BPM Team Project – BPM with Process Mining

Dhana bank’s Loan Application Process

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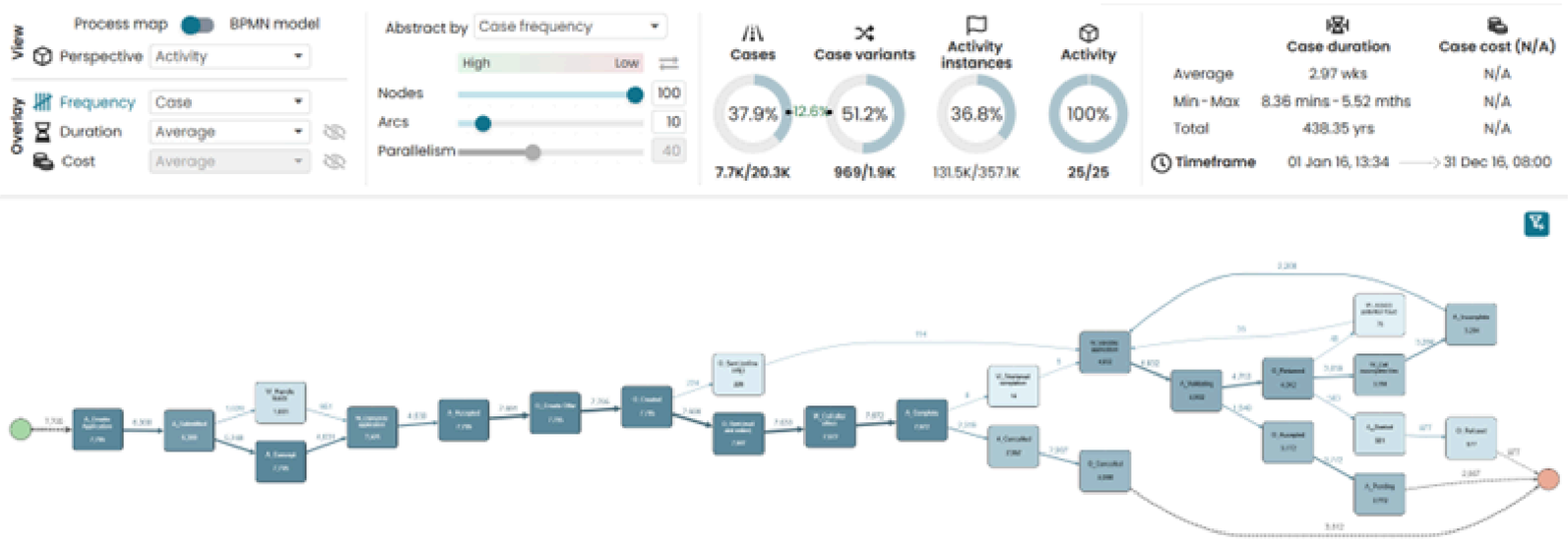
❶ SLA Compliance Analysis

Discription

SLA Compliance Analysis.
Check SLA violations by loan type and analyze the violation rate

