



**AGFINANCE 2025**  
Growing Together

June 2022 – Sjoerd van der Zee

# **FINDING YOUR WAY THROUGH THE SPAGHETTI OF COMPLEXITY**

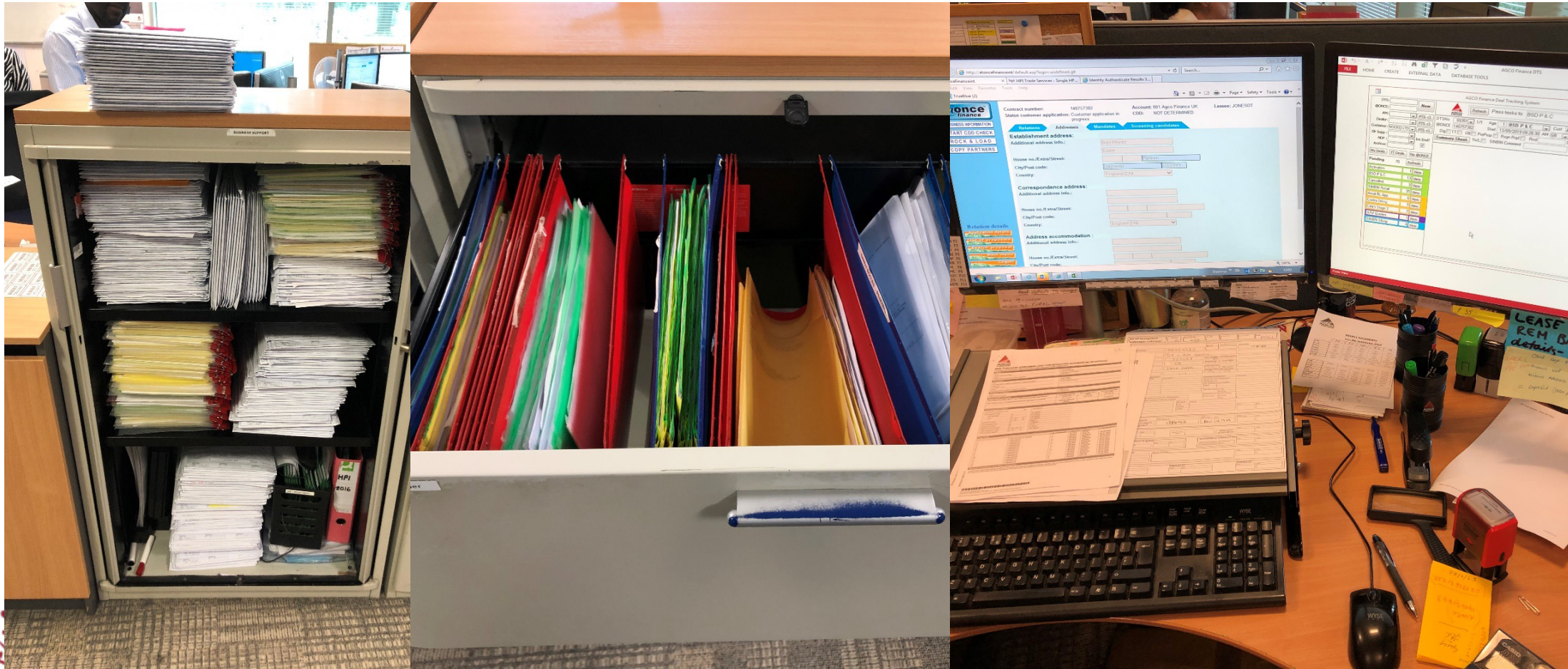
# INTRODUCING AGCO FINANCE



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# FUNCTIONAL DOMAIN OPERATIONS



