Legal Revolution 2018:
How AI Services will take over your (tedious) Work and create new Added Value.

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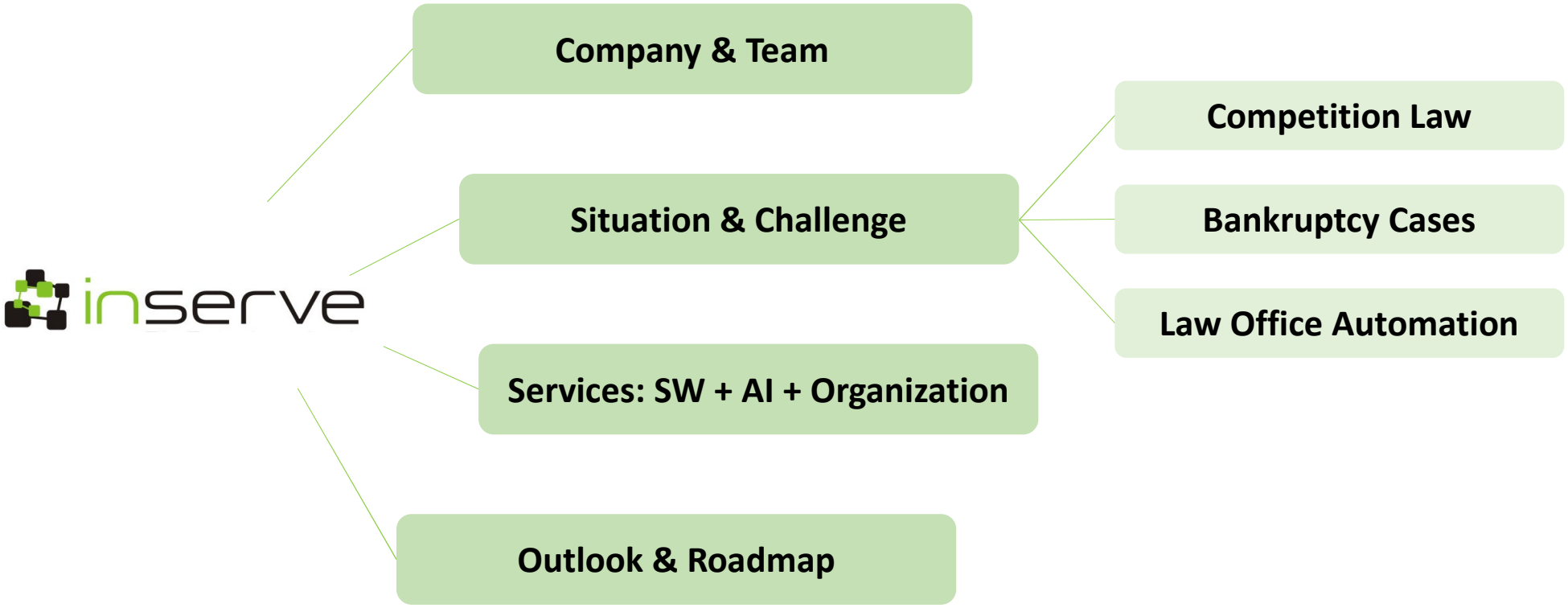
Intelligente Analyse



Company

inserve
Big Data-Legaltech

Company:

- Founded End of 2015
- Associate Company AIM: AI & DevOps
- Group of private Investors
- Hannover, Osnabrück, Frankfurt

Team:

- 6 Data Science / SW + 3 Mgmt. / Projects
- 2019: Growth to 12 employees
- Close Cooperation with University of Osnabrück
- Close Cooperation with Law Offices

Ein Auszug unserer Referenzen

Meister Rechtsanwälte

SGP Schneider Geiwitz Rechtsanwälte

activeLAW Klein.Offenhausen RA

Bograkos Rechtsanwälte

Team

Arvin Arora

Profile:

- Working as IT entrepreneur since 1990
- Founded & built 4 IT / AI Companies
- Since: 2015 B.Sc. Cognitive Science
- Focus areas:
  - AI, Machine Learning
  - DevOps / Software Engineering
  - Finance & Controlling

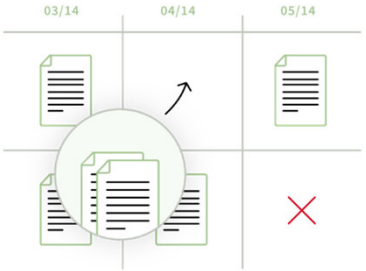
Benjamin Lobmüller

Profile:

- Degree in Economics
- Sound Experience in IT industry
- Expert in Statistics, Time Series
- Focus Areas:
  - Operations
  - Marketing & Sales
  - Legal & Privacy

Competition Law – Private Enforcement

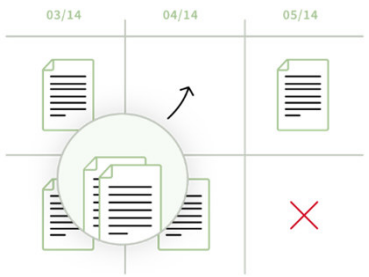
Acquisition | **Transactions** | **Market Model** | **Evidence** | **Claim / Reply**



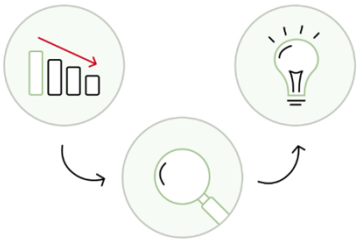
Information Extraction

Bankruptcy Cases

Insolvency Report

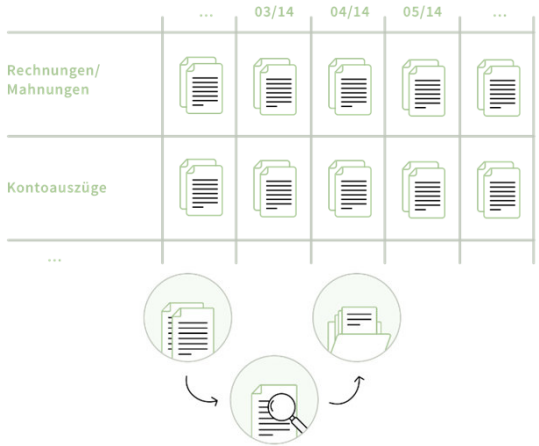


Insolvency Data



Document Structuring

Refutation



Information Extraction

Law Office Automation

Client / Intermediary

Lawyer

Single out difficult Cases

Recieve incoming Documents → Extract Attachments → Text Recognition → Classification, Structuring , Extraction → Information Transfer → Legal Work

Information Extraction

Robotic Process Automation

Example Reference Cases

Bankruptcy Case:

- 12.000 Documents, ~100 Creditors
- Preparation of Refutation Records – Cost Savings of 50% + better Information
- Processing Time: ~1 week

Private Enforcement Claim:

- 350.000 Documents / ~5.000.000 Transactions / 5 Trusts – several Suppliers
- Generation of Links from Transactions to Documents
- (Net) Processing Time: 4 Weeks including 2 Quality Iterations

Example Reference Cases

Law Office Automation:

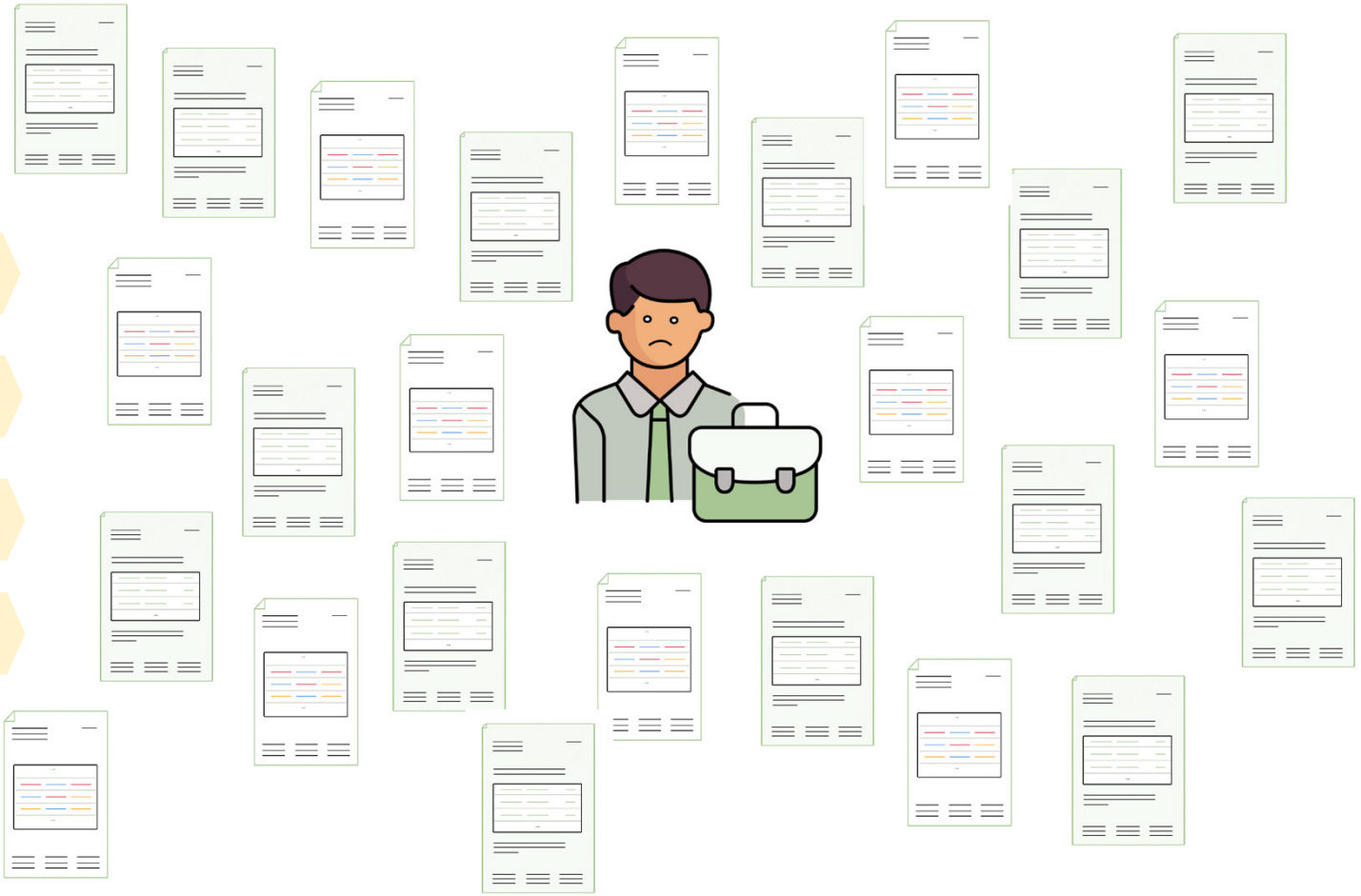
- 6.000 (growing) Traffic Law Cases / Year
- Automated Extraction of Documents, Images from Mails
- Extraction of relevant Information and Creation of Case Files
- Roadmap: maximize Automation of complete Process (Decision Trees)

