

SMACC

AUTOMATE BOOKKEEPING WITH AI

November 8, 2017

Wojciech Barczyński

Lead Software Developer

www.smacc.io





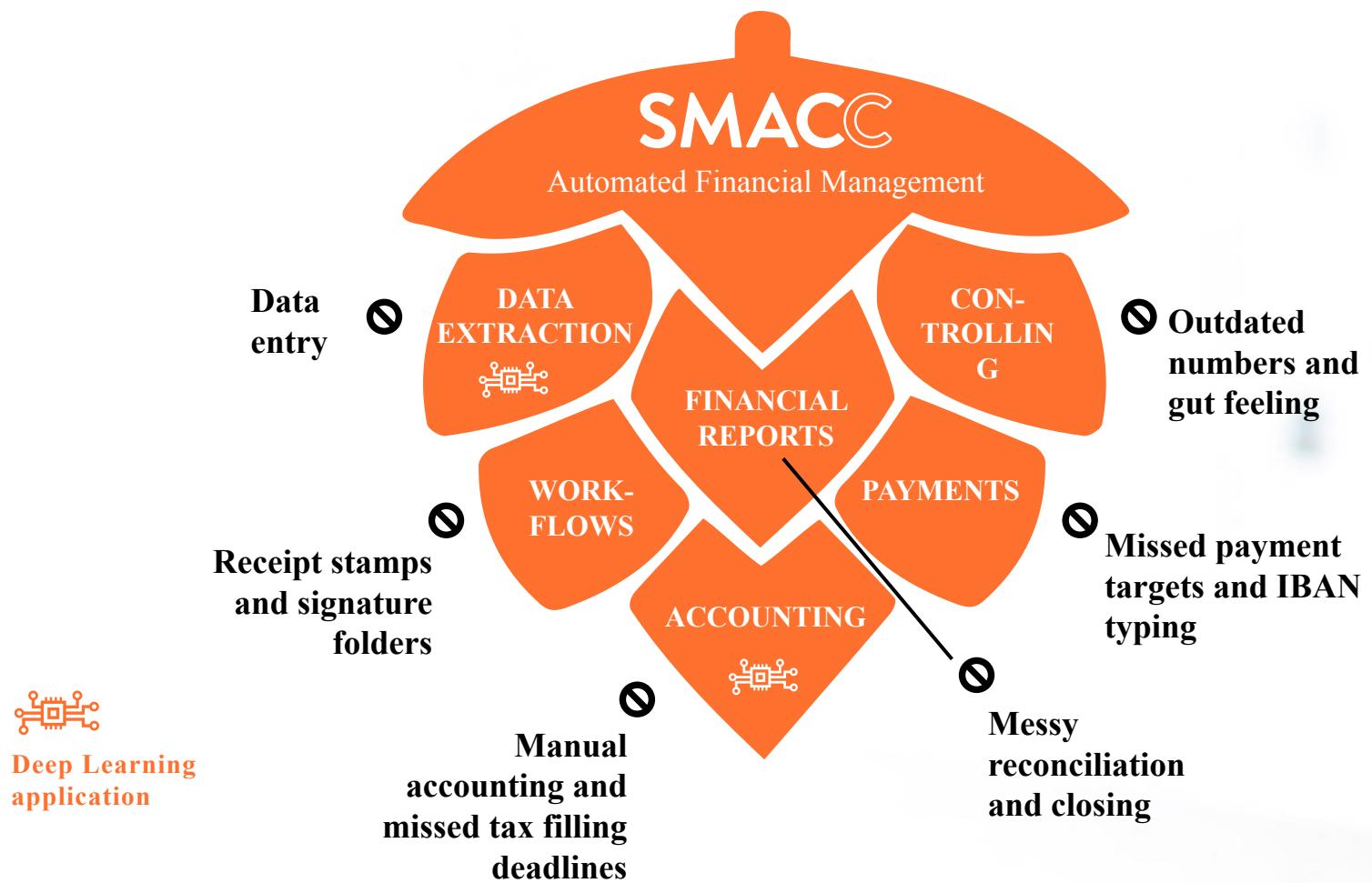
Wojciech Barczyński

- Lead Software Developer,
Head of Development Office - **SMACC**
- Before:
System Engineer – Lyke
- Before:
SAP Research (& Development)