❶ SLA Compliance Analysis

1. Car Loans

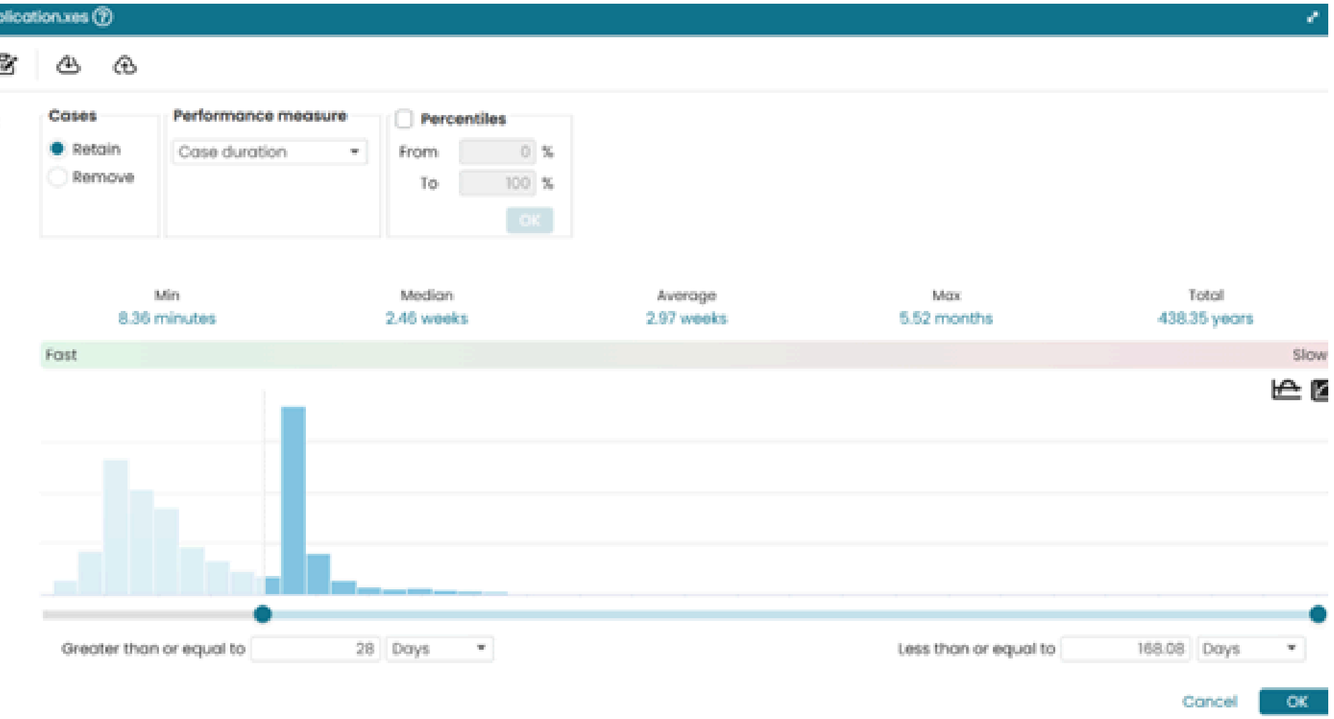


Total Cases: 7,705 (Car loan cases).

The SLA for car loans is 28 days (4 weeks).

❶ SLA Compliance Analysis

1. Car Loans

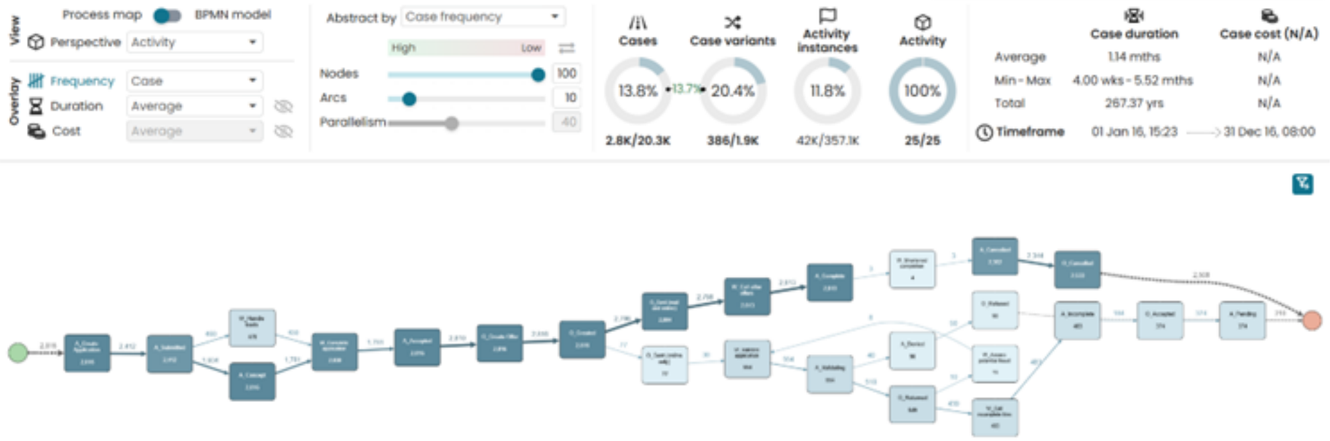


-Average Cycle Time: 2.97 weeks)
-Median: 2.46 weeks
-Maximum Cycle Time: 5.52 months
-Minimum Cycle Time: 8.36 minutes

Average Cycle Time (2.97 weeks):
The cycle time for this type of loan is within the SLA standard of 4 weeks, thus meeting the SLA requirements.