Intelligent Document Processing (Pilot):

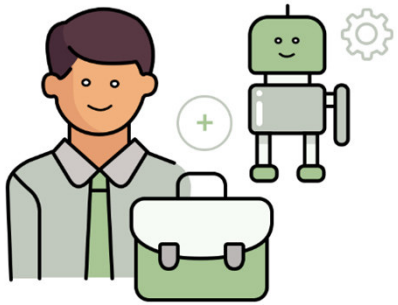
- 2.000.000 Documents / Year
- Separation of Collection Documents
- Classification of single Documents

Masses of Documents

- Competition Law
- Bankruptcy Cases
- Law Office Automation
- Class Actions



Requirements



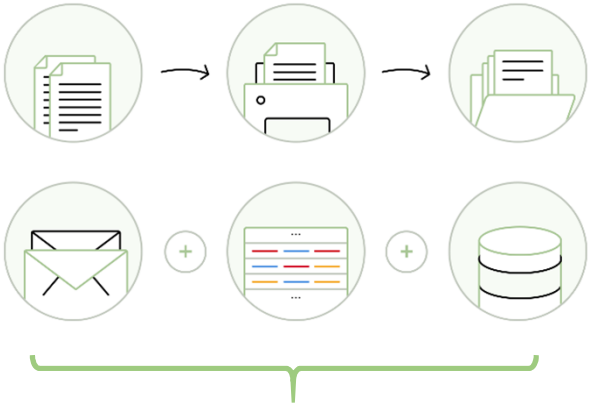
Support
– not Substitution –
of Experts

Individual Support
- not Software only -

Continuous and complete Case Support

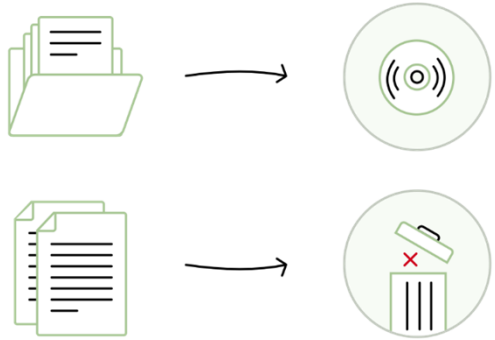
Specific Requirements of different Areas of Law

Overall Process



Digitalization & Integration

- Competition Law
- Bankruptcy Cases
- Law Office Automation
- Class Actions



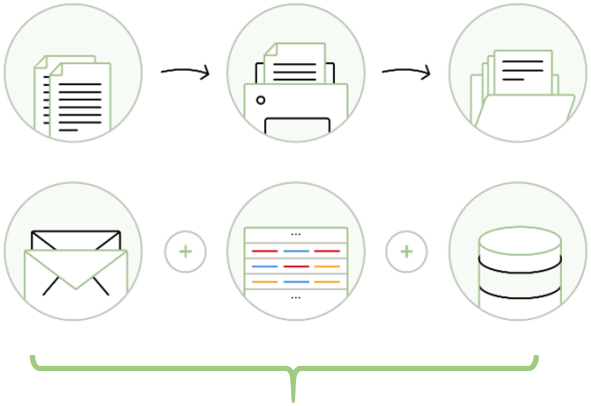
Digital Archiving & Disposal

Specification, Logistics, Controlling & Monitoring

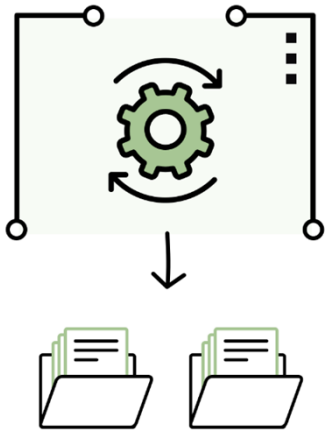
Overall Process: Organization

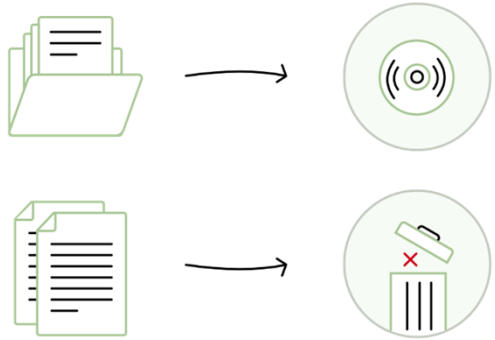
	Litigation Funder	Economic Consultants	Lawyers	Clients	Service Providers
Define & monitor Parameters	◆	◆	◆	◆	◆
Control Document Logistics				◆	◆
Digitalization & Import					◆
Agree on Data Model		◆	◆		◆
Classification & Extraction					◆
Validation & Quality Assurance					◆
Validation & Approval		◆	◆	◆	◆
Provision & Integration		◆	◆		◆