# 'PROOF OF CONCEPT' : ONE DATASET, ONE MARKET!

	A	B	F	H	I	J	O
1	DealTaskID	DealGroupNo	TaskName	StartDate	StartTime	EndTime	TaskEndDate
2	100008-201028-154100	100008	Submitted	10/28/2020	15:41:00	15:44:00	10/28/2020
3	100008-201028-154400	100008	At credit decision	10/28/2020	15:44:00	15:44:00	10/28/2020
4	100008-201028-154400	100008	Check Point 1	10/28/2020	15:44:00	15:50:00	10/28/2020
5	100008-201028-155000	100008	Automatic credit approval	10/28/2020	15:50:00	15:20:00	12/7/2020
6	100008-201207-152000	100008	At payout	12/7/2020	15:20:00	11:22:00	12/7/2020
7	100008-201211-112200	100008	FP check	12/11/2020	11:22:00	11:22:00	12/11/2020
8	100008-201211-112200	100008	Pay out documents generated	12/11/2020	11:22:00	15:19:00	1/29/2021
9	100008-210129-151900	100008	Check Point 2	1/29/2021	15:19:00	15:53:00	1/29/2021
10	100008-210129-155300	100008	Activated ILS	1/29/2021	15:53:00	8:19:00	2/1/2021
11	100008-210201-81900	100008	Check Point 3	2/1/2021	8:19:00	15:53:00	2/1/2021
12	100008-210201-81900	100008	Archived without missing documents	2/1/2021	8:19:00	8:19:00	2/1/2021
13	100015-201006-123100	100015	Paid out	10/6/2020	12:31:00	12:35:00	10/6/2020
14	100015-201006-123100	100015	Automatic credit approval	10/6/2020	12:31:00	12:31:00	10/6/2020
15	100015-201006-123500	100015	Submitted	10/6/2020	12:35:00	8:13:00	10/6/2020
16	100015-201019-100800	100015	Check Point 1	10/6/2020	12:35:00	10:10:00	10/19/2020
17	100015-201019-101000	100015	FP check	10/19/2020	10:08:00	10:10:00	10/19/2020
18	100015-201019-101000	100015	Pay out documents generated	10/19/2020	10:10:00	16:03:00	10/19/2020
19	100015-201019-160300	100015	Check Point 2	10/19/2020	16:03:00	16:05:00	10/19/2020
20	100015-201019-160500	100015	Activated ILS	10/19/2020	16:05:00	16:07:00	10/19/2020
21	100015-201019-160700	100015	Check Point 3	10/19/2020	16:07:00	8:52:00	10/19/2020
22	100015-201019-81300	100015	At payout	10/19/2020	16:07:00	10:08:00	10/19/2020
23	100015-201020-85200	100015	Archived without missing documents	10/20/2020	8:52:00	8:52:00	10/20/2020
24	100015-201020-85200	100015	Paid out	10/20/2020	8:52:00	13:47:00	10/20/2020
25	100029-201006-134700	100029	Submitted	10/6/2020	13:47:00	11:31:00	10/7/2020
26	100029-201007-113100	100029	Withdrawal	10/7/2020	11:31:00	11:38:00	10/7/2020
27	100029-201007-113800	100029	Submitted	10/7/2020	11:38:00	11:50:00	10/7/2020
28	100029-201007-115000	100029	Automatic credit approval	10/7/2020	11:50:00	11:50:00	10/7/2020
29	100029-201007-115000	100029	Check Point 1	10/7/2020	11:50:00	11:39:00	1/11/2021
30	100029-210111-113900	100029	At payout	1/11/2021	11:39:00	11:06:00	1/12/2021
31	100029-210112-110600	100029	Check Point 2	1/12/2021	11:06:00	11:06:00	1/12/2021
32	100029-210112-110600	100029	FP check	1/12/2021	11:06:00	11:06:00	1/12/2021
33	100029-210112-110600	100029	Pay out documents generated	1/12/2021	11:06:00	11:23:00	1/12/2021



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# MY PROCESS MINING 'PROJECT' CHECKLIST

1. DATA EXTRACTION

2. DATA VALIDATION

3. PROCESS DISCOVERY

4. DESIGN RESEARCH QUESTIONS

5. MEASURE, ANALYZE & REFINE

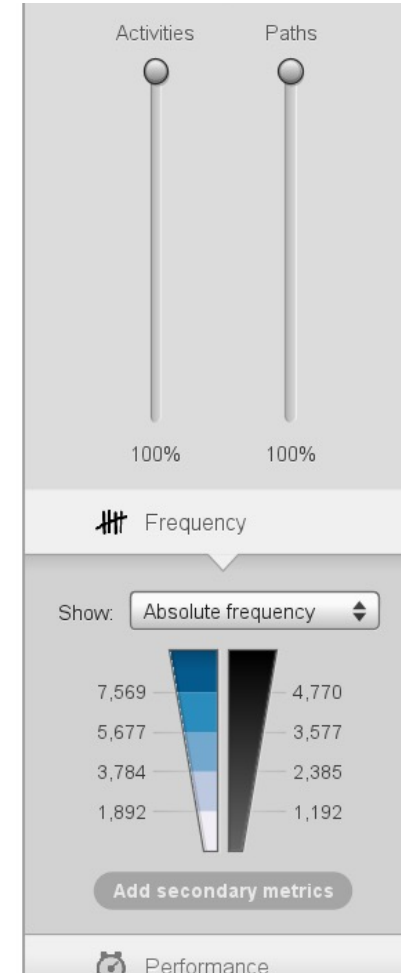
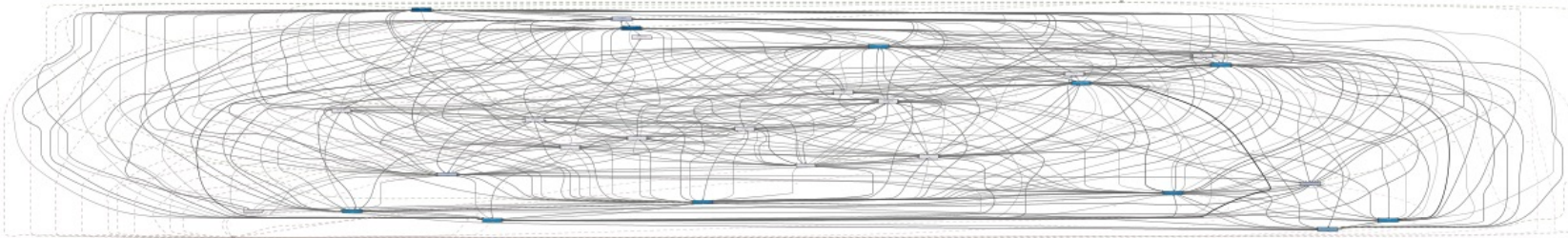
6. WRAP-UP