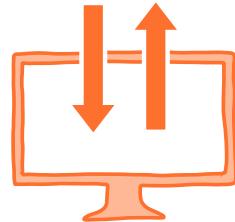
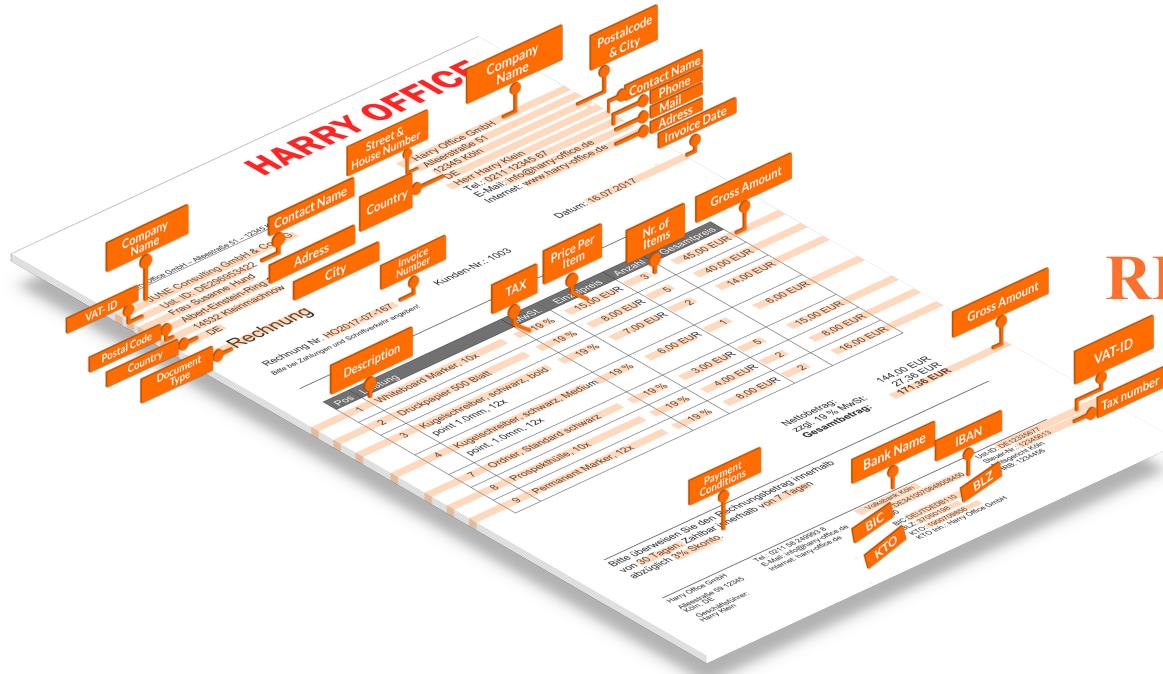
Lecturer WSB Schools of Banking
brought SAP UCC / SAP NextGen to WSB

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SMACC automates tasks of the finance department end-to-end applying AI



