

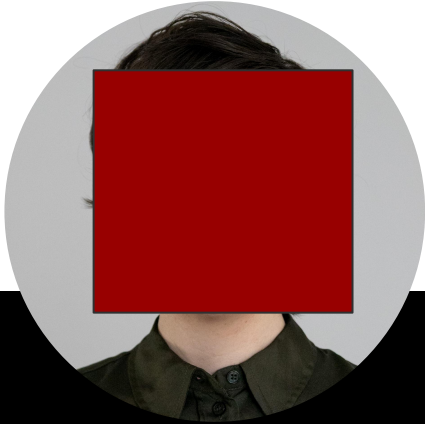
AI Offer Automation

April-May 2025

ARTHUR WEBER

**C>ONSTRUCTOR
ACADEMY**

The Team



PhD Environmental
Sciences

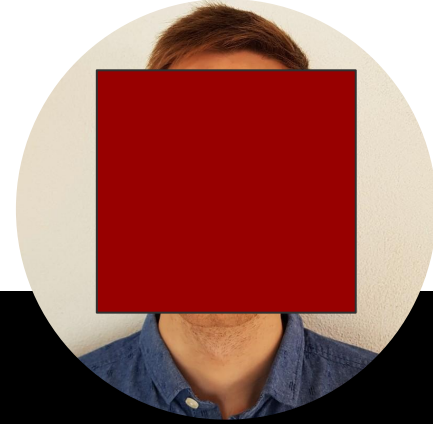
- ❖ Microbial Ecology
and Evolution



Guillermo Ibanez

Banking Industry

- ❖ Financial/Credit
Analyst
- ❖ Treasury



Computer Science

- ❖ Full-Stack
- ❖ Software Developer

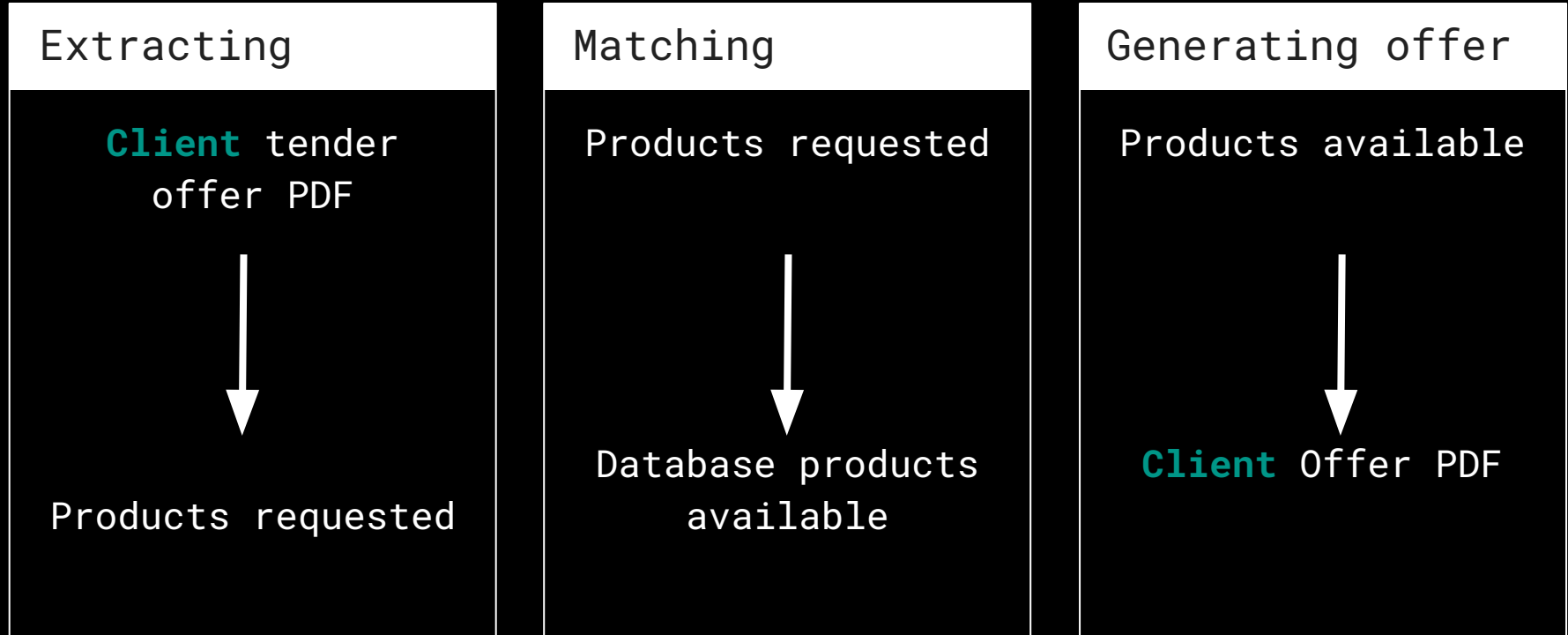
Arthur Weber

Swiss based supplier for the construction industry.

Offering includes:

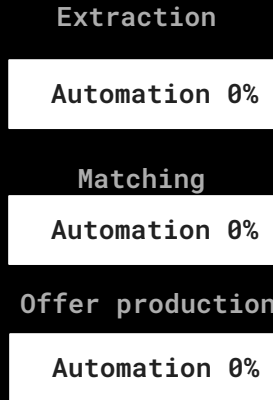
- Plumbing
- Hardware & tools
- Safety equipment

Current offer generation process

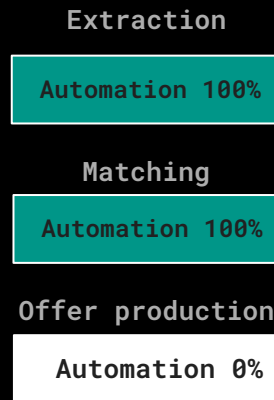


GOAL: Simplify the offer generation process

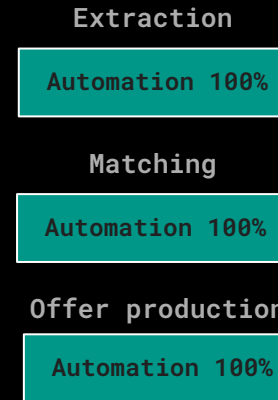
Pre-project Workflow



Current Improved Workflow



Post hand-over Goal



Challenges

- ❖ No unique ID per product
- ❖ Ad-hoc database adjustments
- ❖ No unique tender structures
- ❖ Tenders >100 pages
- ❖ Tender products \neq products in database

