Realization Document

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Contents

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Introduction

My realization document will outline my experience, my learnings and contributions during my internship at Agfa-Gevaert (Agfa). Agfa is an international company that focuses on imaging technologies. Agfa was founded in the year 1867 and they have a rich and broad history that spans over 150 years.

Agfa develops, produces and distributes a large range of imaging systems and IT solutions, mainly for the healthcare sector and printing industry. Agfa's operational group is divided into three divisions:

1. Digital Print & Chemicals
2. Radiology Solutions
3. Healthcare IT

Today, Agfa operates across several sectors. In healthcare, Agfa supplies advanced medical imaging and diagnostic solutions such as an ultrasound system, digital radiography and healthcare IT solutions.

I had the opportunity to work within the ICS department at the headquarters located in Mortsel, Belgium. I supported the Business Procurement and Finance team. The role really helped me to gain hands on experience in a corporate environment where financial and digital systems intersect.

I worked on 3 projects which were:

1. Travel & Expense Tool (T&E)
2. Payment Term Analysis
3. The Segregation of Duties Violations Report

Each project aims to address specific needs within the organizations, contributing to improved efficiency, compliance and financial management.

Note: Certain images and data in the report have been blurred or redacted ti comply with the non-disclosure agreement (NDA) that I signed with Agfa. All confidential information has been anonymised.

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Project 1: Travel and Expense tool

The Travel and Expense (T&E) tool project is part of a larger plan to standardize and streamline travel and reimbursement processes across Agfa. Prior to the project, T&E procedures were done using different software programs for each region.
To address this, Agfa partnered with an external vendor to design and implement a new centralized T&E.

1.1 As-Is Process Documentation

The first thing I had to do was create an As-Is document. This document covered the processes across multiple regions and a business unit. The As-Is document serves as a starting point to understand existing tools, workflows and also regional differences ultimately guiding where the harmonization or transformation is needed.

The information was collected through direct meetings with key stakeholders across the different regions. I drafted a questionnaire which I used as a guide in the discussions and to ensure consistency. The sessions gave me some insights into how the practical realities of how T&E processes are executed day to day.

The regions and business unit included in the document were Asia-Pacific (ASPAC), Europe, US/Canada, Latin American and business unit DPC/DPS & R&D. For each of these, I captured the different tools/software being used, the detailed steps involved in submitting travel requests and the full process of an expense claim. To visualize the process, I created a detailed level 5 Business Process Model and Notation (BPMN) for each region which shows the decision points, various and the dependencies of the workflow. According to Visual Paradigm (2010) the BPMN is a visual modelling tool for business analysis application and specifying enterprise process workflows, which is an open standard notation for graphical flowcharts that is used to define business process workflows. A level 5 means the BPMN will be a detailed view of processes showing tools, techniques and the technologies used.

During the analysis, several differences emerged. While some regions used the same tool, their usage varied significantly and in terms of the features used. In contrast, a few countries did not have a T&E at all and relied on email or a paper-based workflow. These differences are important when it comes to understanding the level of change management that will be needed to move towards a global solution.

Here is a sample of the questions I asked:

- What is the current process for requesting travel?
- Who is responsible for reviewing and approving the travel request?
- Is there a threshold for approval?
- How is the travel book, employee or travel agency?
- What is the process for submitting an expense report?
- What information is required to submit an expense report?

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- What criteria are used to approve or reject expense reports?