SMACC's AI Extractors offers extraction of 70 data fields and all invoiced items



Modern,
RESTful API



Scalable



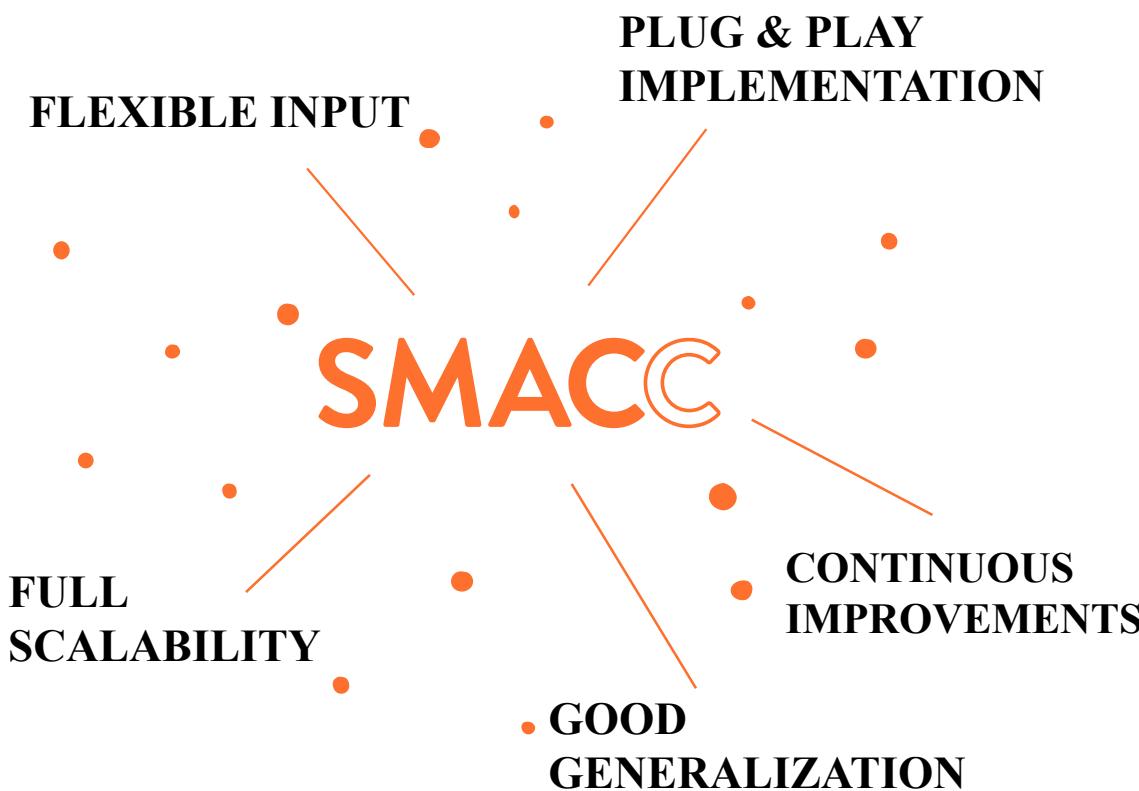
High
Availability &
Secure



Seamless
integration