# NO ISSUES WITH THE DATA EXTRACTION AND VALIDATION

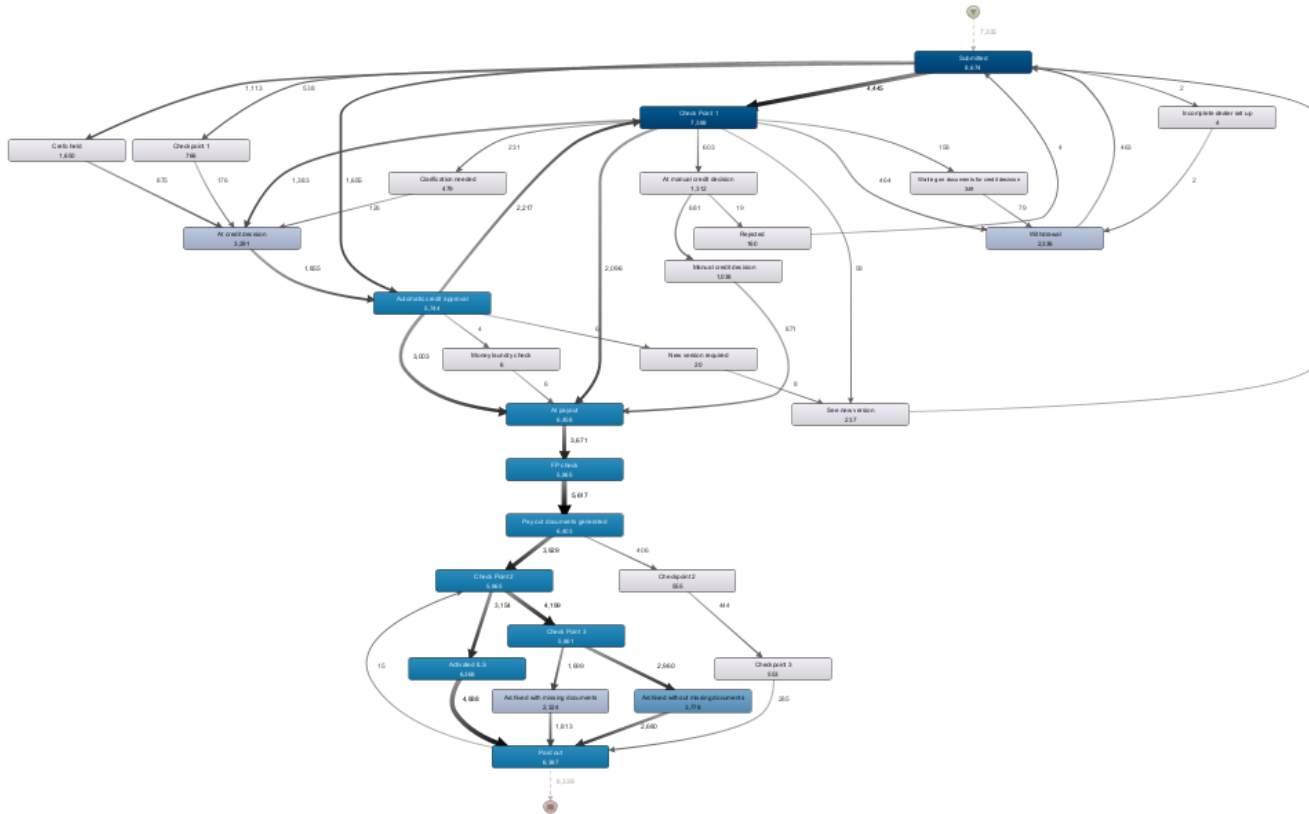
- ▶ Data was readily available, it just had to be “exported to Excel”.
- ▶ Exported everything that got recorded, one cannot ask for the unknown!
- ▶ The format matched Disco’s requirements: one line item = activity.
- ▶ First import to Disco.
- ▶ Made the necessary alterations to the data.

	E	F	G	H	J	K	L	R
1	Completed	TaskName	StartDT	EndDT	StartDate	StartTin	EndTin	TaskEndD
235	0	Check Point 1	08-10-2020 16:24:00	00-01-1900 00:00:00	10/8/2020	16:24:00		
330	0	Check Point 1	15-10-2020 11:09:00	00-01-1900 00:00:00	10/15/2020	11:09:00		
471	0	Check Point 1	29-10-2020 14:13:00	00-01-1900 00:00:00	10/29/2020	14:13:00		
1399	0	Checkpoint 1	02-12-2020 19:40:00	00-01-1900 00:00:00	12/2/2020	19:40:00		
1488	0	Automatic credit approval	16-10-2020 20:30:00	00-01-1900 00:00:00	10/16/2020	20:30:00		
1513	0	Automatic credit approval	06-11-2020 14:42:00	00-01-1900 00:00:00	11/6/2020	14:42:00		
1714	0	Check Point 1	13-10-2020 14:15:00	00-01-1900 00:00:00	10/13/2020	14:15:00		
1829	0	FP check	04-11-2020 15:15:00	00-01-1900 00:00:00	11/4/2020	15:15:00		
2223	0	Automatic credit approval	19-10-2020 14:31:00	00-01-1900 00:00:00	10/19/2020	14:31:00		

# WHERE DO WE GO FROM HERE?



# DISCOVER BY SIMPLIFYING THE COMPLEXITY



Activities 100%

Paths 0%

Frequency

Show: Case frequency

Category	Value 1	Value 2	Value 3	Value 4
Blue Bar	6,939	5,204	3,469	1,734
Black Bar	4,493	3,370	2,246	1,123

Add secondary metrics

Performance





# UNRAVEL YOUR 'MAIN' FLOW

Active filters

Variation  
Filters variants

click to add filter...

Exceptional behavior

Mainstream behavior

Use only cases whose sequence of activities is shared by at least 57 cases.