Pictured below is a screenshot of one of the travel processes that I captured for Agfa.
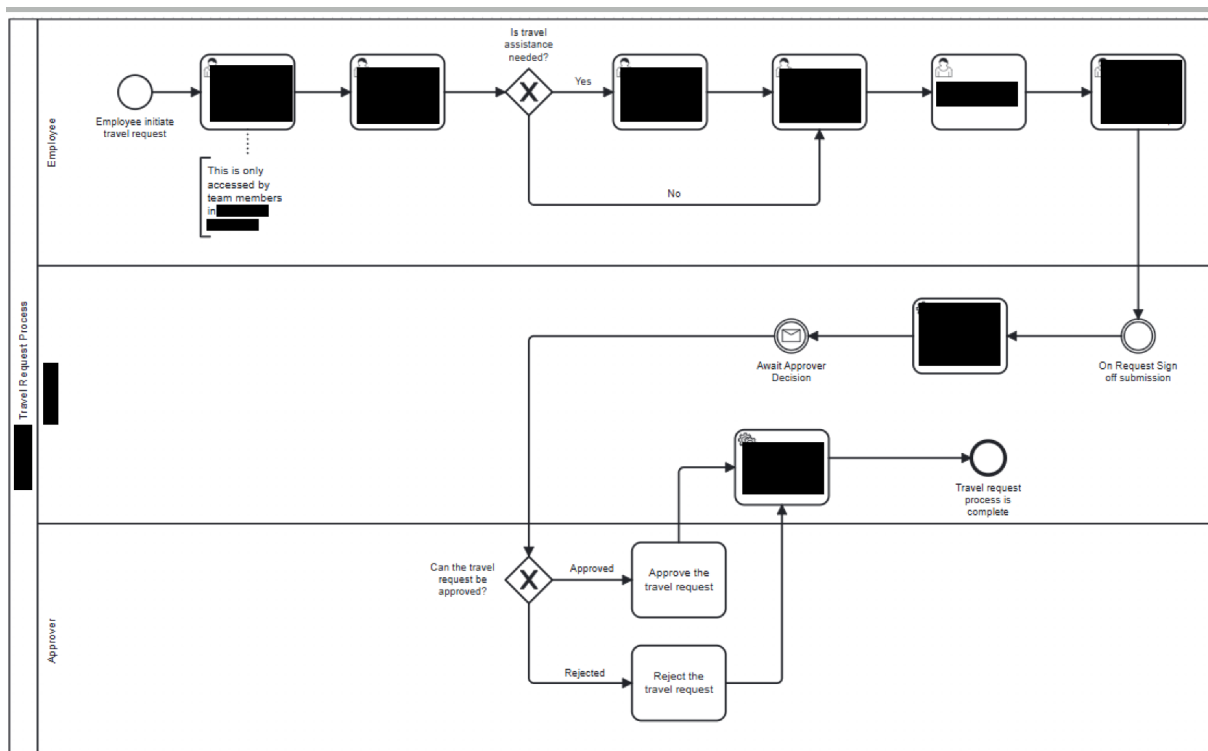

Figure 1: Business unit travel process BPMN

To conclude the documentation, I created a summary table that highlights the key differences across the regions and the business unit. This table includes comparison of:

- T&E tools used
- Travel request process
- Expense claim process

1.2 2024 Figures overview

To support the planning and the implementation of the new global Travel and Expense tool, I created a quantitative analysis of the travel related activity across the regions. The ultimate goals were to understand how active each of the systems are and potentially to support rollout decisions for the final solution. This analysis helped the team evaluate which region may need more attention during the transition phase based on volume and performance.

This analysis was performed across the four major systems that support regions such as Europe, ASPAC and many others. I exported the travel claims for each system, information in this export was company code, document header, document type,

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posting date and amount in local currency to name a few. With these columns, I created a couple pivot charts such as:

- All the trips made by company code per month.
- The average amount in EUR for each company code per month.
- The total number of trips be employee
- The total amount in EUR is spent on the different company codes.

The pivot charts helped me analyse and add the information into the overview for 2024. The overview consisted of many columns such as:

- Total number of trips in 2024
- Average trips per month
- Number of employees who submitted travel claims
- Trips per employee month
- Total travel expenses

The 2024 overview shows how travel and expense activity across different regions in 2024. By showcasing the different results, it supports decision making as Agfa moves forward with the new solution.

1.3 Expense Category Analysis

As part of the groundwork, it was important to analyze the existing types. This was done across all systems across the various regions. This step was crucial for the new solution because we could see which expense types have been used, how many times and the G/L codes for the expense type.

To gather the relevant data, I exported a Travel Expense Report for all the systems, exported the Trip Provision information and all of these reports came from SAP. SAP in English stands for System Analysis Program Development, it is a software company that develops enterprise software that helps different companies run various parts of their business. A trip provision variant in SAP are rules that is used to determine the reimbursement of travel expenses and also how they are dealt with in terms of tax purposes. Below is an example:

In the Federal Republic of Germany different trip provisions apply for the public and private sectors. If both areas are to be portrayed in one system, two different trip provision variants must be defined for them.