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Why Deep Learning for Extracting Invoices?



Challenge:

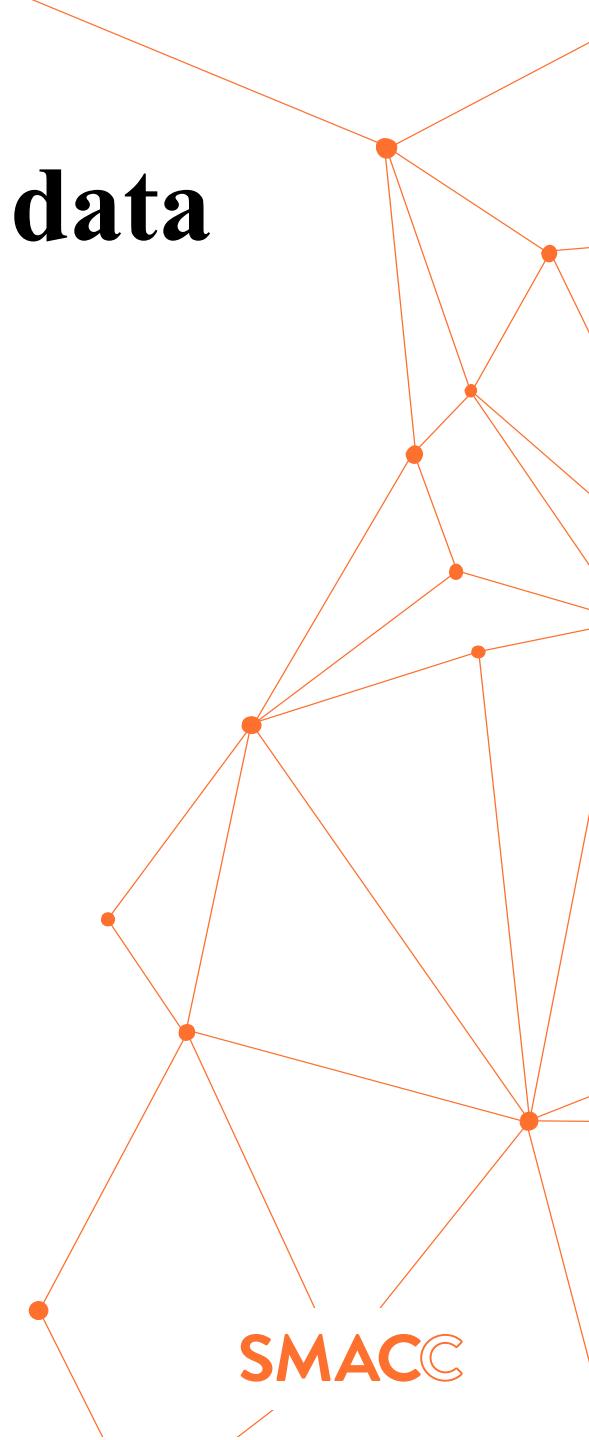
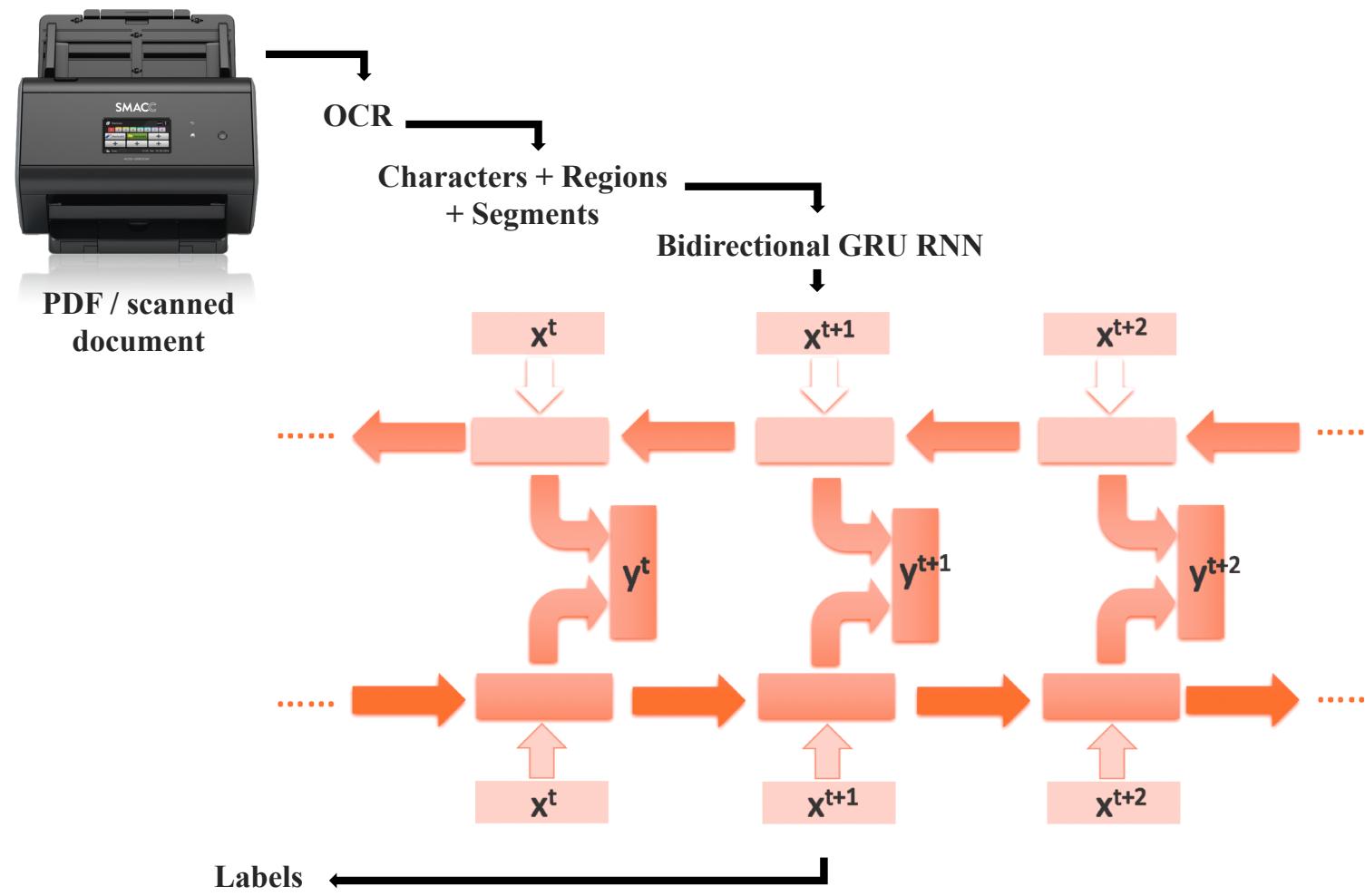
- > 300 000 documents in system
- > 10 000 different layouts