❶ SLA Compliance Analysis

1. Car Loans

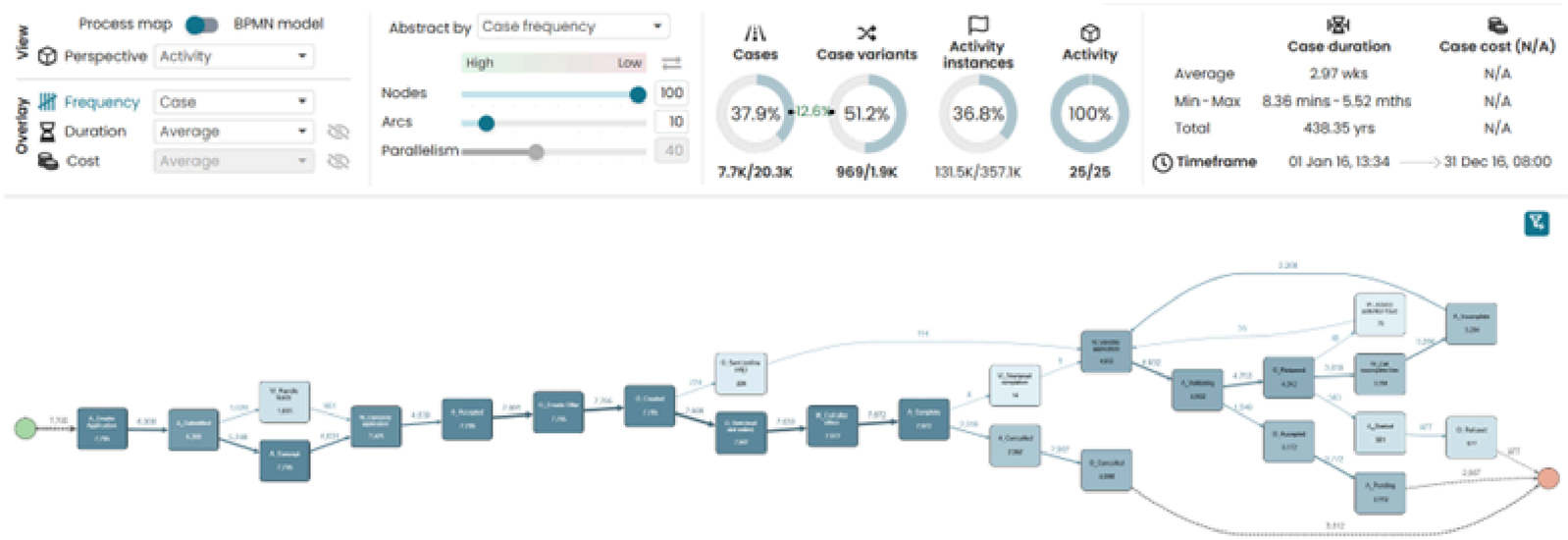


SLA Violation Cases: 2,800 cases.