Country	Area	Trip provision variant	Description of variant
Germany	Private enterprise	01	Settlement Germany: private enterprise
Germany	Public sector	02/D1	Settlement Germany: public sector

Figure 2: Example of trip provision from SAP website

The extracted data covered countries including Belgium, Switzerland and Argentina, among others. Each Travel Expense Report consisted of the name of the expense,

duration of the trip, trip destination, amount, description and the trip provision. I had to add in the G/L accounting code based on the Trip provision and the system.

The primary purpose of this analysis was to identify which expense types and the respective G/L codes were commonly used across different systems. This analysis will let the core team know which expense categories to keep and which to remove for the new solution. For example, there was an expense that was used once throughout 2024, the core team would remove that expense if there are no legal factors linked to that expense.

To carry out this assessment, I organized the expense data using pivot charts to calculate how often each expense type was used. This had to be done for all systems.

When that was done, I had to create an overview of all the expense types. This expense types and gather the same data from US/Canada and ASPAC as well. After getting all the relevant information from the different regions, I added it to the final overview. Since Agfa is going to be working with an external provider for this tool, I had to map the current expenses into the current expenses the provider has. A few expense categories were:

- Meal – Breakfast
- Travel – Flight, Train
- Car – Car Rental
- Office – Office Supplies
- Representation – External Entertainment

I had the freedom to add any expense categories that I could to accommodate the expenses that were used frequently throughout all the systems and regions. The expense categories I added were:

- Other – Spare Parts
- Other – Personnel Costs
- Other – Daily Allowance

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This is a redacted example of how the expense category overview excel spreadsheet looked like:

System	Expense Code (Transaction code)	Expense Name	G/L Code	Count	Countries
System 1	CARW	Carwash	000000	35	Germany, Belgium, Argentina
	HLIN	Hotel International	000000	450	Germany
	FUEL	Fuel	000000	60	USA
	EQUI	Equipment	000000	126	Italy

The expense category analysis gives a clear overview of how the expense categories were being used in 2024. By identifying frequently used and even redundant categories, the team could refine the list of expense types to be used in the new solution.

1.4 Challenges & Solutions

Throughout this project, most of the tasks were very straightforward but they were time intensive. There were no major technical blockers but several small data related challenges. Below are a few notable challenges and solutions.

Challenge	Description	Solution
Incomplete Trip Provision	When extracting the Trip expense report from SAP, one recurring issue was the Trip provision value only appeared in the first row of multi-line entry while the other related rows were left blank.	I used the Excel fill down for the missing values.
Regional differences in expense report	When I got the expense reports from ASPAC and US/Canada, they had their own approach to	To tackle this, I made use of a pivot chart to see which

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	the final report. Some regions used fewer categories	expenses were used and how frequently
Time intensive	Although the tasks were very clear from the beginning, the volume of data in a few of the systems made the process time consuming. The real challenge for me was maintaining accuracy while working with large spreadsheets	To organize this and make sure everything was accurate, I worked in small time frames. I worked on it and then moved onto another part or worked on another project.

Even though the challenges were manageable, they showed the importance of data validation, cross checking and having a structured approach when working across multiple system and multiple regions.

Below is the screenshot showcasing one of the challenges I faced during this project:

Figure 3: Trip Provision value missing in sequential rows despite being related to the same expense

Below is the pivot chart showing the expense code (in black) and the G/L code (in red) and the count of each expense type.

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Figure 4: Pivot chart showing the expense categories and their count.

Conclusion

The work that I did during this project provided me a lot of groundwork for the new solution for Agfa. By creating the detailed As-Is documentation, gathering data from SAP and analysing 2024 expenses, types and figures; I was able to contribute meaningful insights that will help the team to standardize the solution across the organization. Although, the development of the tool will continue beyond my internship, my contributions made during my internship will serve as a critical reference for future decisions.

Project 2: Payment Terms Analysis

The second project I worked on was the Payment Terms project. This project started as a result to a request from the Procurement team, they needed more insight into when AGFA was paying the invoices in relation to the due dates on the invoices. The goal of the entire project was to analyse the 2024 invoices for one system and note when the invoice was paid and whether the payment terms were aligned with the agreed upon payment terms.

This project supports Agfa's broader financial, and procurement goals and makes sure that the payments are made on time which does not only improve the vendor relationships but also maintains better control of the cash flow.

I worked on this project in collaboration with Rob Kasslack representing DPC & R&D and Marvin Azeez representing the Finance Department.