~1% of variants

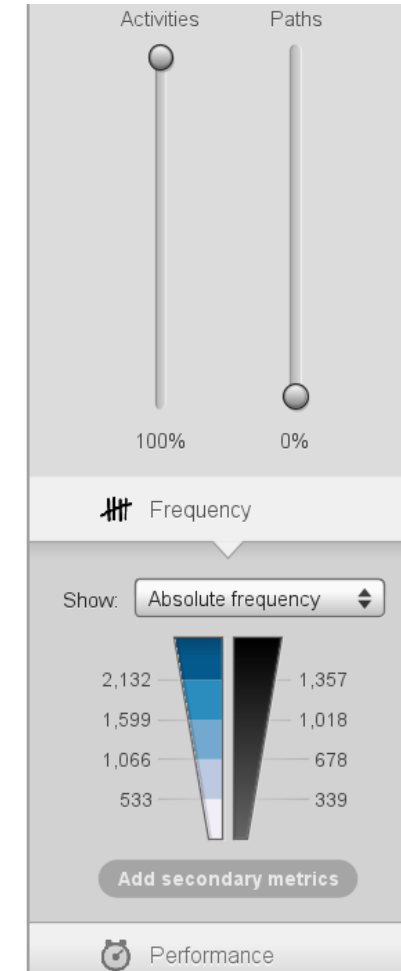
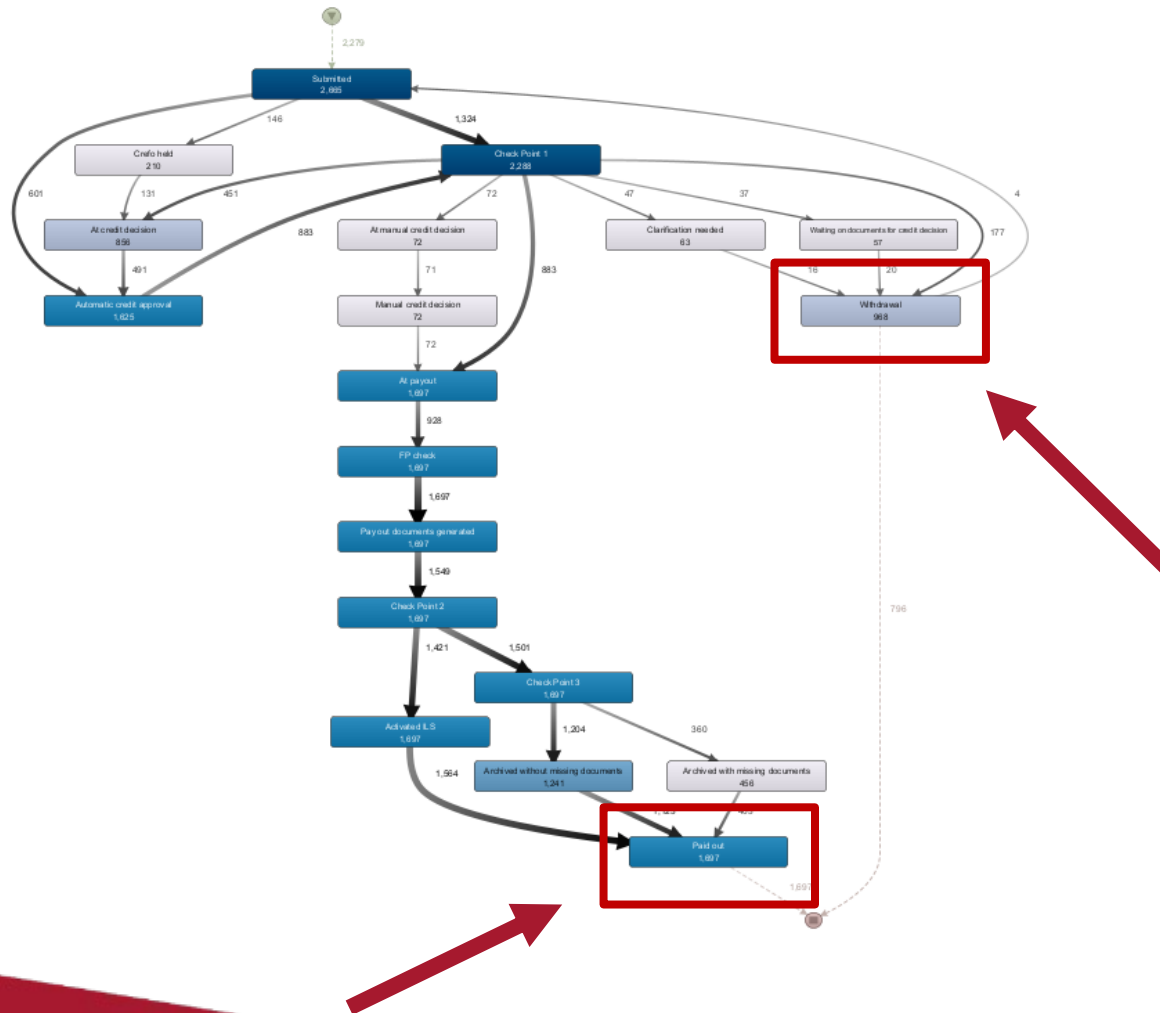
30% of cases

25% of events

Reset Undo changes Recipe

Cancel Copy and filter Apply filter

# ONE PROCESS ENDS AT 'PAID OUT' AND ANOTHER ONE ENDING AT 'WITHDRAWAL'



# FILTER ON DEALS THAT HAVE NOT BEEN WITHDRAWN

Active filters

Attribute  
Removes events by attribute

click to add filter...

Filter by: WithdrawnInt

Filtering mode:

- Keep selected
- Mandatory
- Forbidden

This filter removes all cases that have at least one event with one of the selected values.