Template & Rule based approaches:

- Limited generalization
- Maintenance and updating is time consuming & error prone



Bidirectional GRU RNN for extracting data

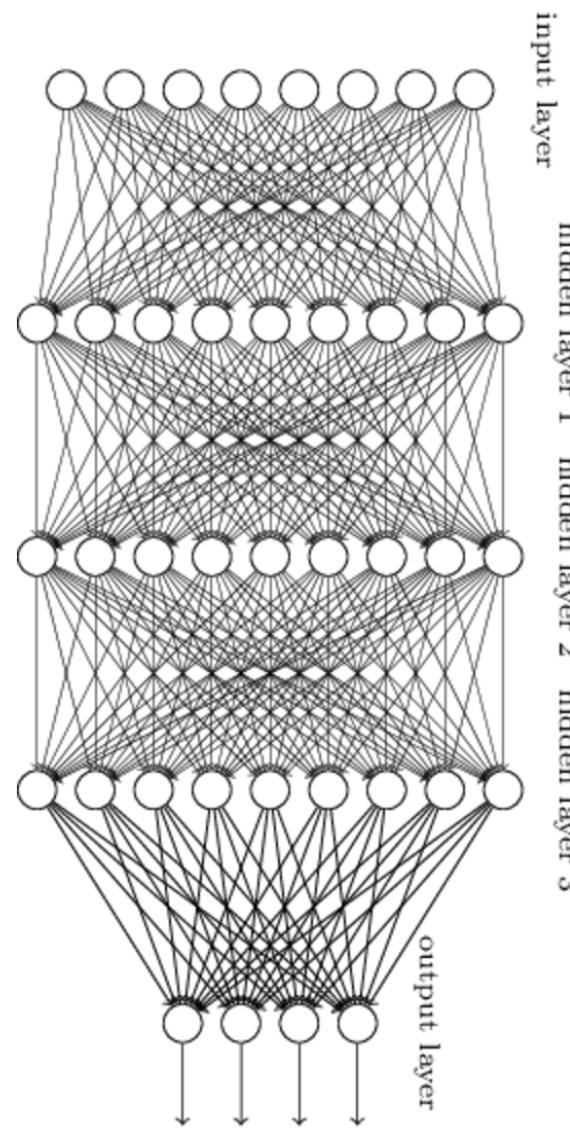


Automatic accounting using NLP & Neural Networks

Document Name	Invoice Date	Invoice Number	Total Amount			
GETRÄNKEARMATUR EN_&_ZUBEHÖR_Miri am_Spengler_308899	2017-03-13	308899	€91.93			
Booking Text	Gross Amount	Currency	H/S	Vendor Account	G/L Account	Posting Key
Bevi Liquid Bierleitungsreinigung Nachfüllkanister 5.000 ml	35.59	EUR	H	70001	5800	9
Zwischendruckregler Micro Matic	45.80	EUR	H	70001	5800	9
sw-payment Zuschlag für Zahlungsart	1.55	EUR	H	70001	5800	9
Versandkosten	8.99	EUR	H	70001	5800	9

The diagram illustrates the process flow for automatic accounting. It starts with a 'Document' input, which is processed by 'NLP & Neural Networks' to extract key information like 'Gross Amount', 'VAT-ID', 'Tax number', etc. This information is then mapped onto an 'Invoice' template. The template includes fields for 'Description', 'Quantity', 'Unit Price', 'Gross Amount', 'VAT-ID', 'Tax number', 'Bank Name', 'IBAN', 'BLZ', 'BIC', 'KTO', 'Payment Conditions', and 'Bank Address'. The 'Gross Amount' field is highlighted with a red arrow pointing from the table above.

NLP & Neural Networks for accounting



Bag of words, n-grams (word2vec – exp.)

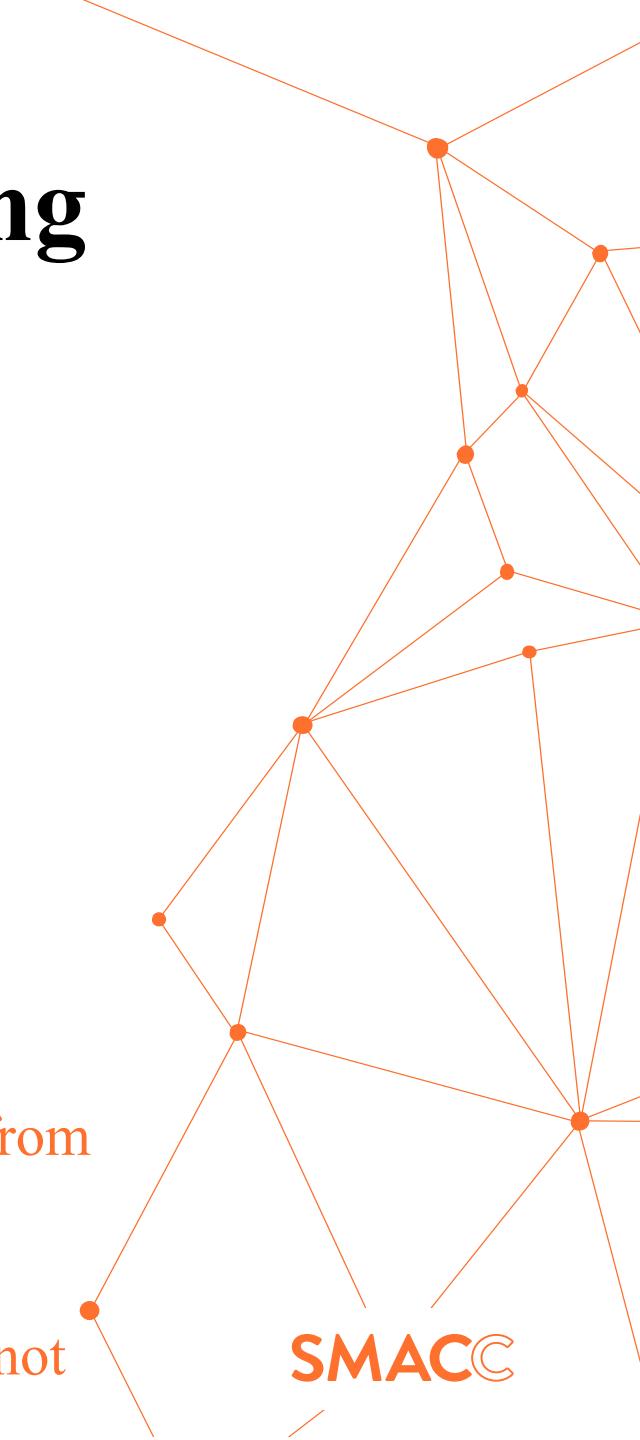
Additional input:
Client ID, customer name, tax rate etc.