Constructing item descriptions

450 Rohre und Formstücke aus Polyethylen

451 Polyethylenrohre PE-HD-R.

451.200 Glattendige Polyethylenrohre ohne Schweissmuffe HSM liefern
und verlegen. Liefern und Verschweissen von Schweissmuffen
in Pos. 454.730 und 454.740.

451.210 Ringsteifigkeitsklasse SN 2, SDR 33

451.211	DN/OD 110.	A	239.000 m	___:___	___:___
451.212	DN/OD 125.	A	153.000 m	___:___	___:___
451.214	DN/OD 200.	A	20.000 m	___:___	___:___
451.215	DN/OD 250.	A	125.000 m	___:___	___:___

Constructing item descriptions

454	Formstücke zu Rohren aus PE-HD (1).				
454.200	Glattendige Bogen liefern und verlegen. Liefern von Schweißmuffen und Verschweissen in den U'pos.-U'gruppen .730 und .740.				
454.210	Bis Grad 45.				
454.211	DN/OD 110.	A	280.000 St	—.—	—.—
	Zu Pos. 451.211				
454.212	DN/OD 125.	A	80.000 St	—.—	—.—
	Zu Pos. 451.212				
454.215	DN/OD 250.	A	20.000 St	—.—	—.—
	Zu Pos. 451.215				
454.231	Grad 30	A	40.000 St	—.—	—.—
	DN/OD 110				
	Zu Pos. 451.211				