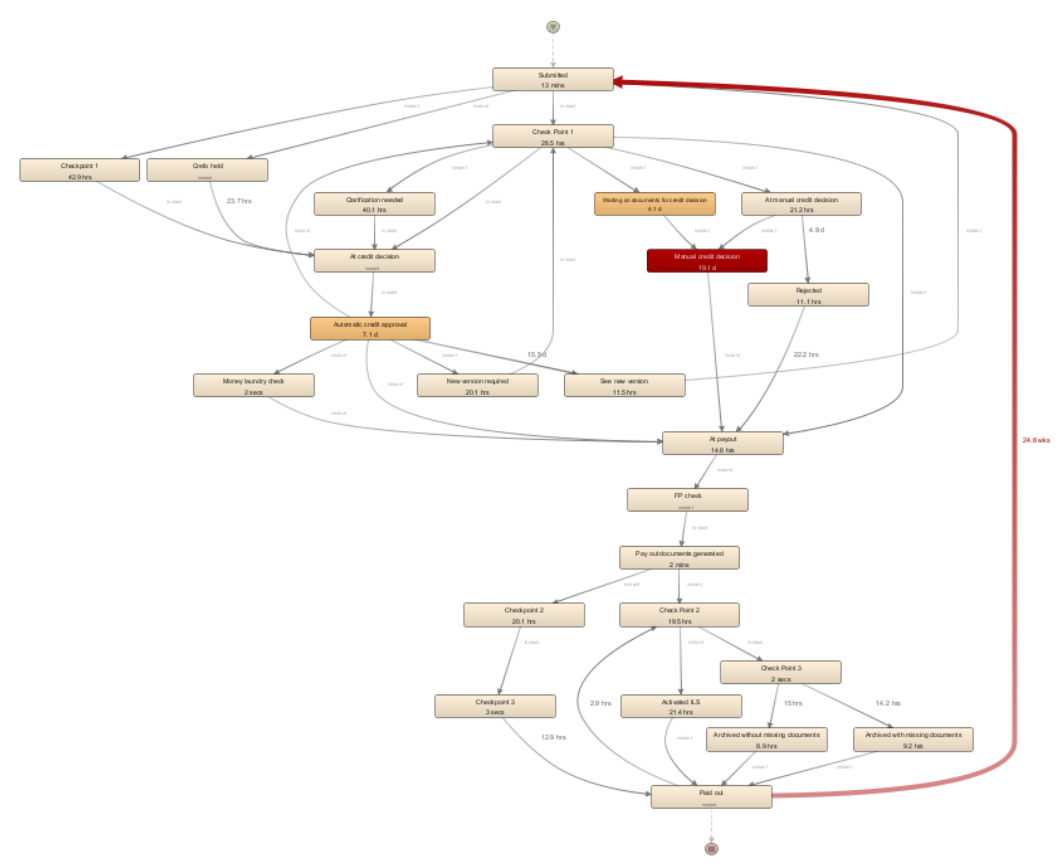
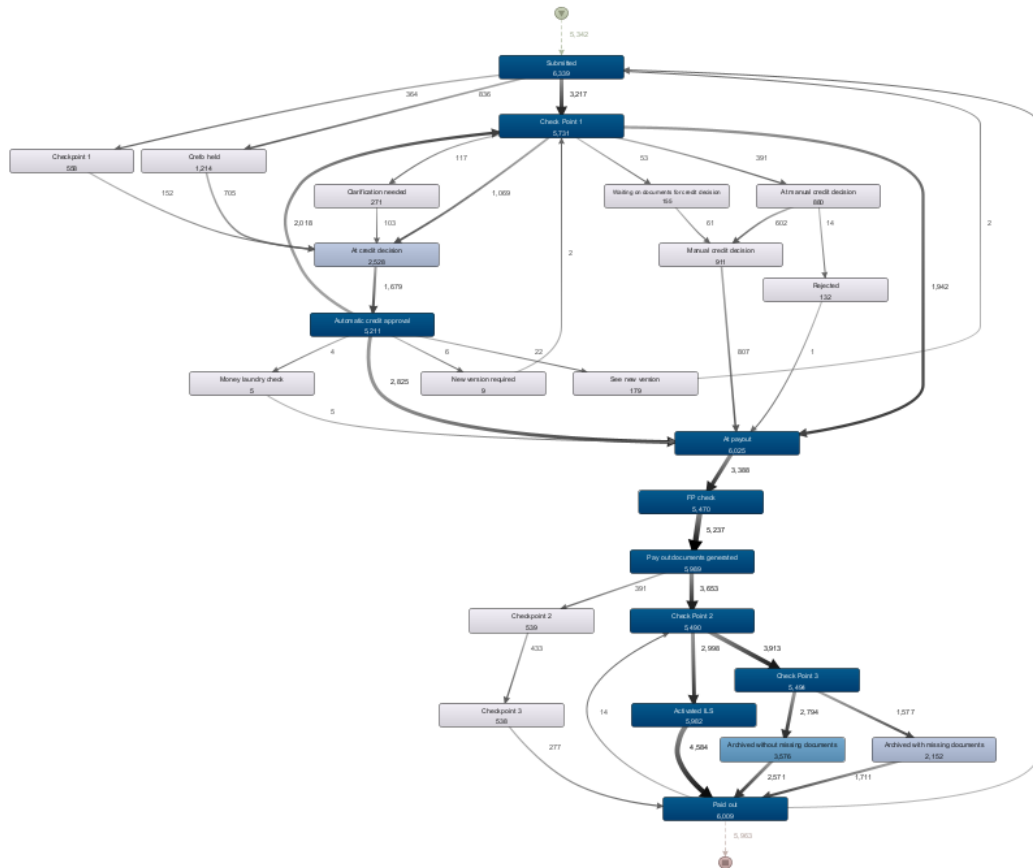
Event values: (1 of 3 selected)