Calculation: (2,800 / 7,705) × 100 ≈ 36.3%

❶ SLA Compliance Analysis

2. Home Improvement

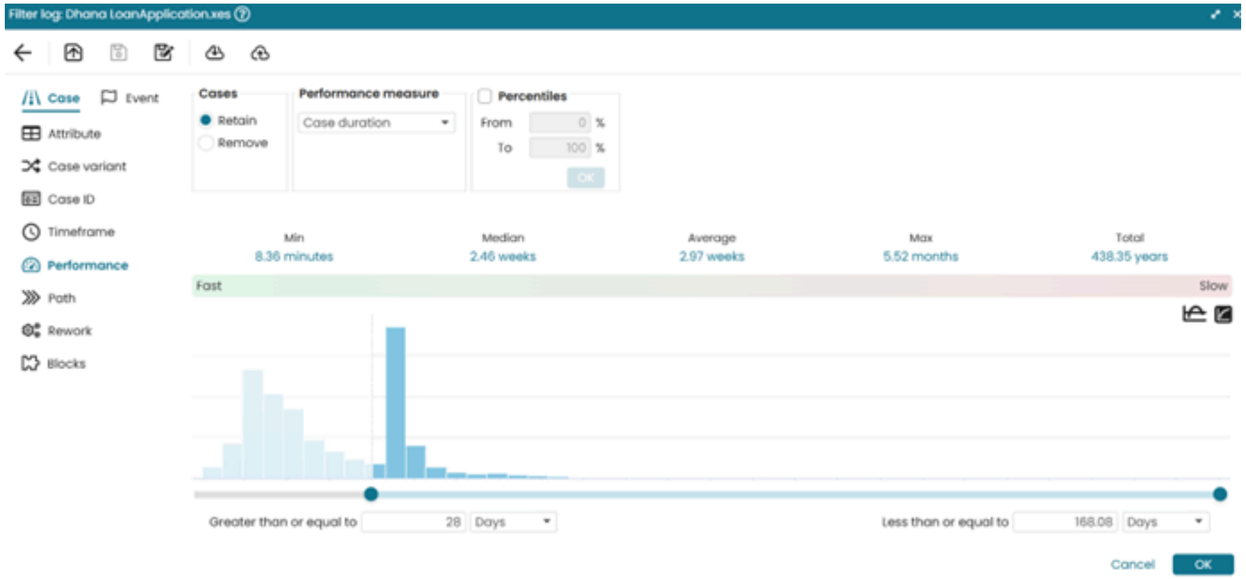


Total Cases: 5,923 (Home Improvement cases).

The SLA for car loans is 21 days (3 weeks).

❶ SLA Compliance Analysis

2. Home Improvement

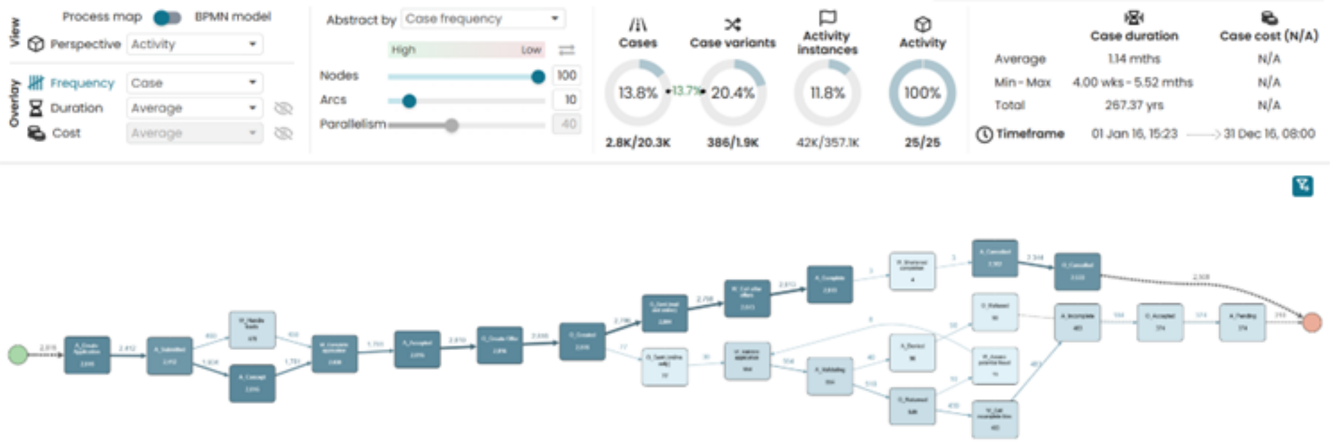


-Average Cycle Time: 3.21 weeks)
-Median: 2.93 weeks
-Maximum Cycle Time: 3.49 months
-Minimum Cycle Time: 3.35 minutes

Average Cycle Time (3.21 weeks):
The cycle time for this type of loan exceeds the SLA standard of 3 weeks, and therefore does not meet the SLA requirements.