Overall Process: AI / Software



Digitalization & Integration

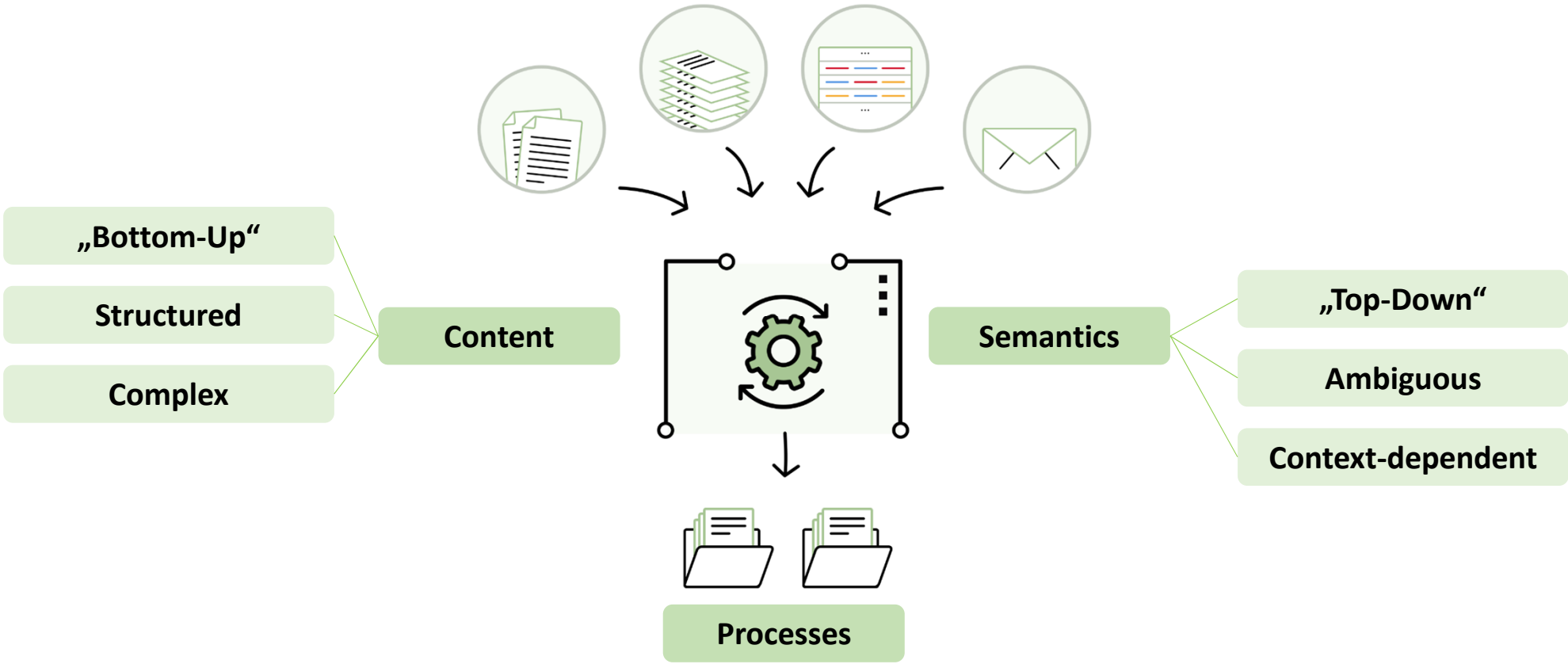




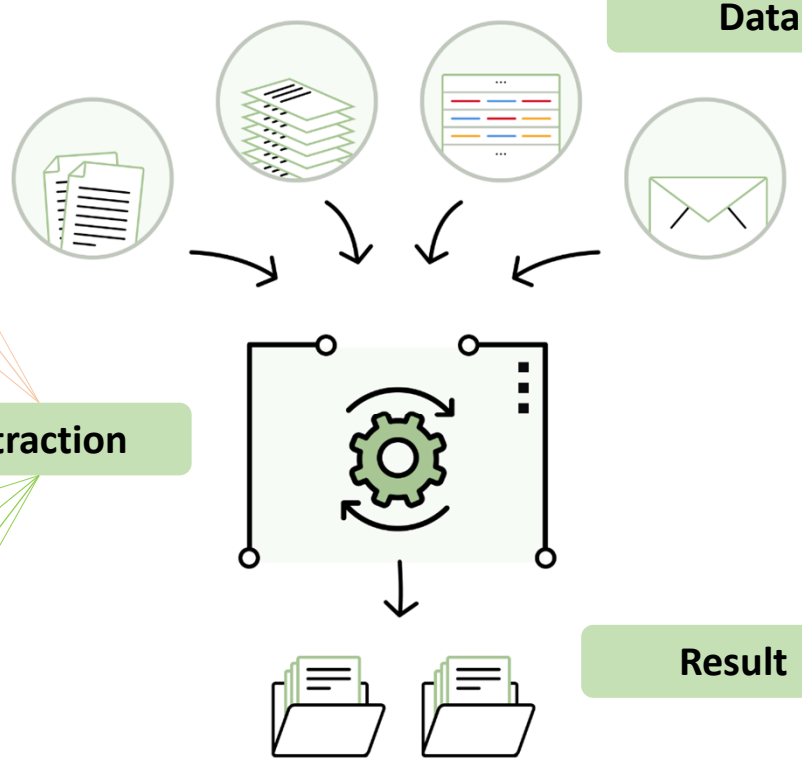
Digital Archiving & Disposal

Specification, Logistics, Controlling & Monitoring

Overall Process: AI / Software



Overall Process: AI / Software



Classic

- Manual
- Rules
- Static
- Text-based

Intelligent

- Automated
- Models
- Adaptive
- Multi-Channel

Extraction

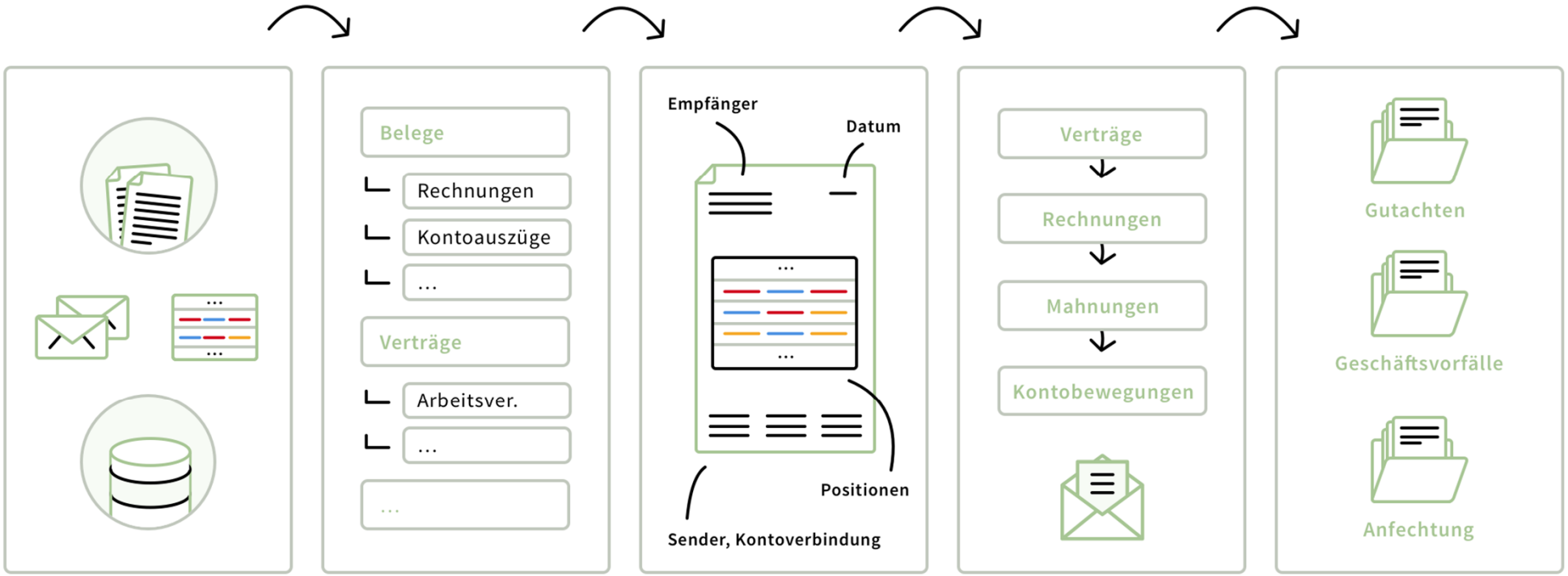
Data

- Huge
- Heterogeneous
- Unstructured
- Incomplete

Result

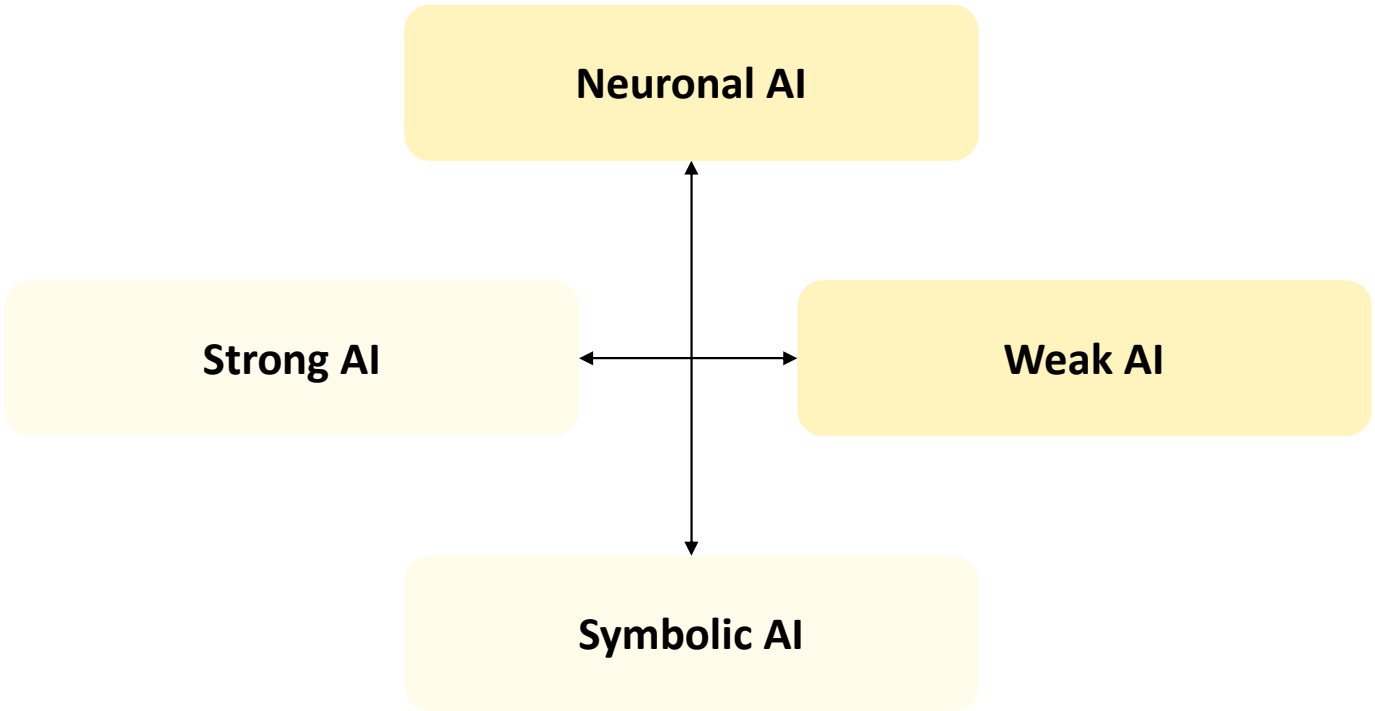
- Traceable
- Professional
- Ergonomic

Overall Process: AI / Software



Recognition	Ordering	Extraction	Linking	Provision

What actually is AI?