- Not withdrawn
- Withdrawn

Reset Undo changes Recipe

Cancel Copy and filter Apply filter

# REVIEW CHARTS AND USE 'COMMON SENSE'



# DRAFT RESEARCH QUESTIONS

Question	Flow / Performance
How many deals (if any) are 'paid out' without any of the assumed mandatory statuses?	Flow
What's the percentage of 'auto' vs. 'manual' credit decisions?	Flow
<b>What happens to deals that have duplication in tasks?</b>	<b>Flow</b>
How long before 'checkpoint 1' is marked for the first time?	Performance
How long before deals are 'paid out'?	Performance
Do deals get passed to 'at pay-out' when put in 'withdrawn'?	Flow
Does the 'checkpoint 2' processing time exceed 4 hours?	Performance
What portion of the deals get passed to 'withdrawn' status within 21 days from 'submitted'?	Performance



# DEALS REQUIRE THE 'PAID OUT' ACTIVITY

The screenshot displays a software interface for configuring filters. On the left, an 'Active filters' sidebar shows two 'Attribute' filters. The main panel is titled 'Attribute' and includes a 'Filter by' dropdown set to 'Activity'. Under 'Filtering mode', the 'Mandatory' option is selected. A descriptive text states: 'This filter removes all cases that do not have at least one event with one of the selected values.' A list of 'Event values' (1 of 26 selected) is shown, with 'Paid out' highlighted. At the bottom, there are buttons for 'Reset', 'Undo changes', 'Recipe', 'Cancel', 'Copy and filter', and 'Apply filter'.

Active filters

- Attribute  
Removes events by attribute
- Attribute  
Removes events by attribute

click to add filter...

Attribute  
Removes events by attribute

Filter by: Activity

Filtering mode:

- Keep selected
- Mandatory
- Forbidden

This filter removes all cases that do not have at least one event with one of the selected values.

Event values: (1 of 26 selected)

- Checkpoint 3
- Clarification needed
- Crefo held
- FP check
- Manual credit decision
- Money laundry check
- New version required
- Paid out
- Pay out documents generated
- Rejected
- See new version
- Submitted
- Waiting on documents for credit decision
- Withdrawal

Reset Undo changes Recipe

Cancel Copy and filter Apply filter

# HIGHLIGHT DUPLICATION OF ACTIVITIES (REWORK)

Active filters

- Attribute  
Removes events by attribute
- Attribute  
Removes events by attribute
- Follower  
Filters by subsequences**

click to add filter...

**Follower**  
Filters by subsequences

Filter by: Activity

Reference event values: (all selected)

- Activated ILS
- Archived with missing documents
- Archived without missing documents
- At credit decision
- At manual credit decision
- At payout
- Automatic credit approval
- Check Point 1
- Check Point 2

Reference event must be eventually followed by a follower event.

Follower event values: (all selected)

- Activated ILS
- Archived with missing documents
- Archived without missing documents
- At credit decision
- At manual credit decision
- At payout
- Automatic credit approval
- Check Point 1
- Check Point 2

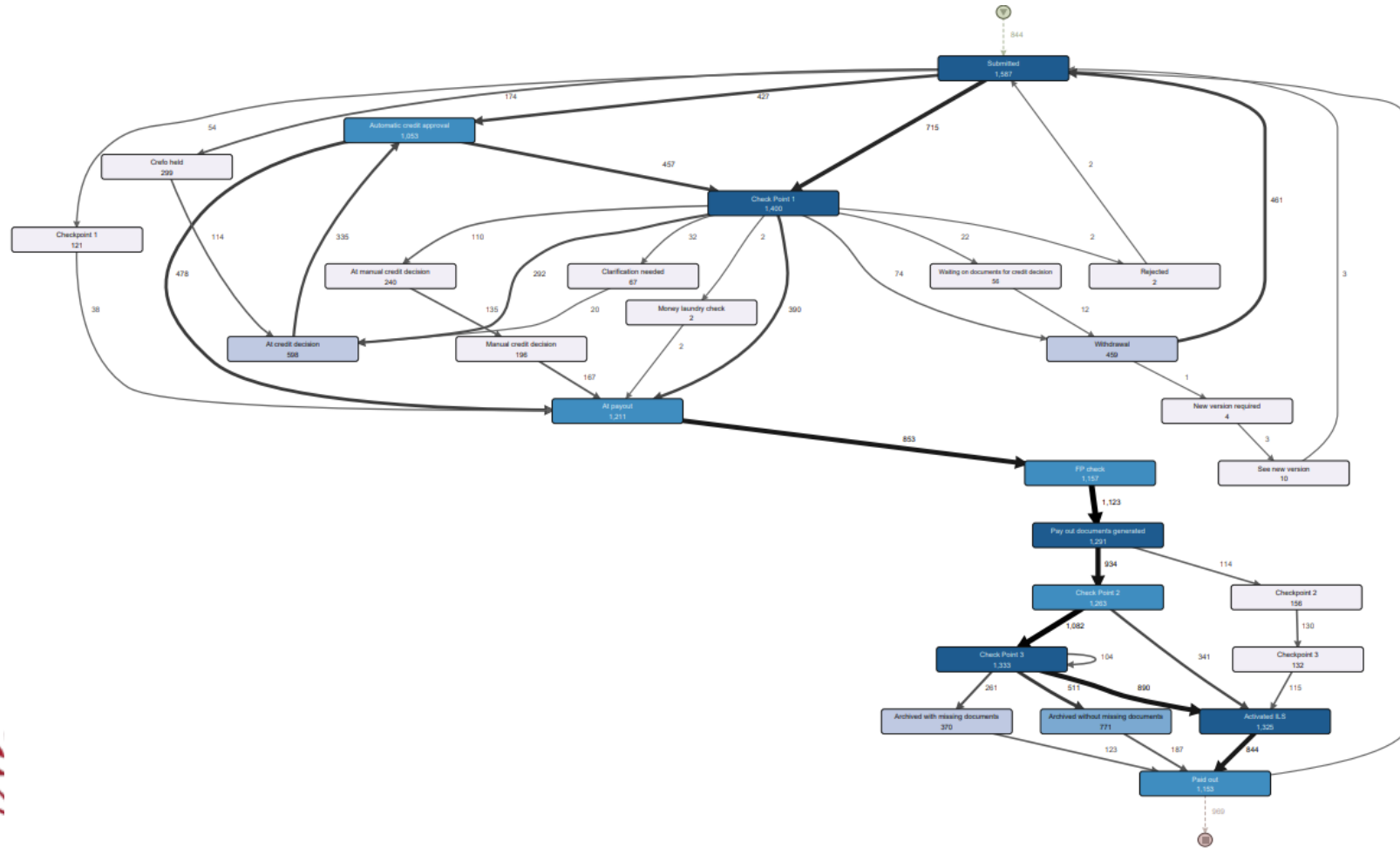
Require the same value of Activity for each pair of events matched above.