❶ SLA Compliance Analysis

2. Home Improvement

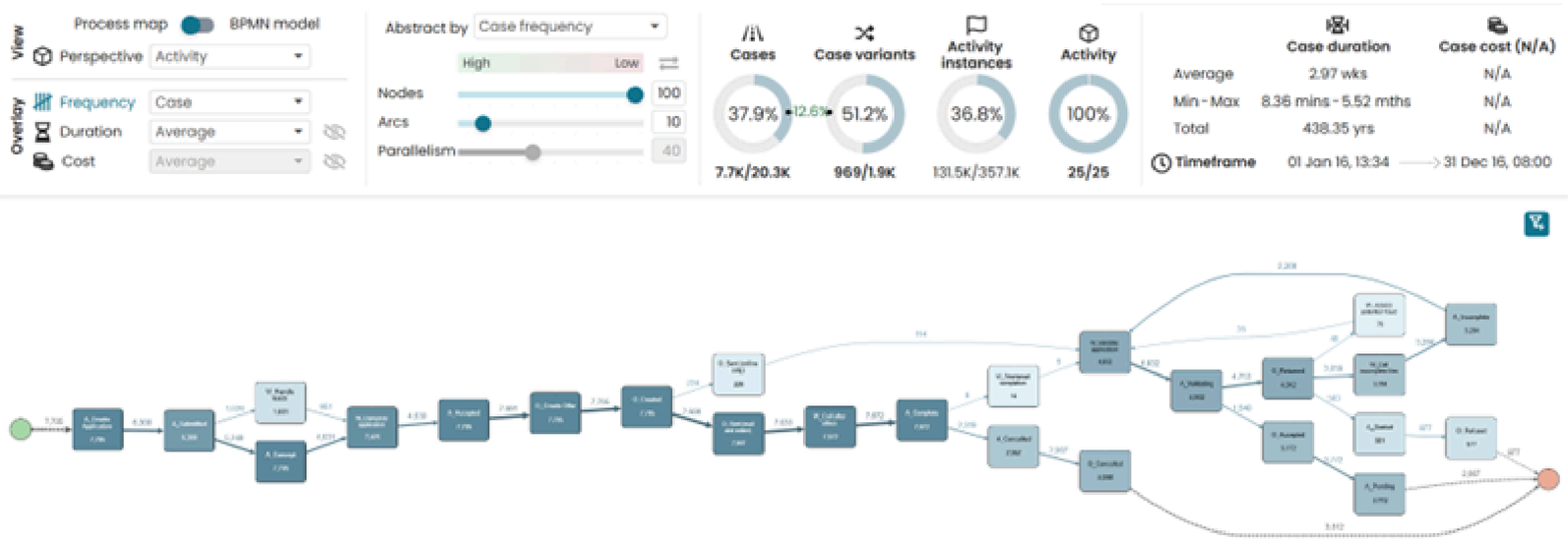


SLA Violation Cases: 2,861 cases.