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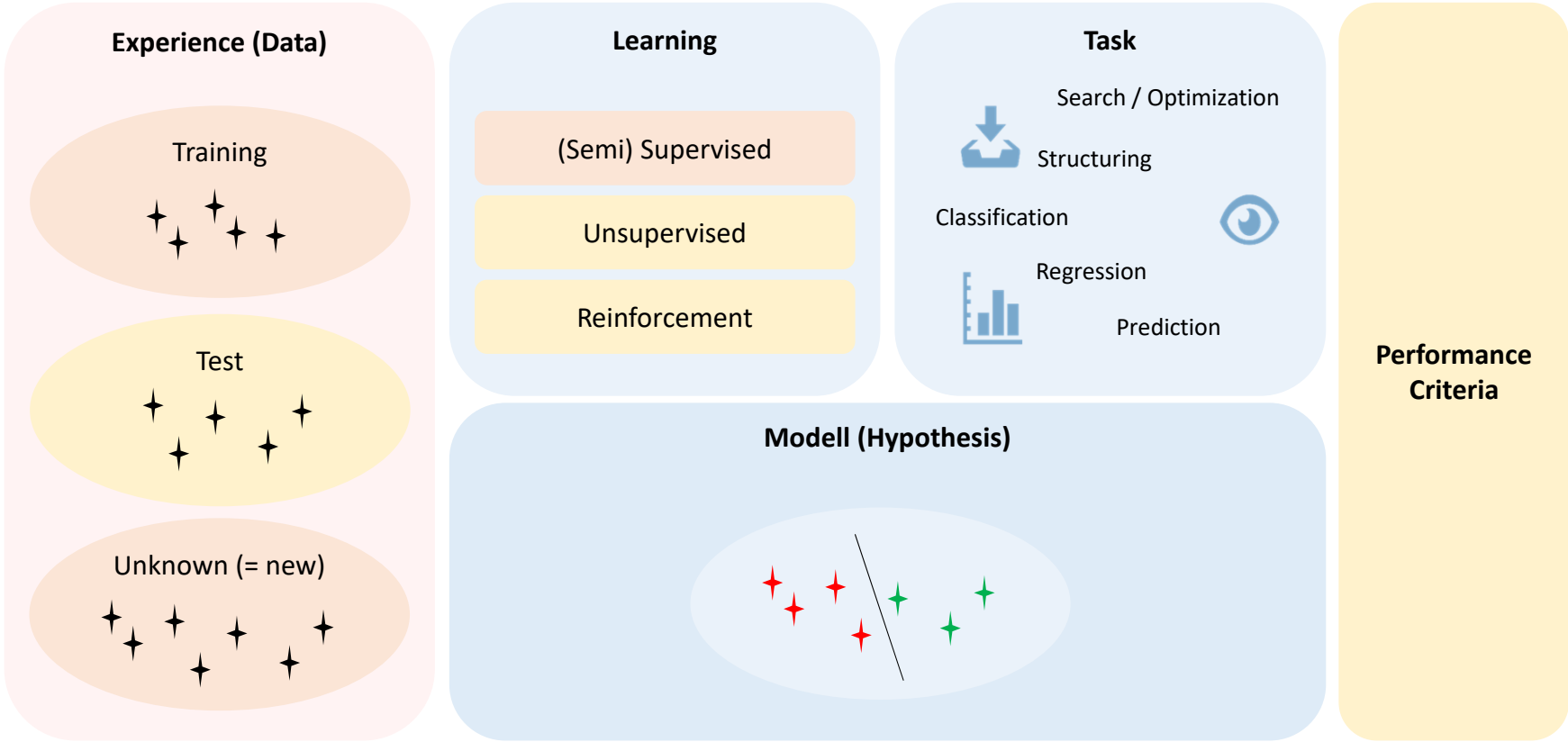
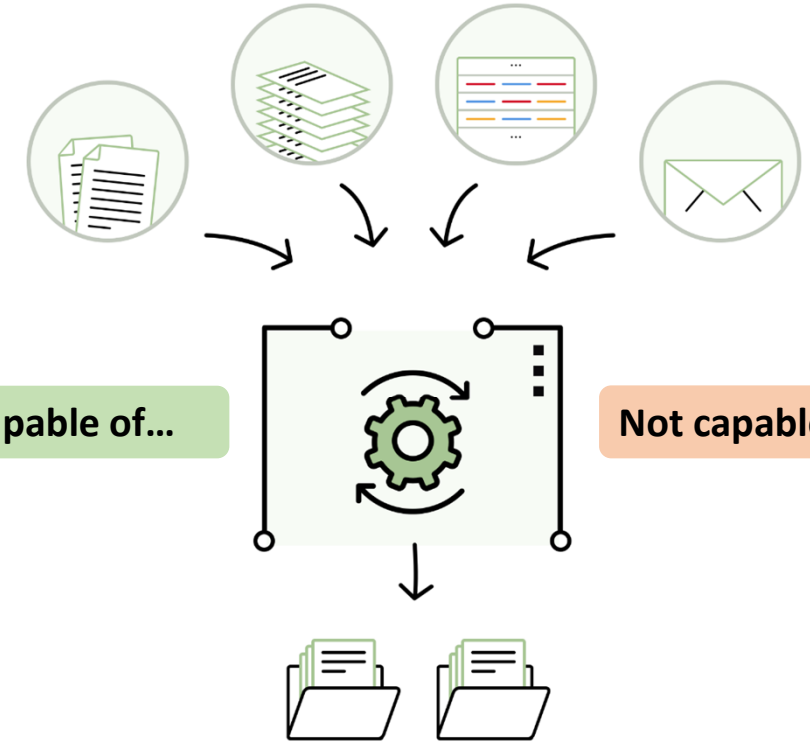


What is AI (not) capable of?



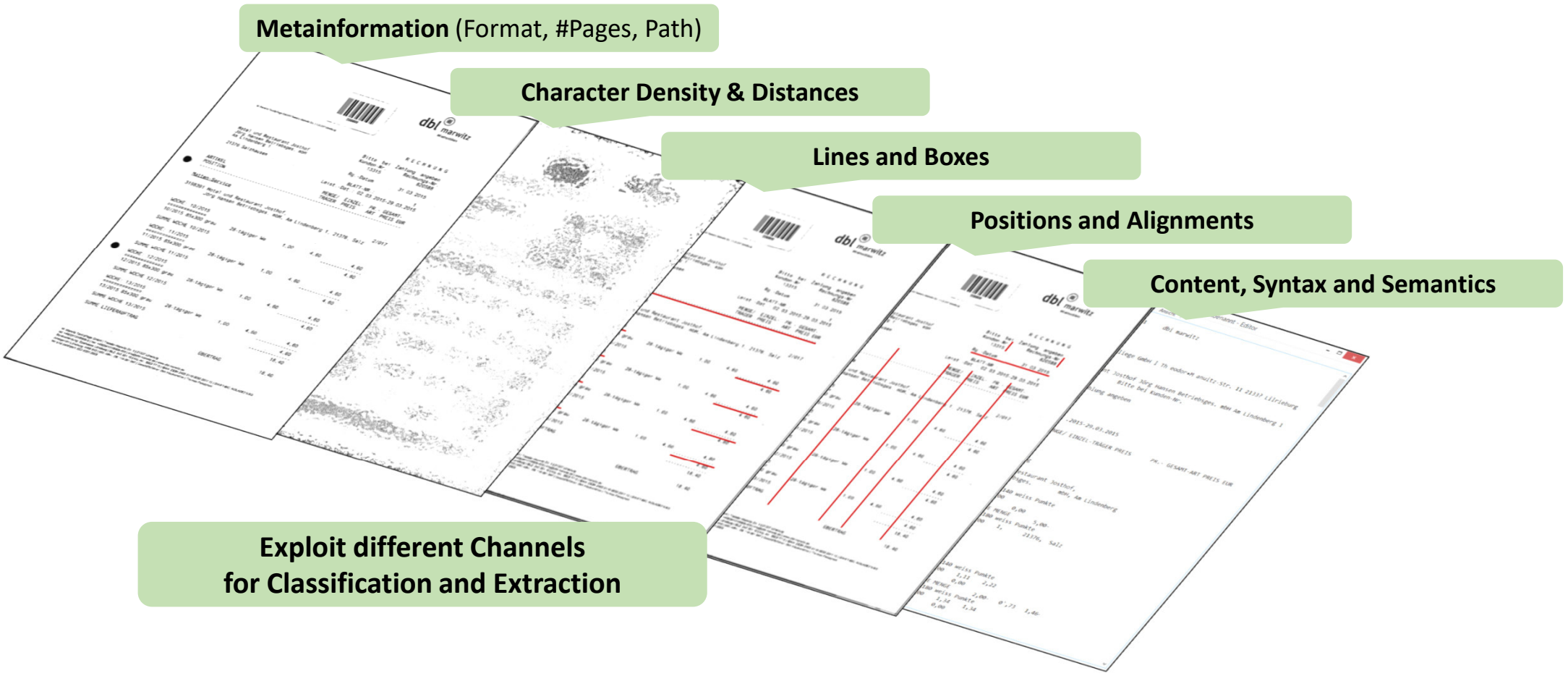
Capable of…

- Recognize complex Patterns
- Process huge Amounts of Data
- Automate recurring Tasks
- Perform special Tasks better than Humans

Not capable of…

- „Everything“ (General, Super AI)
- Solve Goal-directed Tasks without Training
- Solve Tasks without sufficient Context
- Achieve 100% Accuracy *

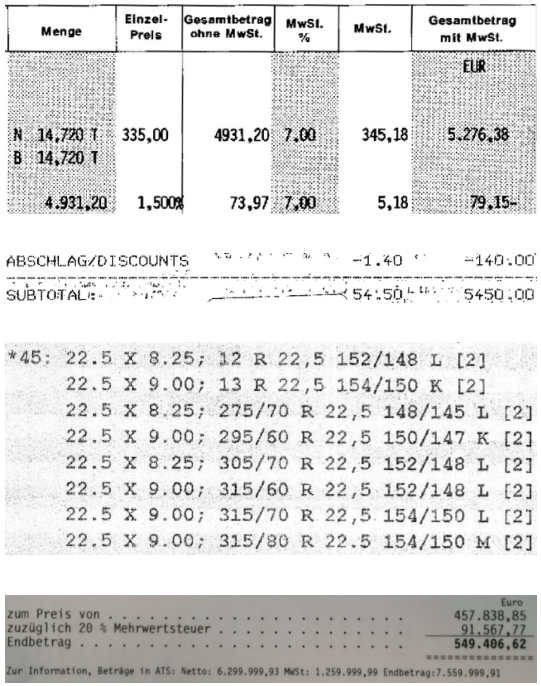
What is AI capable of?