PDF parsing and item extraction



Under-constructed
item descriptions

Extract text

Extract items

item	quantity	unit	position
Durchbruch in bewehrten Betonwänden mit Wanddicke mm 200 und Durchmesser	1	St	200.1
Durchbruch in bewehrten Betonwänden mit Wanddicke mm 200 und Durchmesser	1	St	200.102
Kunststoffolie für das verhindern von auslaufen der Bojake ins Grundwasser	200	m2	310.101
Polypropylenrohr DN/OD 110 Ringsteifigkeitsklasse SN 8, SDR 29	220	m	461.12
Polypropylenrohr DN/OD 125	20	m	461.122
Polypropylenrohr DN/OD 160	181	m	461.123
Polypropylenrohr DN/OD 200	135	m	461.124
Polypropylenrohr DN/OD 250	230	m	461.125
Polypropylenrohr DN/OD 315	105	m	461.126
Polypropylenrohr DN/OD 400	5	m	461.127
Bogen DN/OD 110 mit Steckmuffe STM	90	St	463.111
Bogen DN/OD 125 mit Steckmuffe STM	5	St	463.112

Incomplete item extraction

Database matching

Database description  Tender description



Match threshold



Bad matches

Database matching

Tender description



-None
-Database match

Match
verification

item	quantity	unit	position	matched_catalog_item	similarity_score
Durchbruch in bewehrten Betonwänden mit Wanddicke mm 200 und Durchmesser	1	St	200.1		
Durchbruch in bewehrten Betonwänden mit Wanddicke mm 200 und Durchmesser	1	St	200.102		
Kunststoffolie für das verhindern von auslaufen der Bojake ins Grundwasser	200	m2	310.101		
Polypropylenrohr DN/OD 110 R ngsteifigkeitsklasse SN 8, SDR 29	220	m	461.12		
Polypropylenrohr DN/OD 125	20	m	461.122		
Polypropylenrohr DN/OD 160	181	m	461.123		
Polypropylenrohr DN/OD 200	135	m	461.124		
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Polypropylenrohr DN/OD 315	105	m	461.126		
Polypropylenrohr DN/OD 400	5	m	461.127		
Bogen DN/OD 110 mit Steckmuffe STM	90	St	463.11		
Bogen DN/OD 125 mit Steckmuffe STM	5	St	463.112		

Conclusions

- ❖ Successfully extracted item descriptions from client tenders
- ❖ Developed a workflow for database matching
- ❖ Implemented a strategy for verifying candidate matches

Next Steps

Proposition 1

Improve database descriptions,
use a unique ID per product.

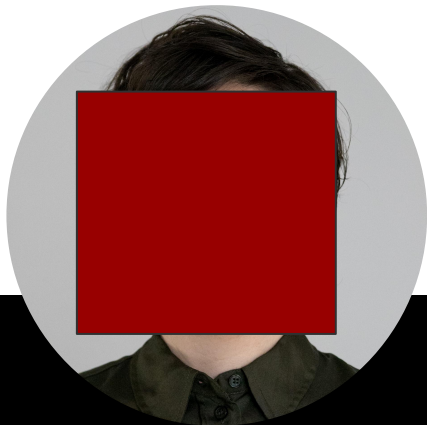
Proposition 2

Use a more robust LLM for data
improvement.

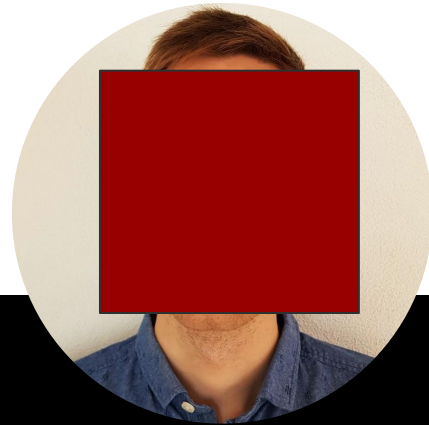
Proposition 3

Improve quality of data going
into model.