Calculation: (2,861 / 5,923) × 100 ≈ 48.8%

❶ SLA Compliance Analysis

3. Loan Takeover

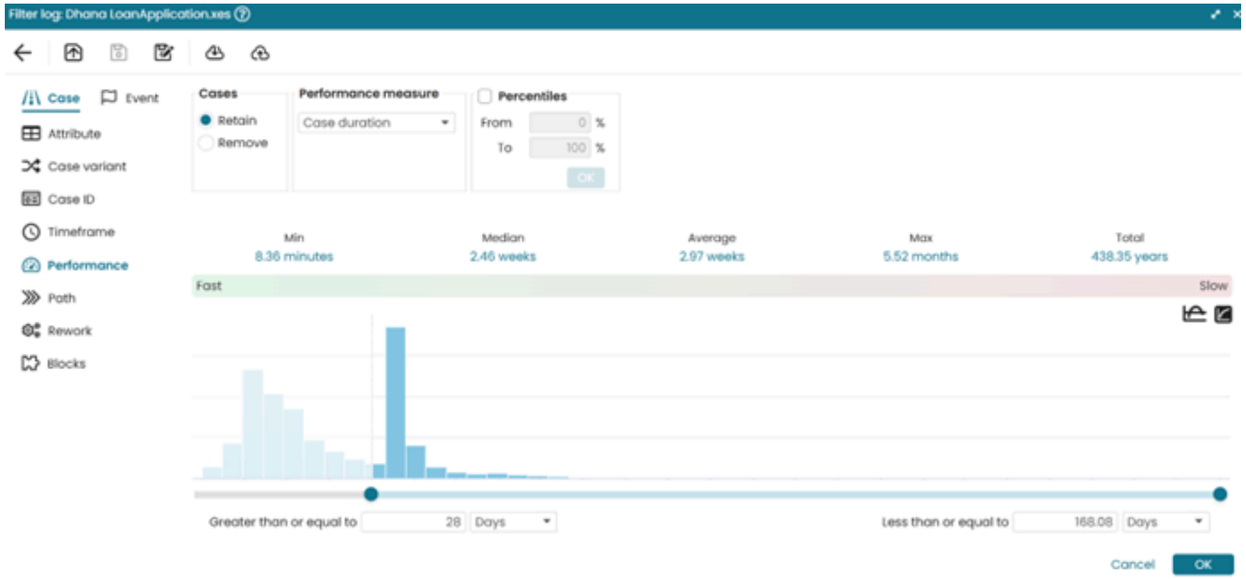


Total Cases: 4,793(Loan takeover cases).

The SLA for car loans is 14 days (2 weeks).

❶ SLA Compliance Analysis

3. Loan Takeover

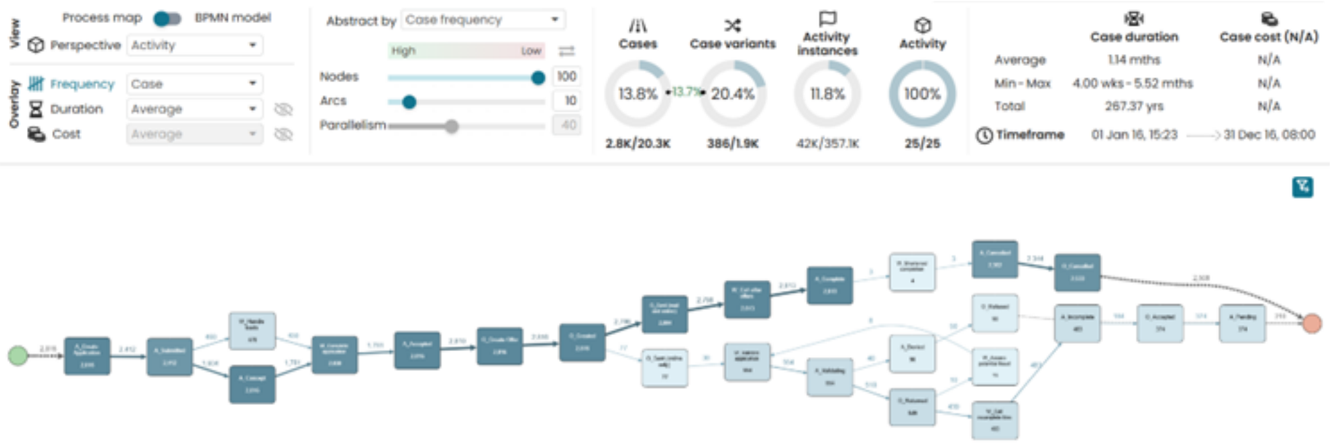


-Average Cycle Time: 3.29 weeks)
-Median: 2.98 weeks
-Maximum Cycle Time: 4.4months
-Minimum Cycle Time: 7.08 minutes

Average Cycle Time (3.29 weeks):
The cycle time for this type of loan exceeds the SLA standard of 2 weeks, and therefore does not meet the SLA requirements.