2.1 Analysis

Since the Procurement department requested for deeper insights on how the invoices were being paid in relation to the due dates on the actual invoice. At some point this must be done for the rest of the systems (which are three). We started working with one system and moved onto the others. The analysis involved a few key steps:

- Extracting all the invoices from 2024 from SAP.
- Extracting key information from invoices
- Cross-referencing with information on the invoice, posting information and the master data.
- Payment Term compliance check.

2.2 Tools & Technology Selection

These are the tools that we made use of:

Tool	Purpose	Reason for use
Python	Created a script to automate the PDF extraction from the export folders.	Easy to use and easy to customize
SharePoint	Central storage for processed PDF's.	Easily accessible by everyone
Microsoft Azure Document Intelligence Studio	Create a custom model for invoice field extraction	Initially intended for invoice labelling but was limited and could not be

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		integrated with Microsoft Power Automate.
Excel	Central data storage and manual labelling	Familiar to users, good for quick analysis.
Microsoft Azure Storage	Used it to drop the folder into the container which is connected to the container in Microsoft Azure's DIS	Microsoft Azure Storage was a good was to upload and access the invoices needed for the labelling tool (Microsoft Azure Document Intelligence Studio)
Microsoft Power Automate	Automate the extraction of data from the invoices and store the data in an Excel sheet	Microsoft Power Automate integrates well with SharePoint and AI Builder as well. It made the process suitable for handling large scale invoice automation without a lot of manual input.

2.3 Approach Summary

The process followed a structured technical workflow combining automation tools and manual validation:

- Python script was used to retrieve the invoice from folders.
- Invoices were uploaded to SharePoint Teams site via an automated process.
- Microsoft Power Automate was used to retrieve invoice data into an Excel sheet.
- Reviewing missing data manually and labelling unique cases

2.4 Realization

In this chapter, I will outline the key functionalities that I used to support the analysis of the payment terms. The focus was on the automation data extraction which will ensure data quality and to build a solid foundation for any further insights. I will high all the challenges I encountered during the process and the solutions as well.

Functionality
- **PDF Extraction Script:** A python script was created which loops through the invoice folders that was exported from SAP. The

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exports from SAP were approximately 10,000 folders; inside the folders was an invoice in PDF format and another file. It identifies the PDF files in the folders, renames it to using a standard format which makes it easier to identify the invoice and uploads them to SharePoint. (e.g. companycode_documentNumber_2024.)

```python
40    # Function to find files containing "(PDF)" in the filename
41    def find_pdf_files(folder):
42        pdf_files = []
43        for root, dirs, files in os.walk(folder):
44            for file in files:
45                if "(PDF)" in file:
46                    pdf_files.append(os.path.join(root, file))
47        return pdf_files
48
49    # Function to process all .zip files in a folder
50    def process_zip_files(zip_folder, extract_folder, uploaded_folder, sharepoint_site, folder_path, access_token):
51        for root, dirs, files in os.walk(zip_folder):
52            for file in files:
53                if file.endswith(".zip"):
54                    zip_file_path = os.path.join(root, file)
55                    extract_zip(zip_file_path, extract_folder)
56
57                    # Find PDF files in the extracted folder
58                    pdf_files = find_pdf_files(extract_folder)
59
60                    # Upload PDF files to SharePoint
61                    for file_path in pdf_files:
62                        if upload_to_sharepoint(file_path, sharepoint_site, folder_path, access_token):
63                            # Create a subfolder with the parent folder name and move the files into the subfolder
64                            parent_folder_name = os.path.basename(os.path.dirname(file_path))
65                            destination_subfolder = os.path.join(uploaded_folder, parent_folder_name)
66                            os.makedirs(destination_subfolder, exist_ok=True)
67                            destination_path = os.path.join(destination_subfolder, os.path.basename(file_path))
68                            shutil.move(file_path, destination_path)
69                            print(f"Moved file '{file_path}' to '{destination_path}'")
```
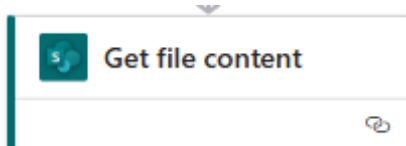
Figure 5: Python Script for PDF Extraction and Renaming

- **Power Automate Flow for field extraction**: once all the PDF's are uploaded, a Power Automate flow is triggered. This flow makes use of the AI Builder to extract basic information each invoice. Information such as invoice number, date, total amount and it our case payment term as well (if available). The flow will populate the results into an excel spreadsheet. Below you will find the action from Microsoft Power Automate and the explanation.
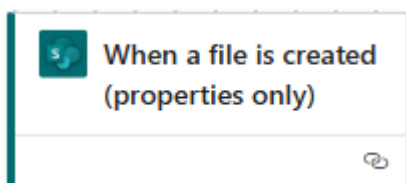
When a file is created (properties only)	❖ The flow is triggered when a new file is uploaded to the folder. Only the metadata is captured at this stage of the flow.
Get file content	❖ The get file content retrieves the entire content of the uploaded file.