AI Building Blocks: Denoising

inserve

Original



Menge	Einzel-Preis	Gesamtbetrag ohne MwSt.	MwSt. %	MwSt.	Gesamtbetrag mit MwSt.
					EUR
N 14,720 T B 14,720 T	335,00	4931,20	7,00	345,18	5.276,38
4.931,20	1,500%	73,97	7,00	5,18	79,15-

ABSCHLAG/DISCOUNTS -1.40 -140.00

SUBTOTAL 5450.00

*45: 22.5 X 8.25; 12 R 22,5 152/148 L [2]
22.5 X 9.00; 13 R 22,5 154/150 K [2]
22.5 X 8.25; 275/70 R 22,5 148/145 L [2]
22.5 X 9.00; 295/60 R 22,5 150/147 K [2]
22.5 X 8.25; 305/70 R 22,5 152/148 L [2]
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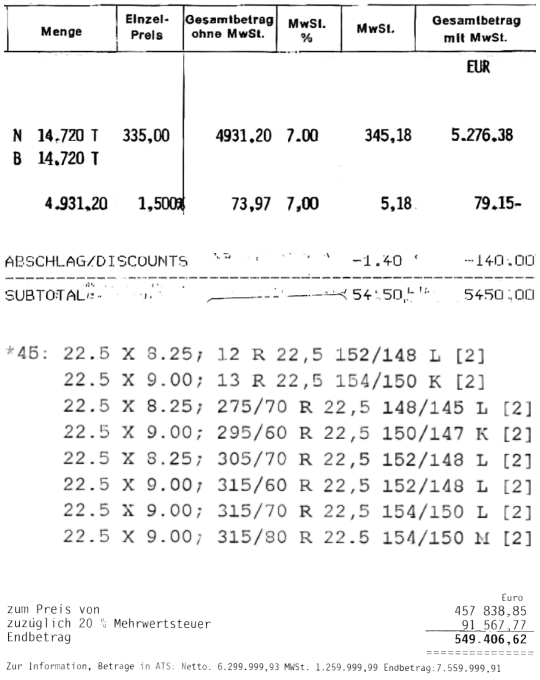
22.5 X 9.00; 315/70 R 22,5 154/150 L [2]
22.5 X 9.00; 315/80 R 22.5 154/150 M [2]

	Euro
zum Preis von	457.838,85
zuzüglich 20 % Mehrwertsteuer	91.567,77
Endbetrag	549.406,62

Zur Information, Beträge in ATS: Netto: 6.299.999,93 MwSt: 1.259.999,99 Endbetrag:7.559.999,91

Improvement



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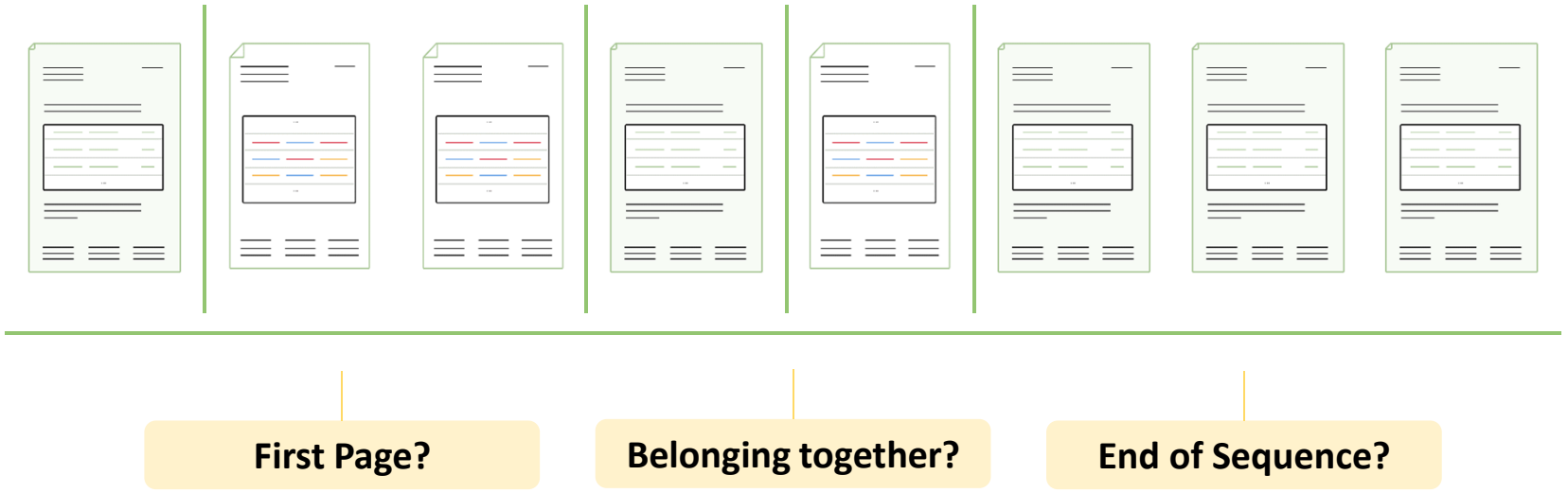
AI Building Blocks: Separation



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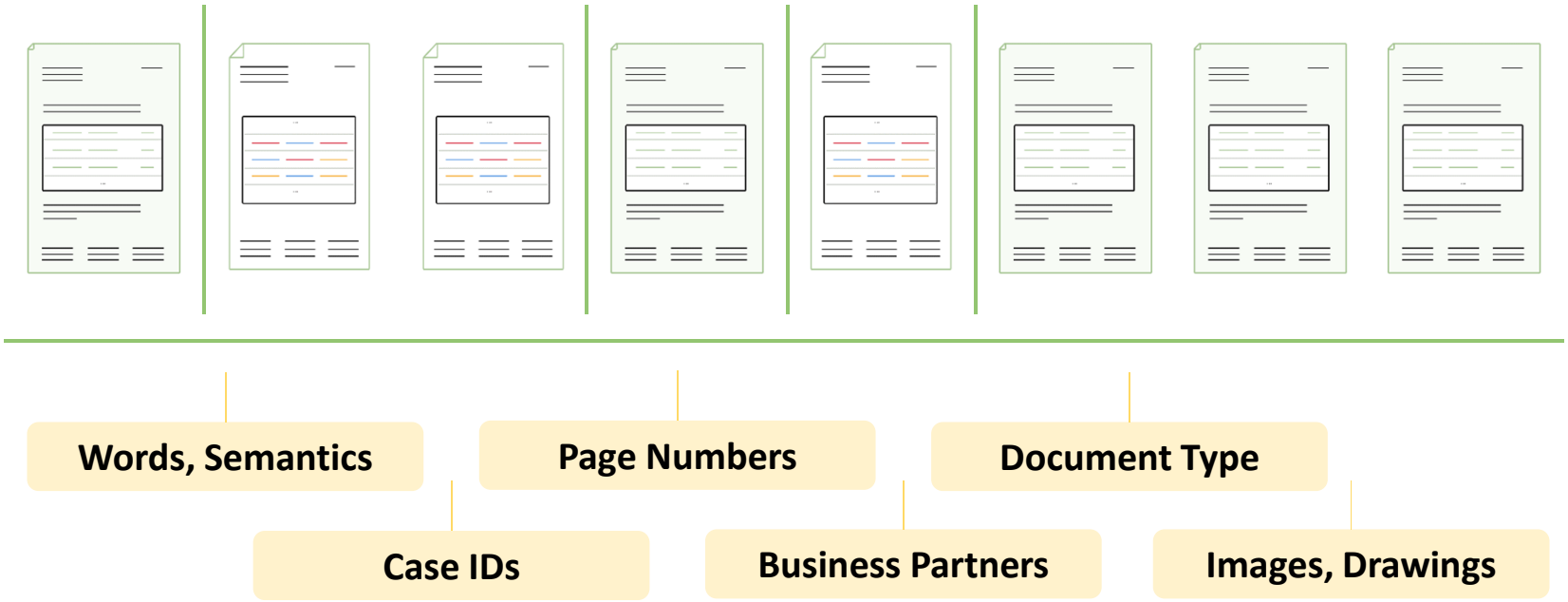