❶ SLA Compliance Analysis

3. Loan Takeover

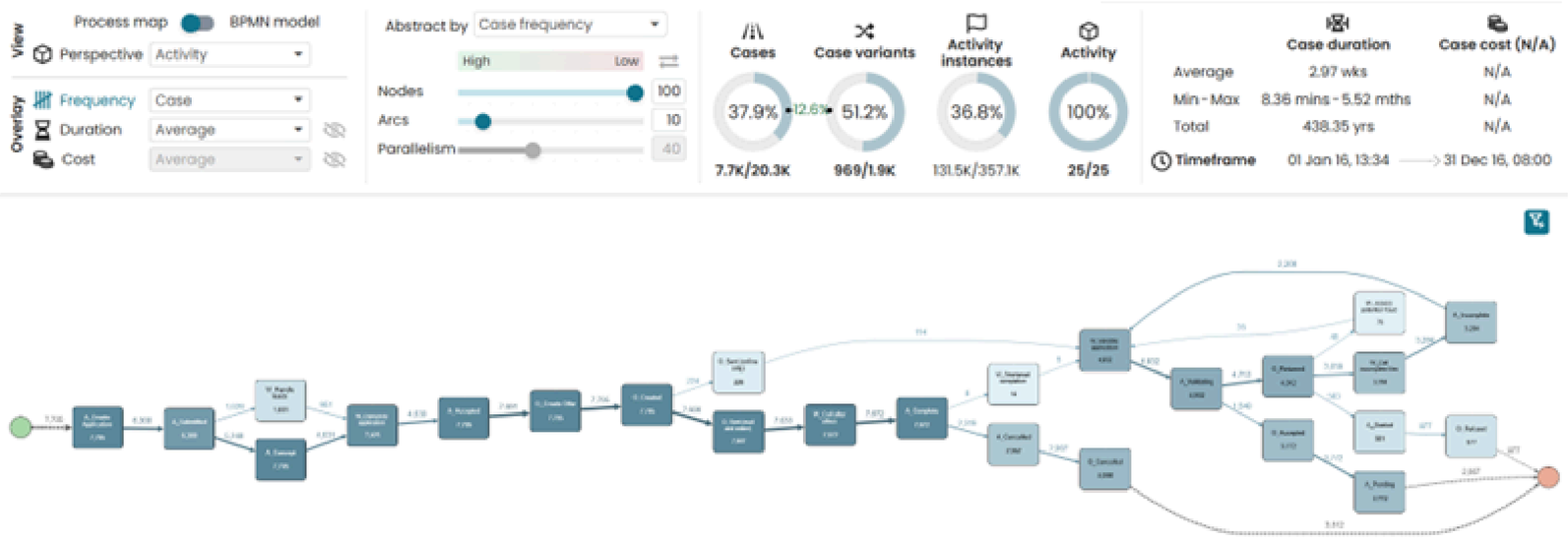


SLA Violation Cases: 2,800 cases.