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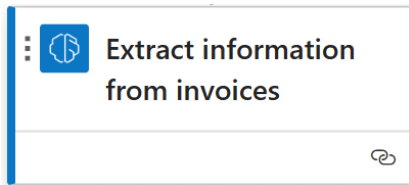
❖ This action makes use of Microsoft Power Automates AI Builder that is used for invoice processing to extract information.
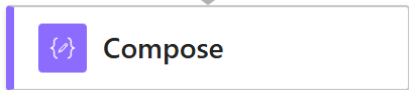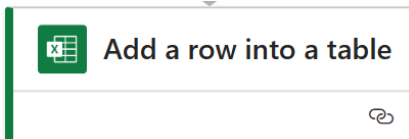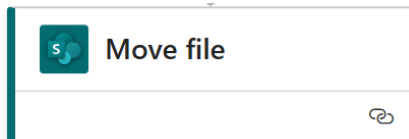

❖ I made use of a compose to calculate the date difference.

❖ This action adds the information of the invoice into an excel spreadsheet.

❖ The last action is to move the invoice PDF file from the original to another folder. This was just to check if any invoices failed, I could go back and manually add it in.

The excel image shown below is the result of the power automate flow. The extracted fields are Invoice number, Vendor [name], Total, payment term (if any) and the date difference to name a few.

Invoice Number	Vendor	Total	Invoice Date	Due Date	Date Difference	AI detected payment term	Filename
40035268		€ 2.040,22	1/1/2024		Could not find date	binnen 90 dagen na factuurdatum over	2024_VIM
10045/2024		EUR 979,44	06.03.2024		Could not find date	A/C TRANSFER 45 DAYS EOM	2024_VIM
798380521		5.250,52 EUR	3/4/2024	4/3/2024	0		2024_VIM
14809619		97,18	26/03/24	5/10/2024	45		2024_VIM
9204898728		15.855,84 EUR	21.03.2024		Could not find date	60d. netto	2024_VIM
9204813298		34.592,09 EUR	27.10.2023		Could not find date	60d. netto	2024_VIM
		US$ 8,124.80	7/3/2024		Could not find date	EXW Kyunggi-DO and T/T remittance 30	2024_VIM
798374126		8.753,37 EUR	26/02/2024	27/03/2024	30		2024_VIM
		US$88,298.00	28/02/2024		Could not find date	7days T/T remittance	2024_VIM
4193372		462,00	2/5/2024	5/5/2024	90	Betalen binnen 90 dagen na factuurdat	2024_VIM
20240615		1 863.40 EUR	19/03/2024	18/04/2024	30	30 days invoice date	2024_VIM
24/030		€ 9.680,00	3/11/2024		Could not find date	Payment within 30 days after invoice d	2024_VIM
6507823502		EUR 321,89	23.01.2024		Could not find date	Virement, 30 jours date de facture, San	2024_VIM
		US$139,583.70	29/02/2024		Could not find date	In 7days T/T remittance after factory de	2024_VIM
2240000160		22.432,69 EUR	16.01.2024	31.01.2024	15	1 month after end cal. month	2024_VIM
798400064		136,90 EUR	22/03/2024		Could not find date	Payment on Receipt	2024_VIM

Figure 6: Screenshot of the excel spreadsheet

• **Data cleaning:** After I ran all the invoices, I did a thorough data cleaning process which helped with maintaining the consistency and accuracy. This involved:
  ❖ Added the column "Amount in Local Currency (LC) which is euros, I added this column so when it came to data visualization, I could show the total amounts.
  ❖ I standardized the Vendor names. The AI model added in some special characters, non-Latin symbols such as Chinese characters.

❖ I removed duplicate entries of invoices; there were only a few.

This preparation made sure that the excel spreadsheet was clean, structured and ready for the next phase of the project.