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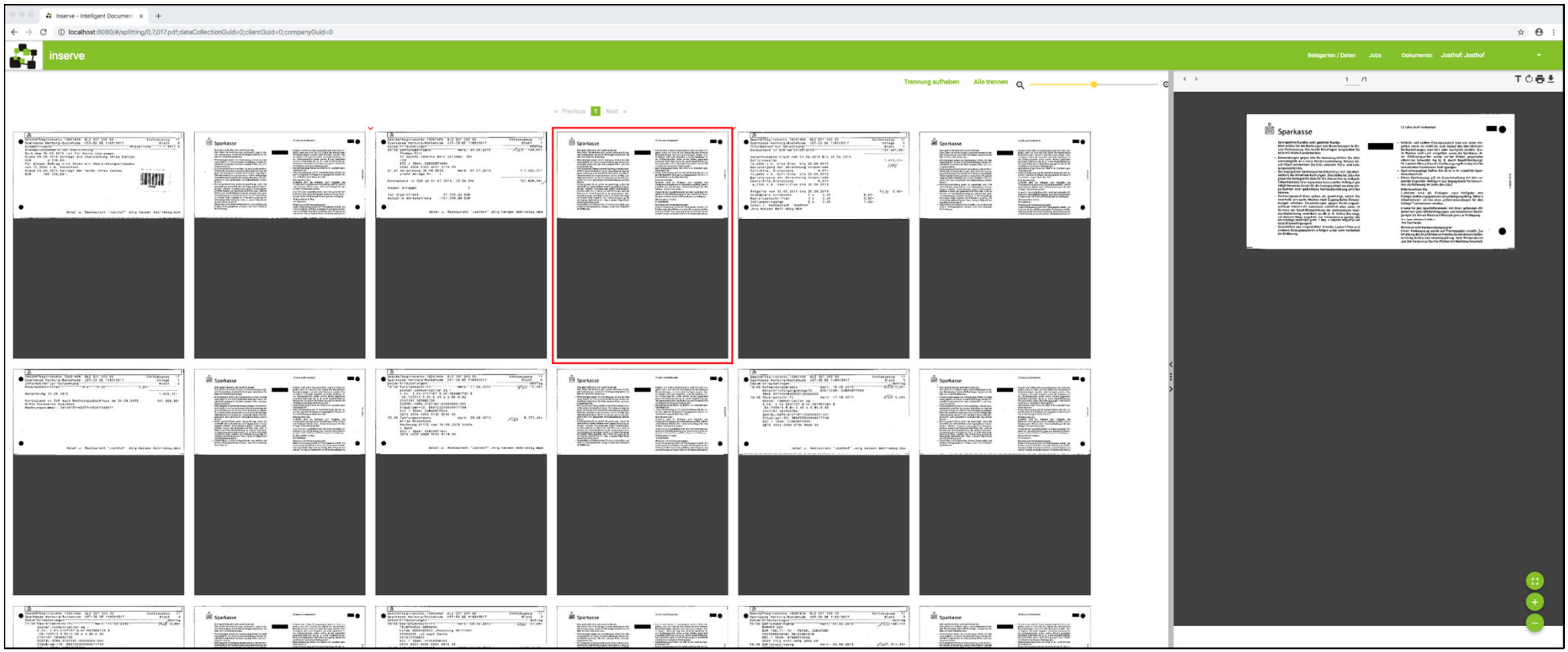
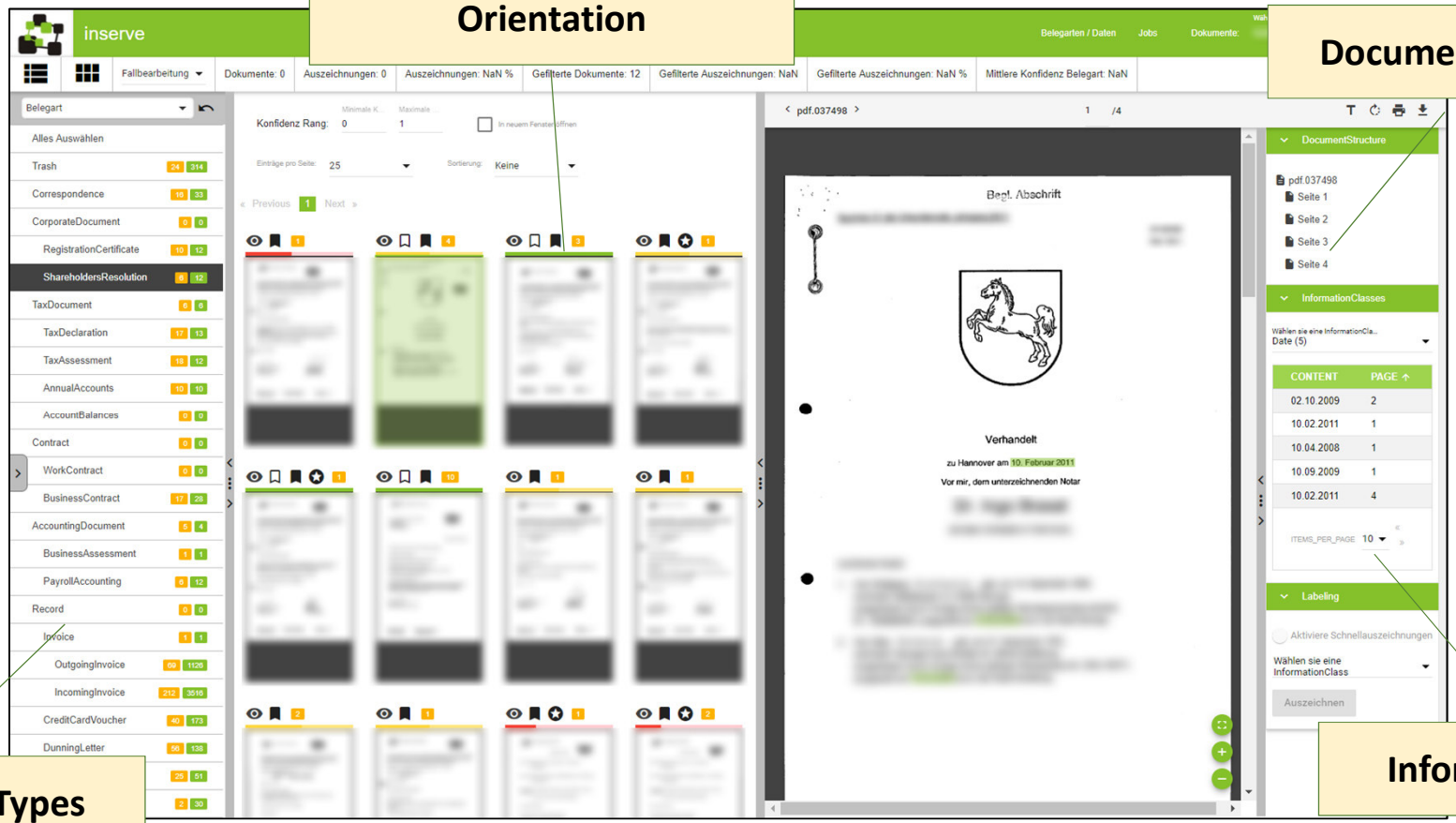
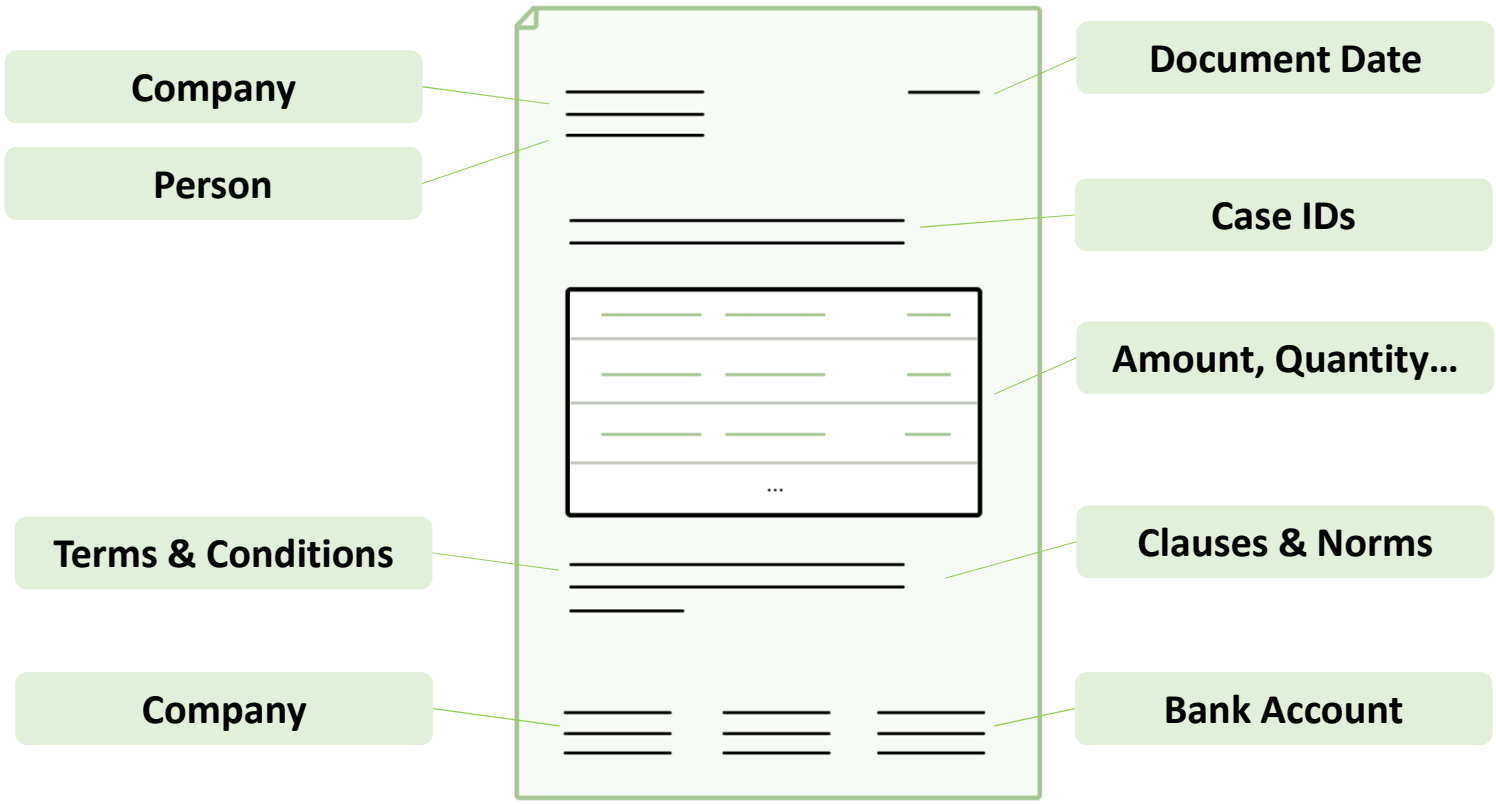