Thank You

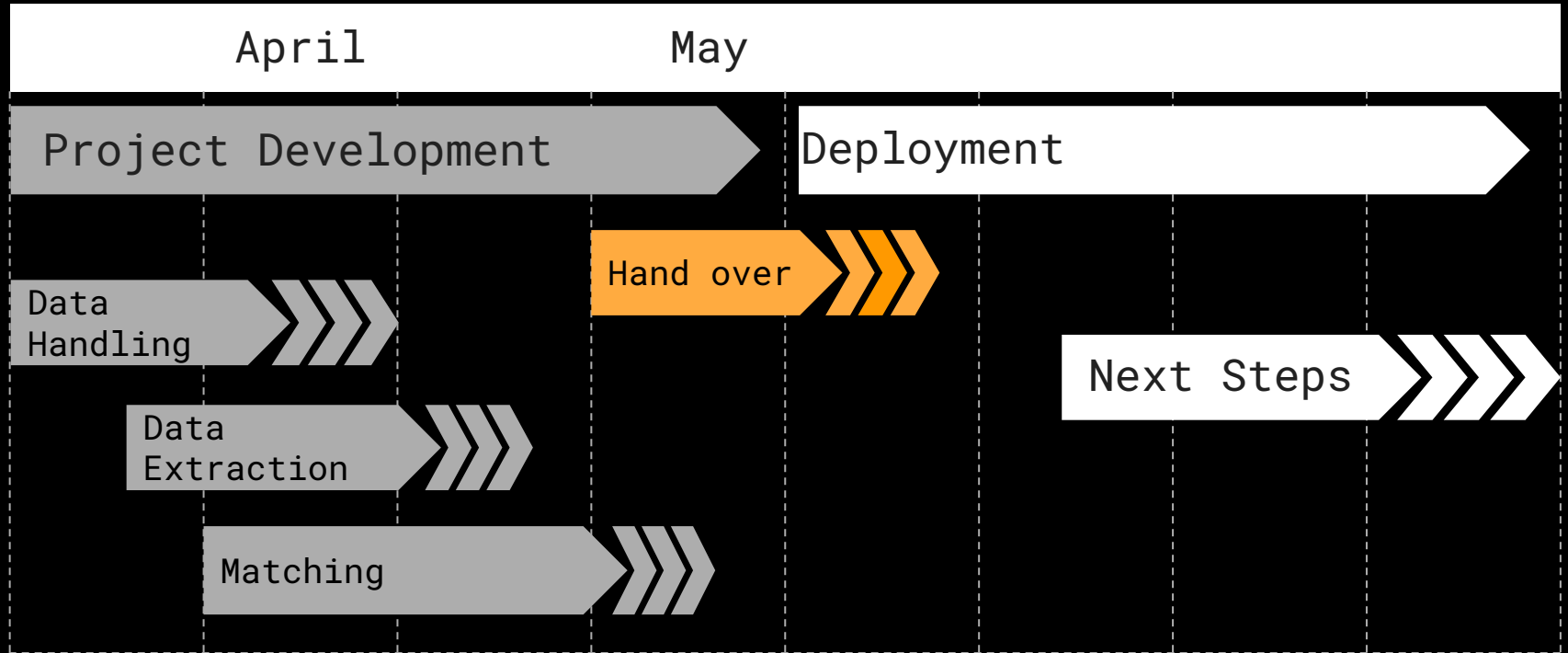


Guillermo Ibanez



Annex

Timeline



GPT-4o-mini

- Item descriptions are under-constructed (e.g., missing context or specifications)
- Misses some lines entirely (especially deeply nested or Zu Pos. references)
- Tends to drop redundant-looking but essential items
- May group or skip adjacent items if they appear repetitive

GPT 4o/Turbo

- Better reconstruction of item descriptions, using multiple lines
- Maintains section context (section field)
- Better handling of Zu Pos. references
- Rarely skips quantity lines if pattern matches are present

Data

An abstract graphic consisting of two overlapping red rectangles on a black background. The top rectangle is wider and shorter, while the bottom rectangle is narrower and taller, creating a layered effect.