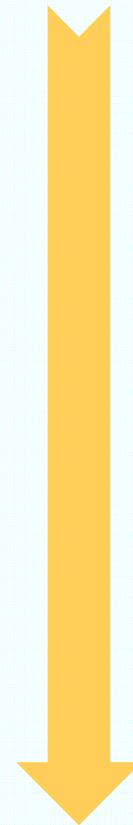




# Implementation

## System requirements:

- SAP ECC on latest patch level
- Implement SAP notes to install SAP Cash extensions
- Activate Business Functions
- Connection assessment SAP Cloud Platform
- Exchange certificates between UU and SAP



- Oct 18**
  - Training end-users
  - Training the data model
- Nov 18**
  - Production usage and training in prod
  - SAP Cash gives proposals
- Jan 19**
  - Refining model
- Feb 19**
  - New functionality: Filter enabled on customer data to lessen false positives
- Mar 19**
  - Automatic posting enabled



# Results



## Past

- Moderate AR automation rate using rule-based clearing
- Inefficient reprocessing of bank statement line items



## Present

- AR automation rate increased to 90% in the first week after go-live
- Optimized reprocessing
- Increased efficiency and reduction of human errors
- Ability to scale shared services capabilities



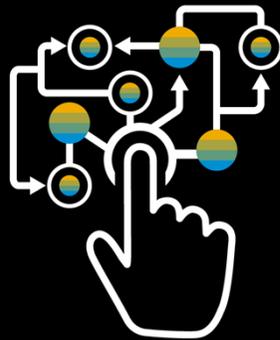
## Future

- Extend Incoming and Outgoing Payments
- Improve invoice capture automation with Machine Learning
- Conversational AI to expedite processing of repetitive requests
- **Use SAP Cash App Explainability**

## Trust as winning factor

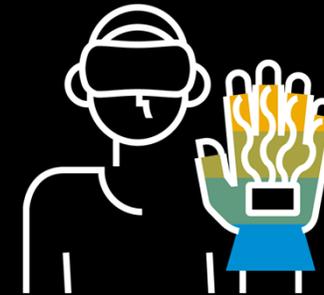
### Automation

Reduce need for manual interactions for repetitive tasks



### Intelligent interactions

Augment user experience with machine learning



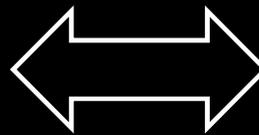
### Transparency, consistency, and reliability

are key to earn trust and make proposals actionable and auditable.

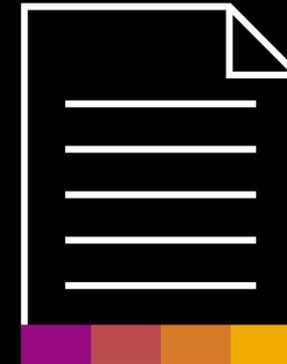
Despite internal complex representation,  
how can we make advanced algorithms understandable?

# SAP Cash Application – Generate interpretable proposals

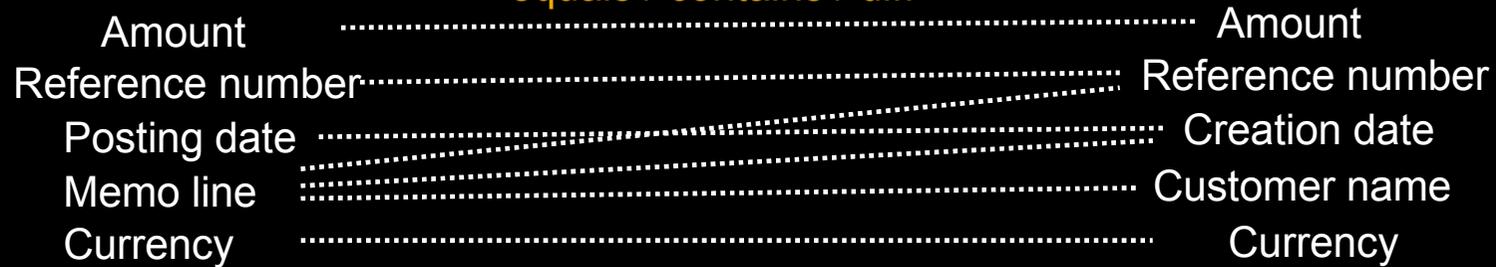
Bank statement item



Invoice



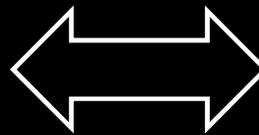
**equals / contains / diff**



**+ identify determining factors**

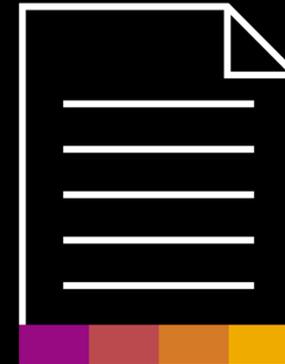
# SAP Cash Application – Generate interpretable proposals

Bank statement item



98% match  
(hypothetical)

Invoice



Memo line: for invoice 1234\*

Invoice IDs can be found partially

Acc\_Doc: 123456

Amount: 750

Amounts are pretty close

Amount: 749.99

Currency: USD

Same currency

Currency: USD



# What's next

**Use Cash App Explainability features (June 2019)**

**SAP Cash App with Payment Advice (June 2019)**

**Expand SAP Cash App usage to GL account postings (June 2019)**

**Implementation of *Invoice2Rec* with SAP VIM (PoC started)**

**Chatbot (PoC started)**

**Goods receipt matching (TBD)**

# Thank you.

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