AI Building Blocks: Classification



AI Building Blocks: Extraction



AI Building Blocks: Extraction

Company | Legal Form

Title | Person

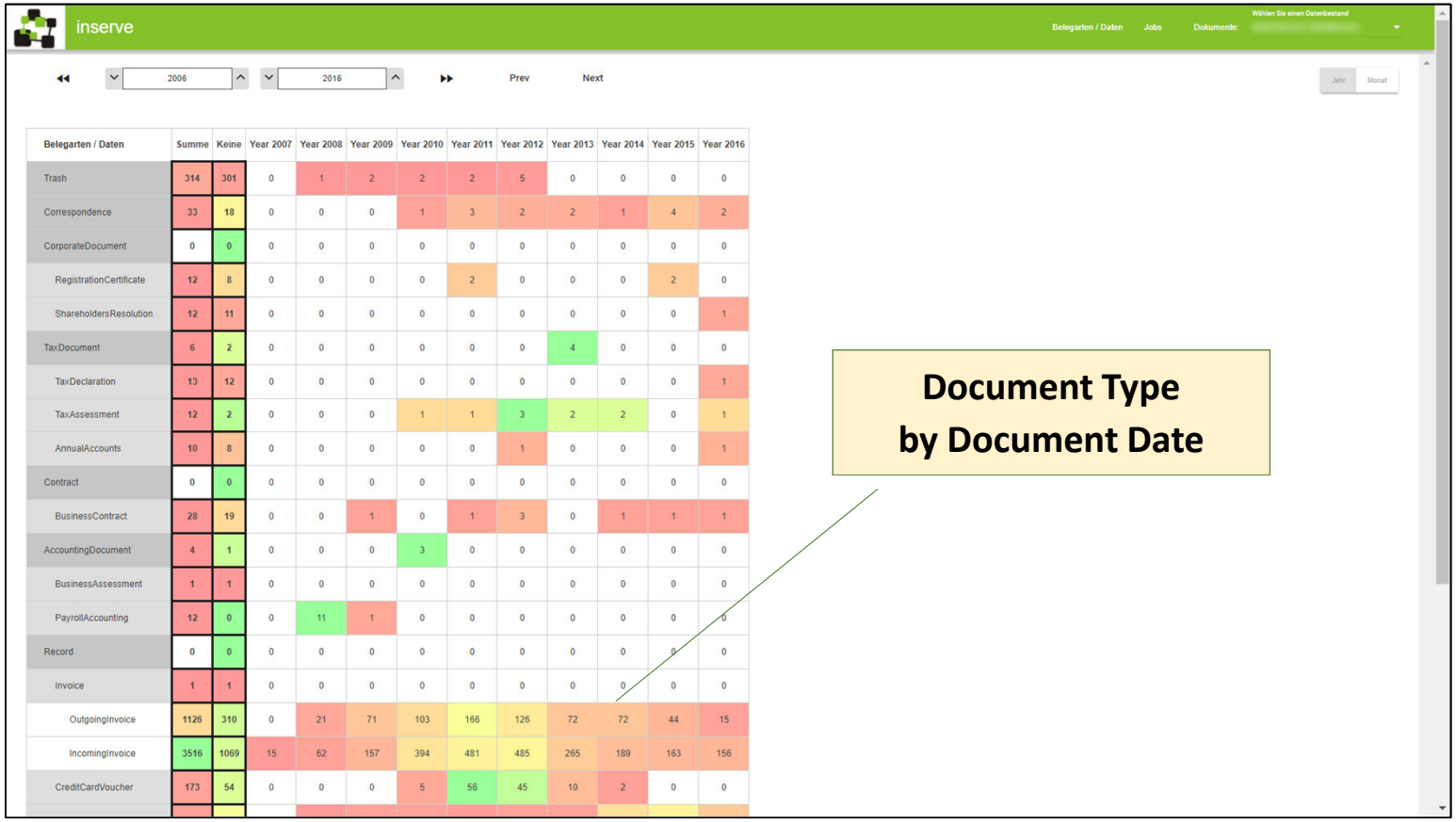
Spatial Structure

Street | Nr.

Local Structure

P.Code | City

Software Building Blocks



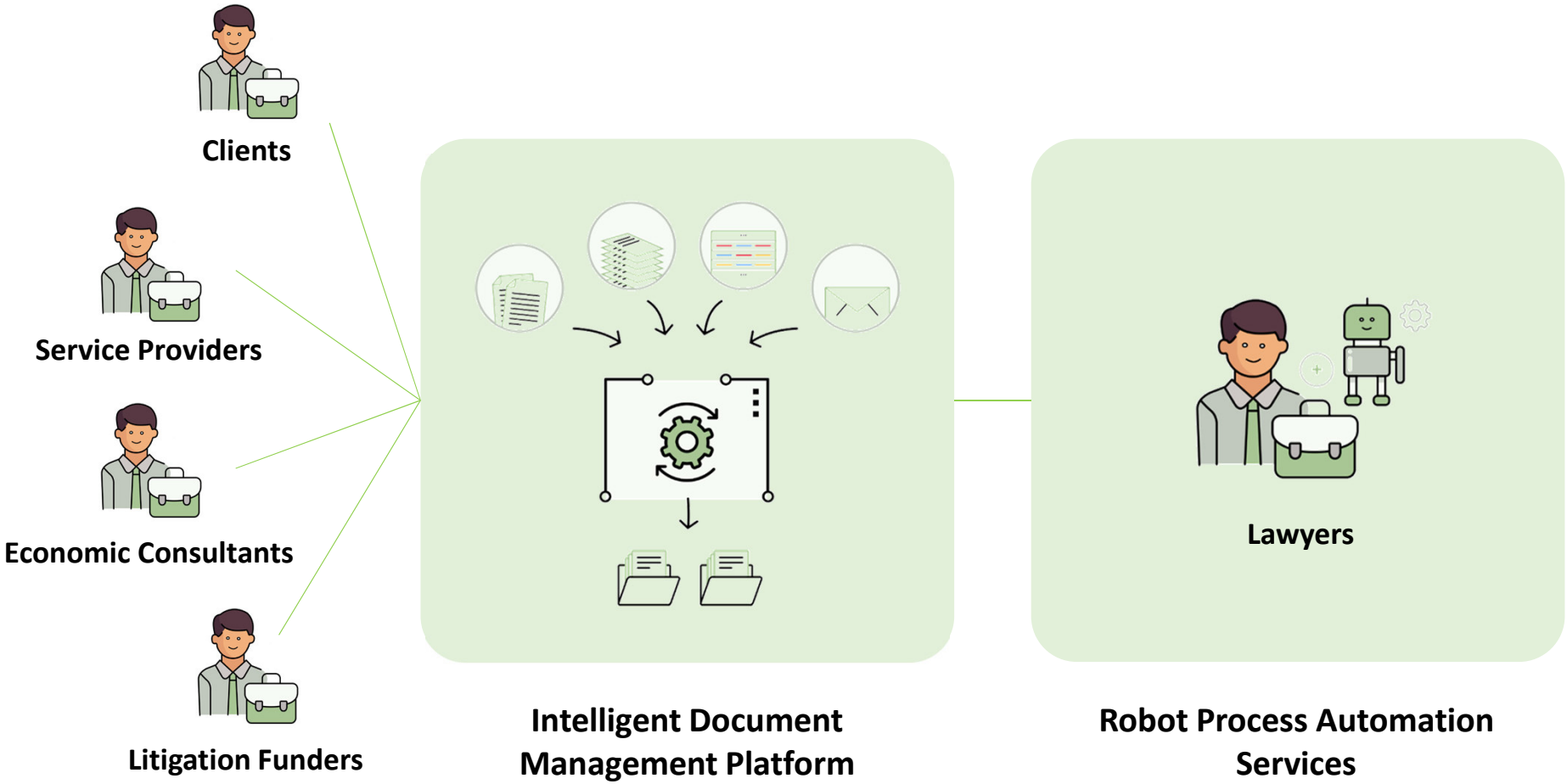
Belegarten / Daten	Summe	Keine	Year 2007	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012	Year 2013	Year 2014	Year 2015	Year 2016
Trash	314	301	0	1	2	2	2	5	0	0	0	0
Correspondence	33	18	0	0	0	1	3	2	2	1	4	2
CorporateDocument	0	0	0	0	0	0	0	0	0	0	0	0
RegistrationCertificate	12	8	0	0	0	0	2	0	0	0	2	0
ShareholdersResolution	12	11	0	0	0	0	0	0	0	0	0	1
TaxDocument	6	2	0	0	0	0	0	0	4	0	0	0
TaxDeclaration	13	12	0	0	0	0	0	0	0	0	0	1
TaxAssessment	12	2	0	0	0	1	1	3	2	2	0	1
AnnualAccounts	10	8	0	0	0	0	0	1	0	0	0	1
Contract	0	0	0	0	0	0	0	0	0	0	0	0
BusinessContract	28	19	0	0	1	0	1	3	0	1	1	1
AccountingDocument	4	1	0	0	0	3	0	0	0	0	0	0
BusinessAssessment	1	1	0	0	0	0	0	0	0	0	0	0
PayrollAccounting	12	0	0	11	1	0	0	0	0	0	0	0
Record	0	0	0	0	0	0	0	0	0	0	0	0
Invoice	1	1	0	0	0	0	0	0	0	0	0	0
OutgoingInvoice	1126	310	0	21	71	103	166	126	72	72	44	15
IncomingInvoice	3516	1069	15	62	157	394	481	485	265	189	163	156
CreditCardVoucher	173	54	0	0	0	5	56	45	10	2	0	0