- **Data enrichment & cross-referencing:** After the flow completed and the excel spreadsheet was populated, I moved on validating and enriching the data. To do this, I worked with exports from a Master Data & Posting:
  1. Master Data (MD): This dataset has all the information for each vendor, which is recorded by the procurement system. By matching the document number to the each supplier, I was able to identify the expected payment term.
  2. Posting: The posting dataset contain the actuals payment terms that was used at the time of processing, this dataset came along invoice processing details.

The MD and posting dataset were added as separate sheets in the workbook. I made use of formulas to match invoices by using the document number.

To better understand and analyze the spreadsheet, I carried out two key comparisons:

❖ Posting vs Invoice, this comparison reflected on the operational side. How quickly was a invoice processed and paid.
❖ Posting vs Master data, this comparison highlighted whether the payment were made in accordance to the payment terms agreed when the contract was signed.

Next, I performed the following calculations and categorizations.

❖ Day Difference calculation: I extract the number of days value from either the date difference or the payment terms.
❖ Using the day difference values, I categorized each invoice as Aligned (when the difference was 0), Paid Early (when the difference was a negative number) and paid late (when the difference was a positive number)
❖ Gap grouping: I added another classification column that grouped the day differences into broader categories into Aligned (if day difference was 0), Critical (if the day difference was more than 31 days), Large if the difference was between 16 and 30, Moderate if the difference was between 6 and 15 and small if the difference was 1 to 5.

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The different categorizations and dual comparison helped to highlight if they were any trends, or inconsistencies across the invoices in a structured way.

2.5 Challenges & Solutions

Throughout the project, I came across challenges, both technical and process related.

Challenge	Description	Solution
Complex SAP folder structure	Each invoice was stored in separate folder.	Developed a python script to loop through the folders and extract the pdf file that was needed.
Incomplete or missing data from AI extraction	After running the power automate flow, a lot of invoices had missing fields like payment terms for example.	Since a lot of invoices did not have a payment term, I decided to extract invoice date and due date. I could then assume that the invoices were paid within these two dates.
High number of invoices	For the first system, we had to extract ± 10 000 invoices. Processing all these invoices in one go was a concern.	The 10 000 was broken up into 10 folders. Each file had 1000 files which made it easier to work with. I also did not run all 10 folders at once; I ran 2 folders a day so we could avoid the Power Automate latency warning.
AI extraction failed flows due to not finding due date or invoice date field in invoice	A few invoices failed during the flow because the AI agent could not find the due date or the invoice date	Added a compose which adds "could not find date" in the date difference if the agent could not find either a due date or an invoice date. For majority, the agent could find a payment term if this happened.

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Tool integration Limitation	The initial plan was to use Microsoft Azure Document Intelligence to label unique invoices and feed the trained model into Power Automate. However, the integration was not possible.	This approach was abandoned. (see 2.6 Lessons learned and adaptions)

2.6 Lessons Learned and Adaptation

At first, after the first folder was finished extracting. I was going to use Microsoft Azure Document; the goals were to label problematic invoices and train the custom model so that it could be used to extract missing fields such as payment terms.

However, this solution did not work like how I thought it would due to integration limitations between DIS and Power Automate. While DIS worked well during the labelling, it could not be integrated. As a result of this, I pivoted more to a scalable solution using date differences in the power automate and if there was a payment term in the invoice, it was picked up as well.
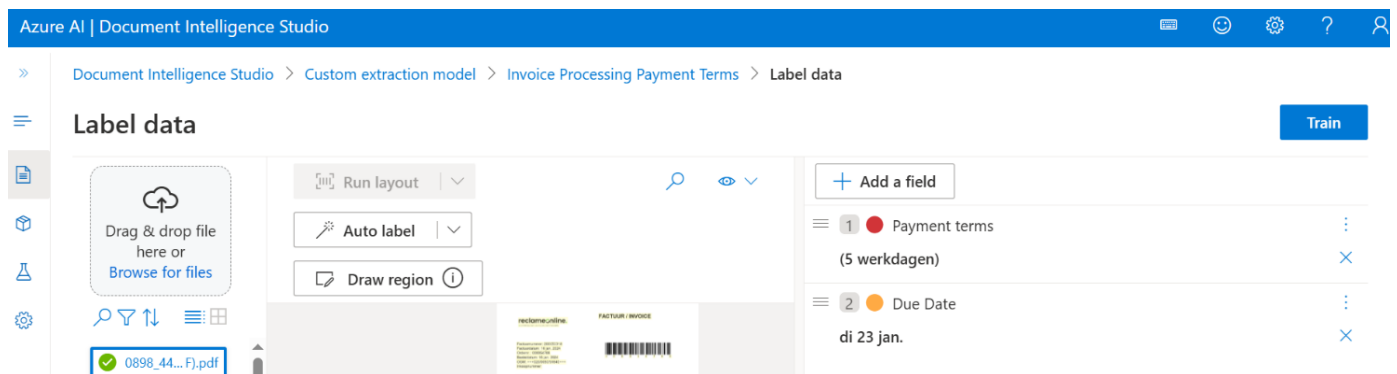
Figure 7: Azure AI labelling Interface