Client specific approach

Feed to fully connected Neural Network

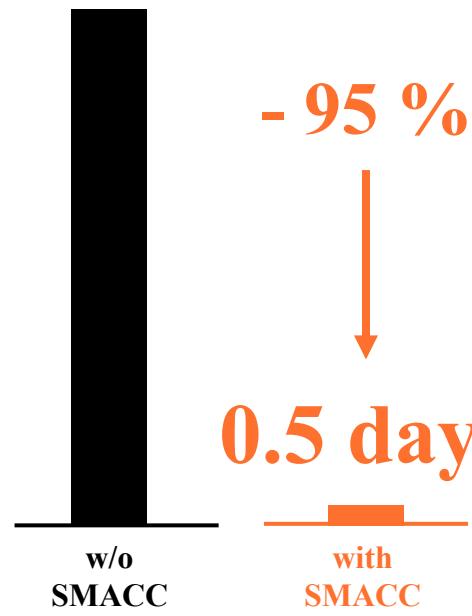
Challenge:

- Extract domain specific context from position descriptions
- position descriptions are short, keywords sometimes help, often not

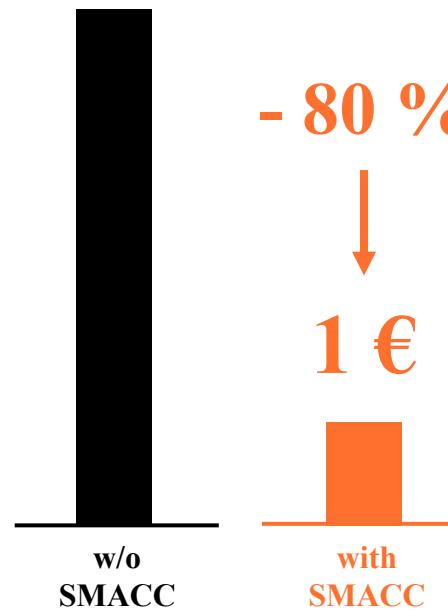


Automation with AI results in drastic improvements within finance departments

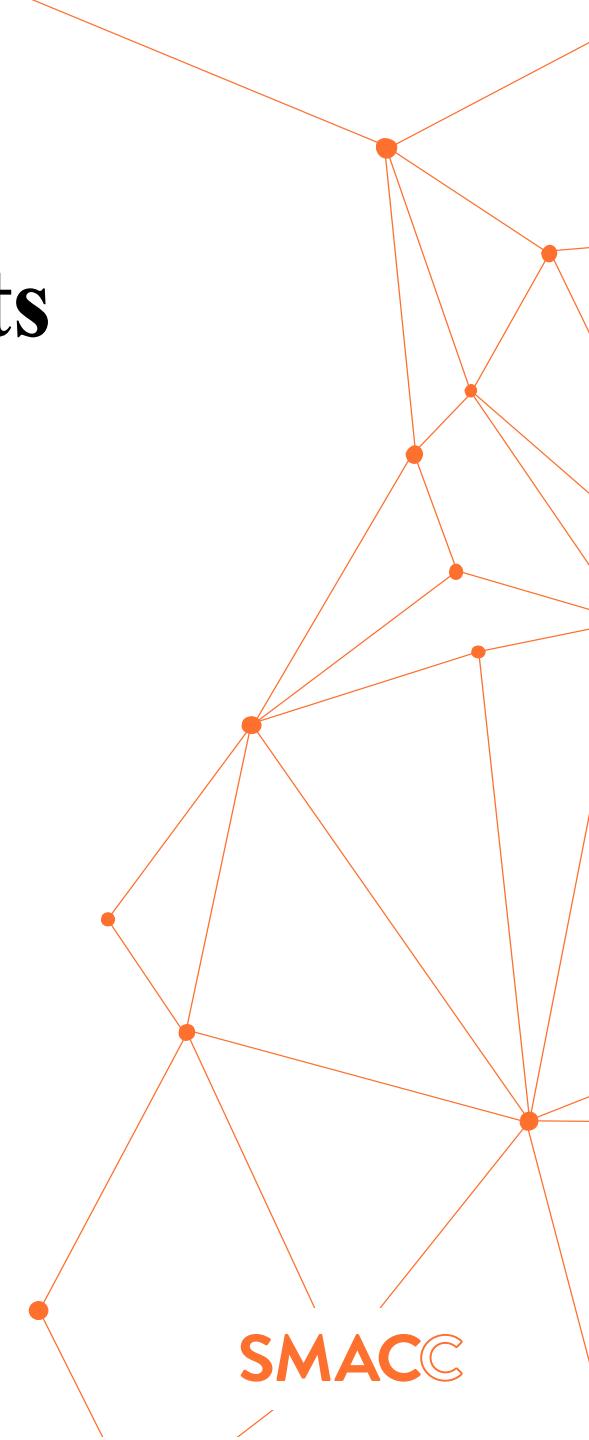
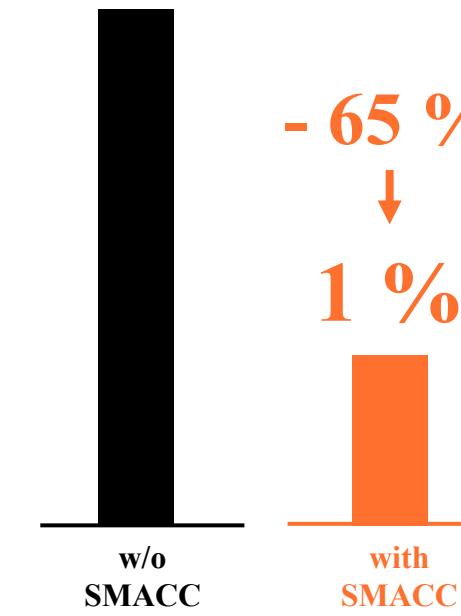
12 days