Time between matching events must be shorter than 18 days, 3 hours

Reset Undo changes Recipe

Cancel Copy and filter Apply filter

# WHERE DO TASKS COME BACK MORE THAN ONCE?





# WHAT ATTRIBUTES TO THE REWORK OF THE 'PAID OUT' ACTIVITY?

**Active filters**

- Attribute - Removes events by attribute
- Attribute - Removes events by attribute
- Follower - Filters by subsequences
- Endpoints - Removes incomplete cases**

**Endpoints**  
Removes incomplete cases

Filter by: **Activity**

Mode:  Discard cases  Trim longest  Trim first

This filter trims all cases to the sequence between the first occurrence of a start value and the last occurrence of an end value.

Start event values: (1 of 26 selected)

- Checkpoint 3
- Clarification needed
- Crefo held
- FP check
- Manual credit decision
- Money laundry check
- New version required
- Paid out**
- Pay out documents generated
- Rejected
- See new version

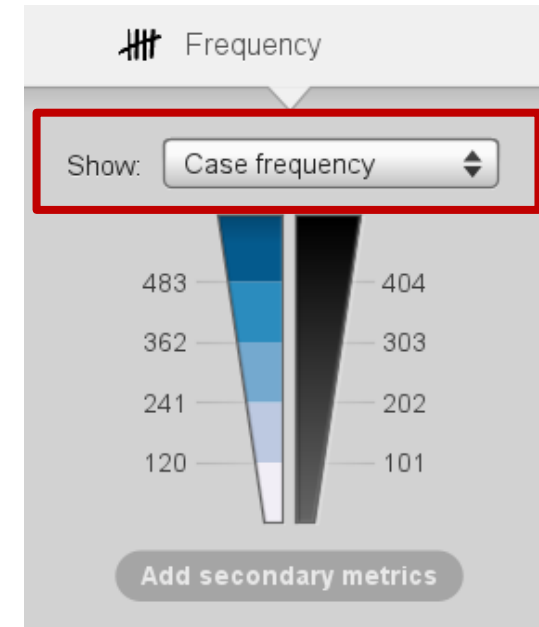
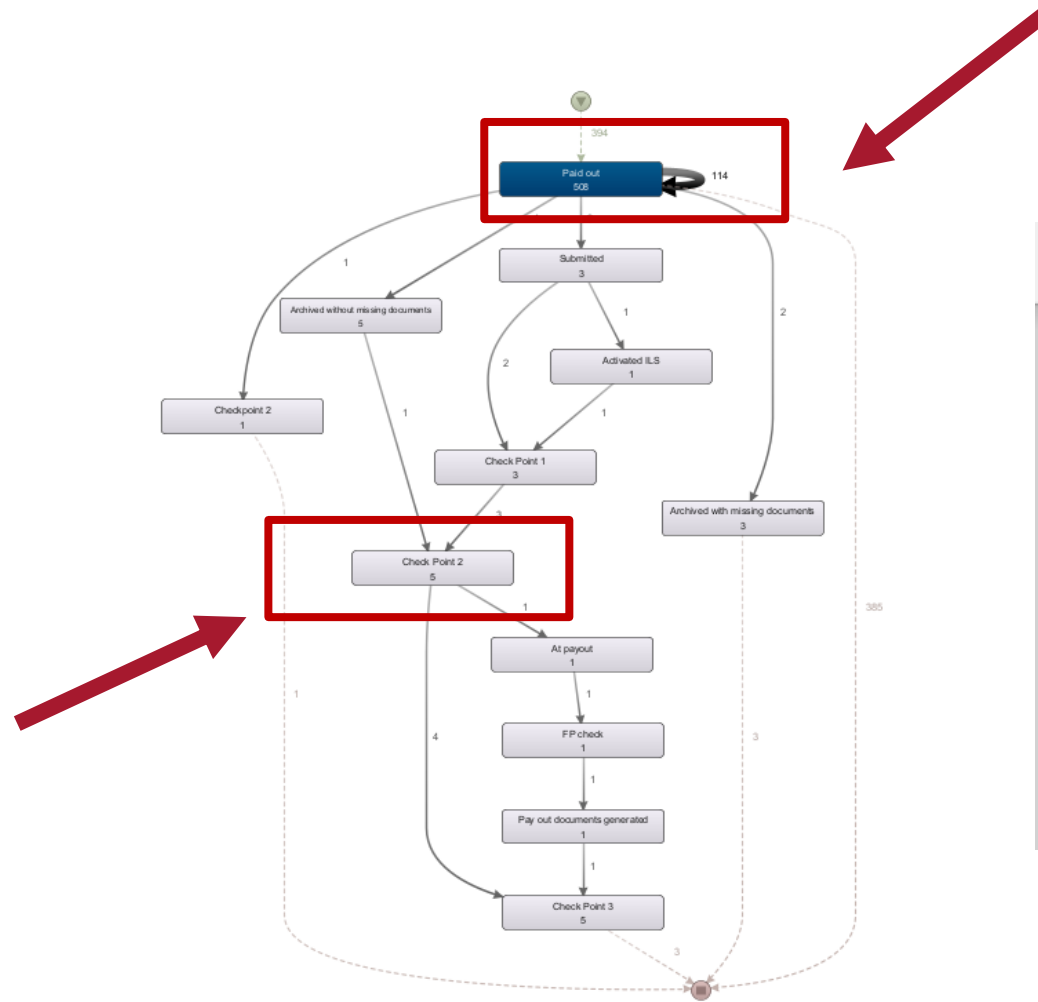
End event values: (all selected)