2.7 Results & Insights

The analysis showed difference between the actual payment term and the predefined payment terms. A lot of invoices were either paid earlier or later than expected, which indicated some inconsistences in payment processes across the invoices.

Through the internal comparison of master data and posting, I noticed the payment term definitions were aligned, more than half of the invoices matched when it came to the payment terms.

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Row Labels		Count of Documnet Number	Sum of Amount in LC
Aligned		3893	███████
Paid Early		1485	███████
Paid Late		3787	███████
Grand Total		9165	███████

Figure 8: Pivot chart showing number of invoices with the payment status alongside the corresponding total amount in EUR. (Invoice vs Posting)

Conclusion

The payment term project aimed to bring some clarity to the Procurement team by comparing payment behaviour with contractual agreements. Through a combination of automated data extraction, excel-based analysis and collaboration with different stakeholders across Finance and Procurement, I was able to identify whether the invoices were paid on time, early or late.

Although, we faced some challenges such as tool limitation and even inconsistent invoice data formats; however, we adapted the process by changing to a more consistent method. The outcome provides a structure view of the payment term compliance across the different vendors which can help inform future improvements. This project not only added value to Agfa but also provided me with hands-on experience in data validation, automation and cross functional team working skills.

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Project 3: SOD Violations Report

This section provides an overview of the Segregation of Duties (SOD) violation reports. It details the principles applied, challenges encountered, and it highlights how the report was constructed.

An SOD violation report is a document identifies instances where there are conflicts in responsibilities or roles within the organization. The conflicts can lead to risks, such as errors or frauds because they violate principles that separate duties to ensure checks and balances.

The SOD violation report was extracted from SAP and is an xls file extension which is the original file extension for Microsoft Excel workbooks. The main goal is to discover potential violations in an efficient manner.

The report typically includes details such as:

- Name of the employee committing the violation
- Department of the employee
- The violations
- The violation flag
- Company Code

CEO-2	CEO-3	User	User Name	Department
███████	██████	███	█████	OPERATIONS PEISSENBERG
███████	██████	███	█████	OPERATIONS PEISSENBERG
███████	██████	███	█████	PRODUCTION IMAGING PLATES
███████	██████	███	█████	PRODUCTION IMAGING PLATES
███████	██████	███	█████	PRODUCTION IMAGING PLATES
███████	██████	███	█████	PRODUCTION IMAGING PLATES
███████	██████	███	█████	GFS EMEA, ASPAC & LATAM
███████	██████	███	█████	FOREIGN TR
███████	██████	███	█████	GLOBAL PURCHASING

Figure 9: Screenshot of extract from SAP

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3.1 Employee Records

I had to make use of Employee Records; it was used to match the violating user to their CEO2 and CEO3. This allowed the report to recognize not just the violation but also the user's associated roles within the organization.

UID	ID-Type	Company Site	Last Name	First Name	Middle Initial	Department
■	IN		■ ■	■	A.	Services Worldwi
■	IN		■ ■	■		Intellectual Prope
■	IN		■ ■	■		Software
■	IN		■ ■	■		HR DPC
■	IN		■ ■	■		Operations
■	IN		■ ■	■	B	Onderhoud & Die
■	IN		■ ■	■		ICS
■	IN		■ ■	■	M.	Support & Manag
■	IN		■ ■	■	D.C.	Finishing & Buite
■	IN		■ ■	■		GFS EMEA, ASPA
■	IN		■ ■	■		Support & Manag
■	IN		■ ■	■		Technical Implen
■	IN		■ ■	■		Services Worldwi

Figure 10: Screenshot of Employee Records

Key Principles

The following principle and patterns guided the development of the report:

- Efficiency: Making use of VLOOKUP and conditional formatting allowed for a faster identification of the violations without the need for manual checking through each line.
- User-Friendly: Clear tables and pivots were used to visualise the violations and to make the report easier to navigate.