5 €

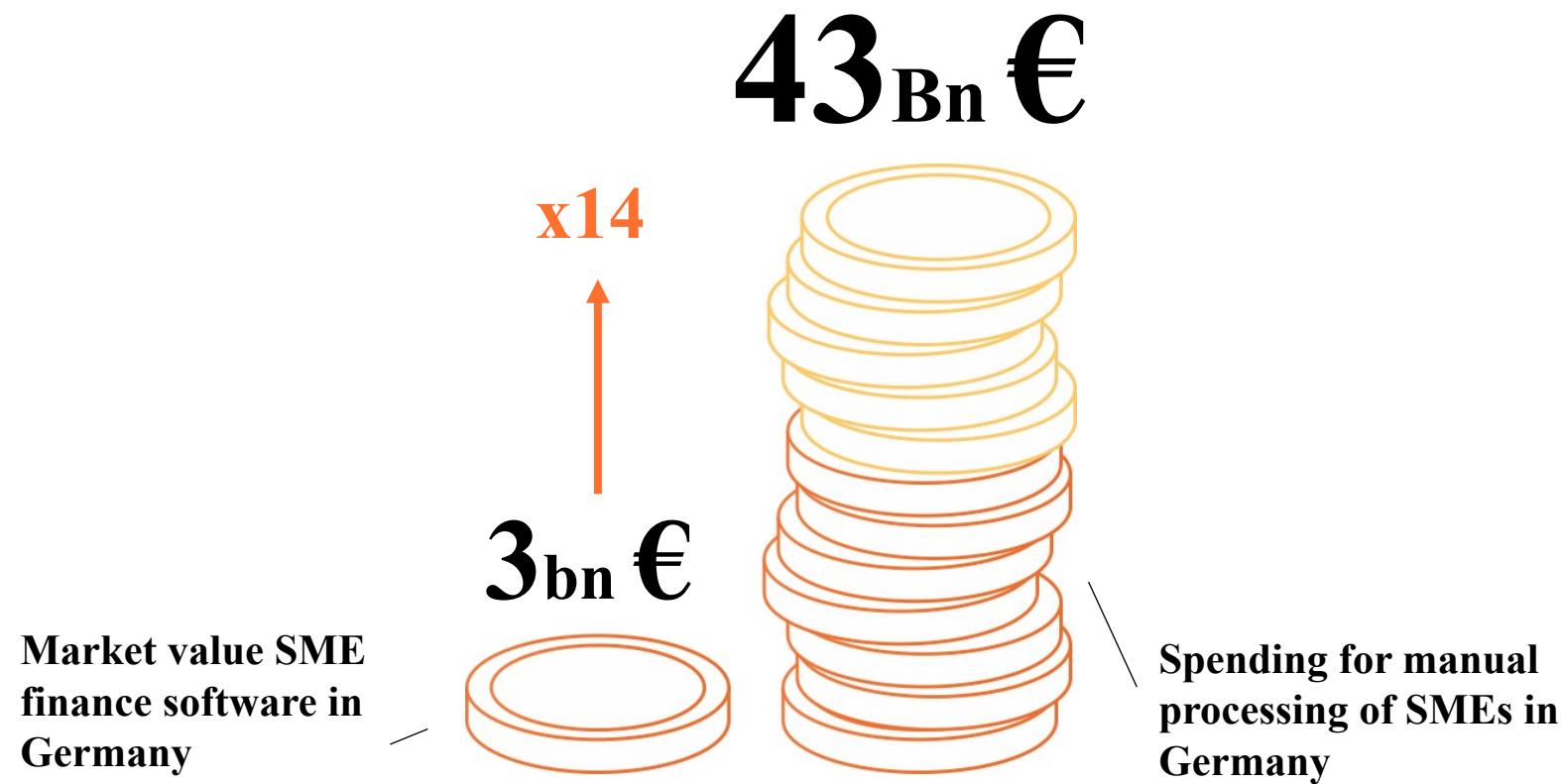


3 %

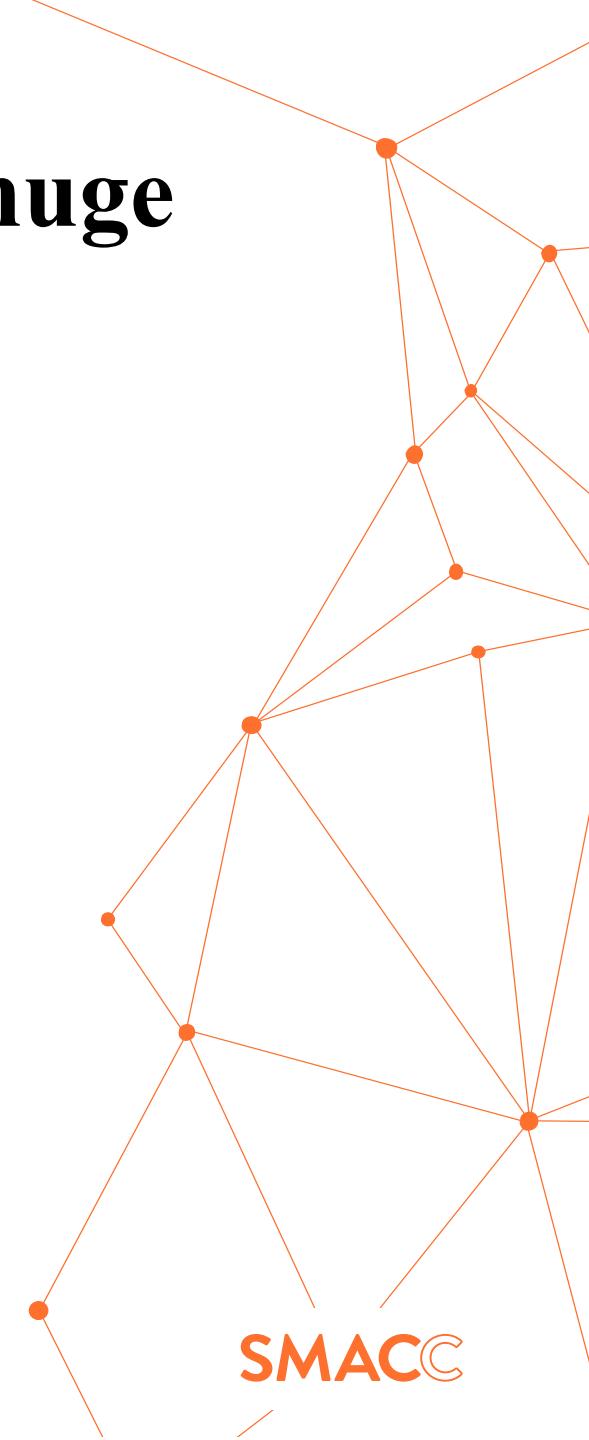


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Automating the finance department is a huge market opportunity



Source: Deutsche Bank, PWC, destatis, own assumptions



Movinga case study: things are moving



COMPANY PROFILE

- Leading online moving marketplace
- Headquartered in Berlin
- 250 employees
- Active in 6 countries
- Hyper growth
- Troubled waters and restructuring over last months

Starting point

mid 2016

- ~1'000 paper based invoices per month
- Processing time of ~ 20 days
- Error rates ... (high)
- No transparency in payment process
- Cost per invoice > EUR 10
- Accounting team of 8 FTE

Smacc impact

today

- > 3'000 invoices per month all processed with SMACC
- Processing time < 12 hours
- Error rate < 1%
- Cost per invoice EUR 1
- Accounting team of 3 FTE

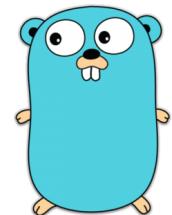
Demo Installation at McKinsey & Company



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Next Steps

- Integrations
- Refactoring platform for the growing number of customers
- Support new use cases, more APIs



Go



TensorFlow™



PYTORCH



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Thank you!

December 8, 2017

Wojciech Barczyński

wojciech.barczynski@smacc.io

www.smacc.io



Spark Finalist & 2017 German Accelerator