- Activated ILS
- Archived with missing documents
- Archived without missing documents
- At credit decision
- At manual credit decision
- At payout
- Automatic credit approval
- Check Point 1
- Check Point 2
- Check Point 3
- Checkpoint 1

click to add filter...

Reset Undo changes Recipe

# WHAT HAPPENS AFTER PAID-OUT?



# DEALS GOING BACK TO CHECK POINT 2 AFTER PAID OUT

The screenshot displays a software interface for managing filters. On the left, a sidebar titled 'Active filters' lists several filters, with 'Attribute' selected. The main area is titled 'Attribute' and shows a 'Filter by' dropdown set to 'Activity'. Below this, 'Filtering mode' is set to 'Mandatory'. A list of event values is shown, with 'Check Point 2' selected. The interface includes a 'click to add filter...' button and a bottom bar with 'Reset', 'Undo changes', and 'Recipe' options.

**Active filters**

- Attribute - Removes events by attribute
- Attribute - Removes events by attribute
- Follower - Filters by subsequences
- Endpoints - Removes incomplete cases
- Attribute - Removes events by attribute**

**Attribute**  
Removes events by attribute

Filter by: Activity

Filtering mode:

- Keep selected
- Mandatory
- Forbidden

This filter removes all cases that do not have at least one event with one of the selected values.

Event values: (1 of 26 selected)

- Check Point 2
- Check Point 3
- Checkpoint 1
- Checkpoint 2
- Checkpoint 3
- Clarification needed
- Crefo held
- FP check
- Manual credit decision
- Money laundry check
- New version required
- Paid out
- Pay out documents generated
- Rejected

click to add filter...

Reset Undo changes Recipe


# SHARE DEAL NUMBERS WITH THE BUSINESS FOR FURTHER ANALYSIS

Not Withdrawn - Paid Out +31 | Map | Statistics | Cases | Enterprise | s.vanderzee@agcofinance.com | Disco

search...

Variants (4)		Cases (5)	
Complete log All cases (5)	>	127288 4 events	>
Variant 1 2 cases (40%)	>	97597 4 events	>
Variant 2 1 case (20%)	>	97825 10 events	>
Variant 3 1 case (20%)	>	97922 6 events	>
Variant 4 1 case (20%)	>	97924 6 events	>

**127288**  
Case with 4 events



Events: 4  
Start: 05/12/2021 07:46:00  
Duration: 8 hours, 57 mins  
Active time: 99.98 %

Graph | Table

Activity	Date	Time	Duration	CompletedInd	EndYear	EndQuarter	EndMonth	ElapsedDays	E
1 Paid out	05/12/2021	07:46:00	0 millis	1	2021	2021Q2	202105	0	0
2 Archived without missing documents	05/12/2021	07:46:08	8 hours, 57 mins	0	2021	2021Q2	202105	0	0
3 Check Point 2	05/12/2021	16:43:24	29 secs	0	2021	2021Q2	202105	0	0
4 Check Point 3	05/12/2021	16:43:53	0 millis	0	2021	2021Q2	202105		

# KEY TAKE AWAYS

Make lasagna from spaghetti by using the 80 – 20 rule.

Answering one question will generate new (additional) questions.

Keep on asking the 'why' question until there are no further questions.

Feedback from subject matter experts is required to get to the right level of detail.

Manage expectations: getting 'to the interesting stuff' requires multiple iterations.



# LESSONS LEARNED FOR AGCO FINANCE

Improve/standardize recording of the event logs.

A 'standard' way of working also improves the data quality.

It's not just about measuring the 'average', consider the 'median' as well.

Process mining could be the first step to track and measure a business process.



**THANK YOU**