Final Pivot

To bring the entire report together, a pivot table was used to display the results. The pivot table was important for a quick analysis, and it helped identify patterns and trends within the data. It shows the violations per rule and the count of the users.

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SOD process	SOD rule nu	Rule	Violation Flag	Count of User
Department	(Multiple Item)			
CC Number	(Multiple Item)			
⊟ O2C	⊟ R01	⊟ SO & INV	Medium	3
	⊟ R02	⊟ SO & DEL	Low	341
	⊟ R04	⊟ SO & CREATED CRED LIM	High	29
⊟ PTP	⊟ R01	⊟ VBA & PO	Medium	22
	⊟ R02	⊟ VBA & VI	Medium	5
	⊟ R03	⊟ VBA & PAY	High	4
	⊟ R04	⊟ VBA & GR	Medium	11
	⊟ R05	⊟ PO & GR	Medium	194
	⊟ R06	⊟ PO & VI	Medium	20
	⊟ R07	⊟ GR & VI	Medium	28
	⊟ R08	⊟ VI & PAY	High	47
	⊟ R09	⊟ GR & PAY	High	23
	⊟ R10	⊟ PO & PAY	High	16
	⊟ R11	⊟ PO, SES & SES RELEASE	Medium	34
	⊟ R12	⊟ SES & VI	Medium	4
	⊟ R13	⊟ SES & PAY	High	3
	⊟ R14	⊟ PO & GR & VI	High	15
	⊟ R15	⊟ VBA & PO & GR & VI	High	2
	⊟ R16	⊟ VBA & PO & GR & VI & PAY	High	1
	⊟ R17	⊟ PO & SES & VI	High	1
Grand Total				803

Figure 11: Pivot table of violations

Challenges & Solutions

During the SOD analysis, several challenges impacted the efficiency and accuracy of the report. Below, I outline the key issues encountered and the solutions I implemented to resolve them.

Challenges	Description	Solutions
Inconsistent Company Code Formatting	The same company code was stored in two different formats (e.g. 0839 and 839) which leads to incorrect results in the pivot chart.	I Standardized the data by changing the format in Excel which makes all the 839 entries included a leading zero (0839) which improved the accuracy of the entire report.
Limited Experience	The dataset was extensive and manually analysing the entire dataset was inefficient	I conducted research on the Excel formulas, focusing on VLOOKUP and other lookup functions to manage the large dataset. By doing research, it helped by

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		reducing the manual effort and also improving accuracy.
UAT Data in a Separate Workbook .(UAT is an excel spreadsheet with every employee's information)	The employee records data was stored in separate Excel workbook which made it difficult to cross-reference and to apply formulas efficiently	Moving UAT to same workbook I decided to move the employee records data into the sheet with the report of the SOD from SAP. Doing this made it easier to work with formulas in the different sheets.

Conclusion

The SOD report analysis gave me a clear understanding of how a company works in terms of violations. By recognizing potential conflicts in roles and responsibilities, the final report supports the internal controls and help to prevent conflicting activities and activities that are unauthorized.

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Glossary

Term	Definition
Ai Builder	A Microsoft Power Platform capability that enables the user to add intelligence to our automate process.
ASPAC	A business region that includes Asia and the Pacific Rim (including Australia and the same nations of East Asia)
BPMN	BPMN is a visual modelling tool for business analysis application and specifying enterprise process workflows, which is an open standard notation for graphical flowcharts that is used to define business process workflows.
Expense Claim	A list of amounts of money spent for business purposes that should be reimbursed to the employee claiming it.
Imaging technology	Invoices the use of special equipment to create visual representations of the human body.
Level 5 BPMN	A detailed view of processes showing tools, techniques and the technologies used
Python Script	A file that contains a short self-contained set of instructions.
Travel Request	Travel request is an application that allows an employee to submit before they want to make a business travel.
Transaction Code (T-Code)	In SAP, t-codes are short alphanumerical strings that represent specific entry points within an SAP system.
Quantitative analysis	The process of collecting and evaluating measurable and verifiable data.

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