Document Type
by Document Date

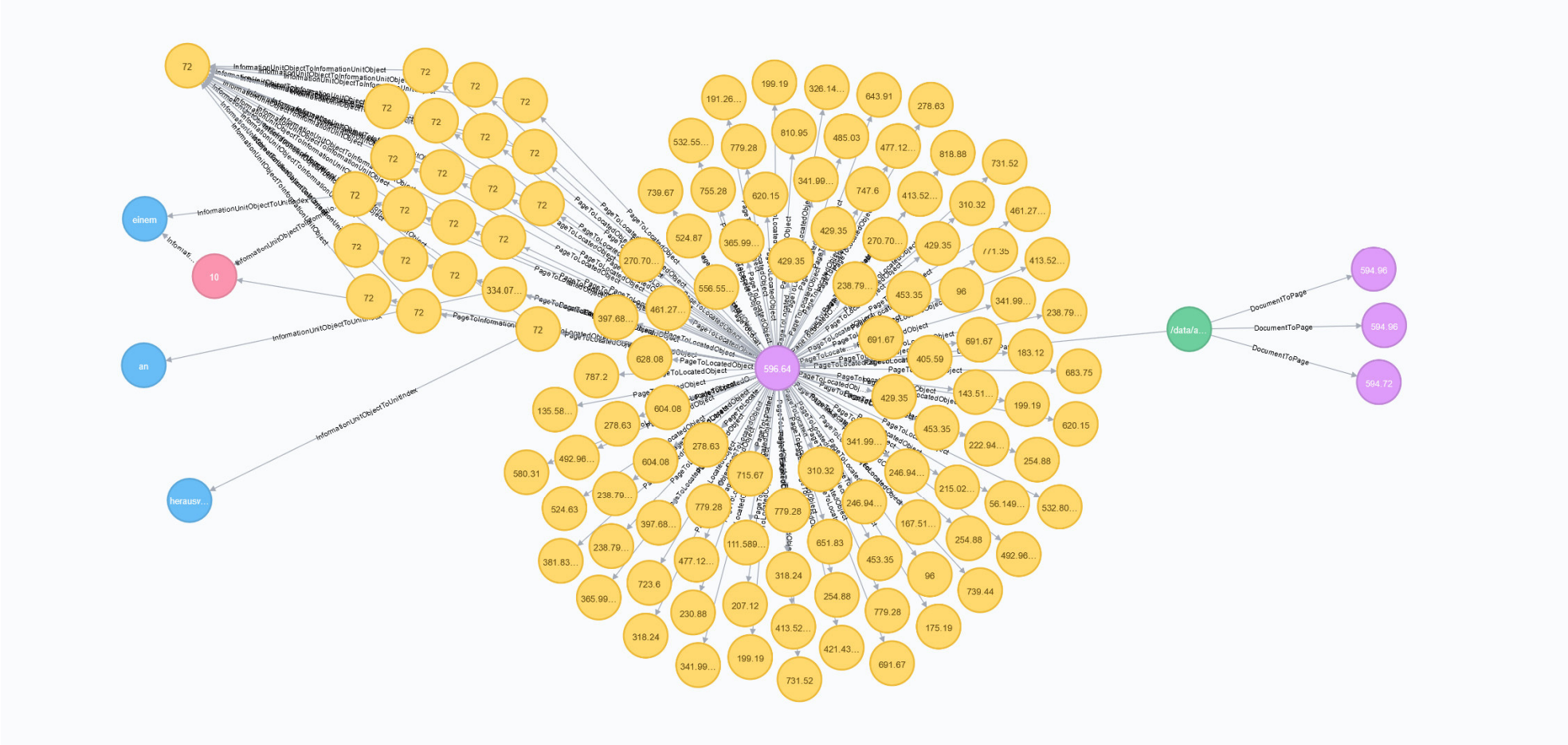
Added Value

1. Structured Handling of Data
2. Faster and easier Access to Data
3. Relief of Lawyers and Office Support
4. Increased Transparency for Clients
5. Bases for further Automation
6. Better Judgement regarding Risks of Claims
7. Increased Substance and Potential for Success
8. Higher Obstacle for Replies

Outlook & Roadmap



Components / Data Model



Questions & Answers

- AI Deep Dive?
- How to get started?
- Pilot Project?
- Detailed Procedures?
- Response & Processing Times?
- Data Acquisition?
- Data Sources?
- Pricing?
- …

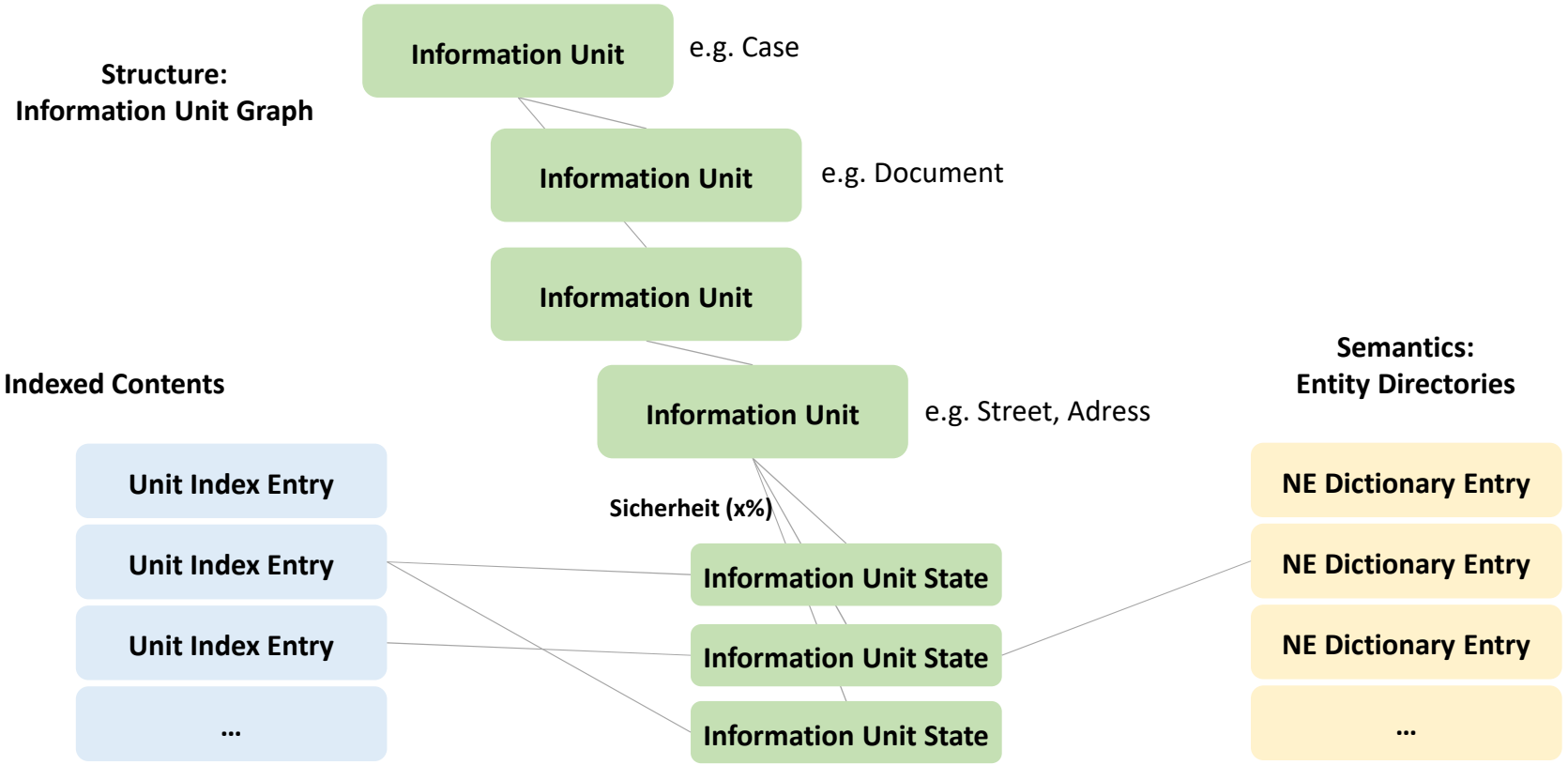
Looking forward to talk to you!

Contakt:

Arvin Arora, aarora@inserve.de

Ben Lobmüller, blobmueller@inserve.de

Components / Data Model



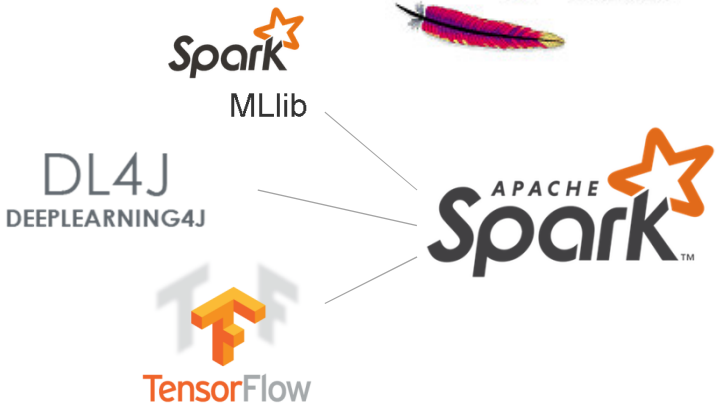
Components / Data Model

inserve

Notebooks
➔ Prototyping, Exploration

Web Server
Laufzeit Umgebung

Pipelines, Stages,
Preprocessing,
Machine Learning Algos



ETL
Clustering

Graph Datenbank