Calculation: (3,331 / 4,973) × 100 ≈ 68.75%

❶ SLA Compliance Analysis

4. All Other Loans

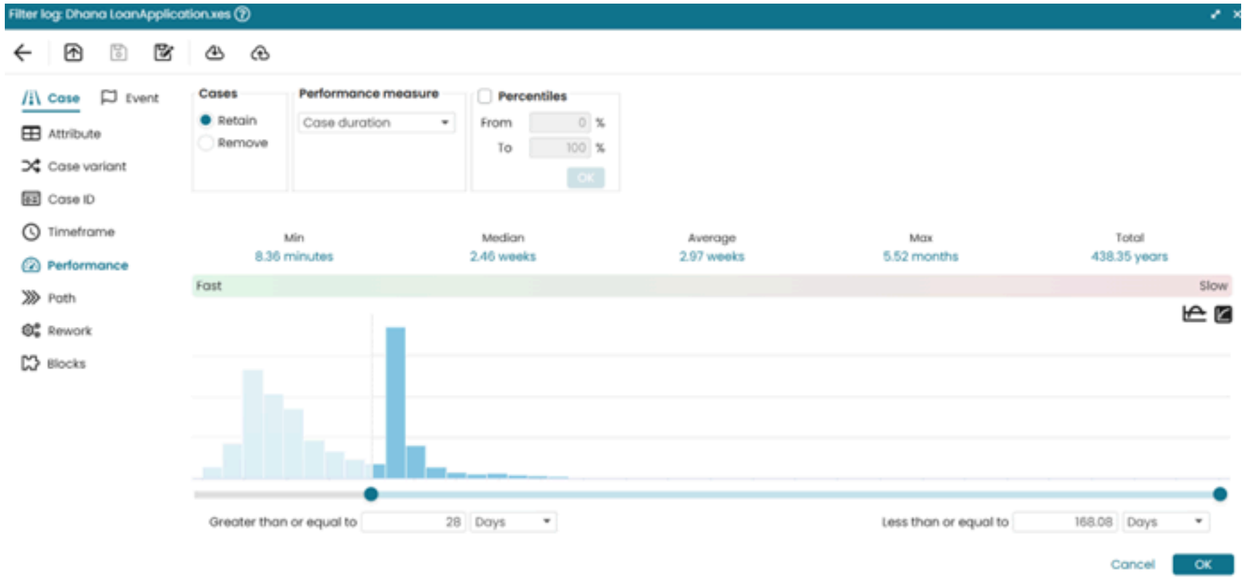


Total Cases: 1,922 (All Other cases).

The SLA for car loans is 28 days (4 weeks).

❶ SLA Compliance Analysis

4. All Other Loans

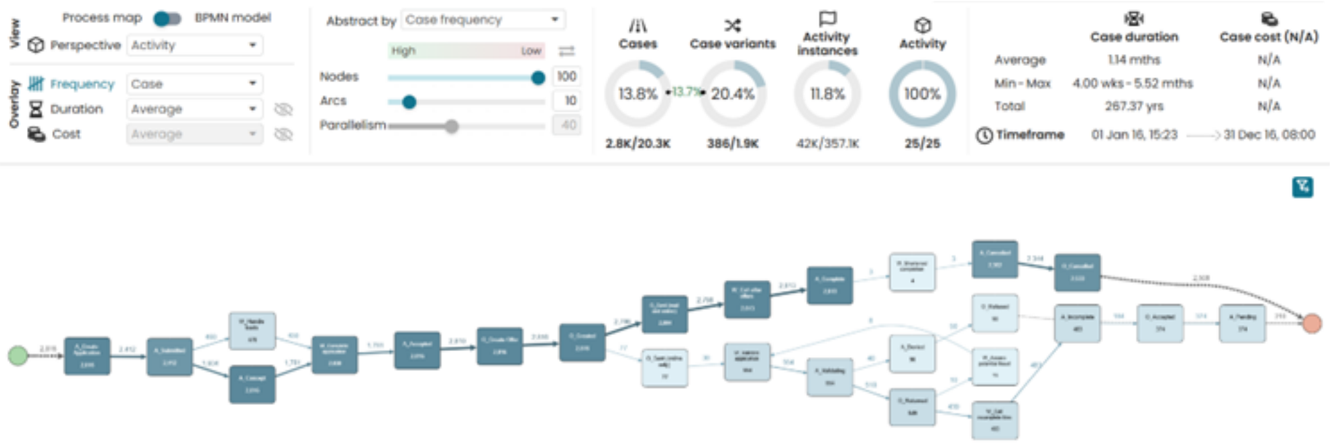


-Average Cycle Time: 3.27 weeks)
-Median: 2.96weeks
-Maximum Cycle Time: 4.79 months
-Minimum Cycle Time: 8.08 minutes

Average Cycle Time (2.97 weeks):
The cycle time for this type of loan is within the SLA standard of 4 weeks, thus meeting the SLA requirements...

❶ SLA Compliance Analysis

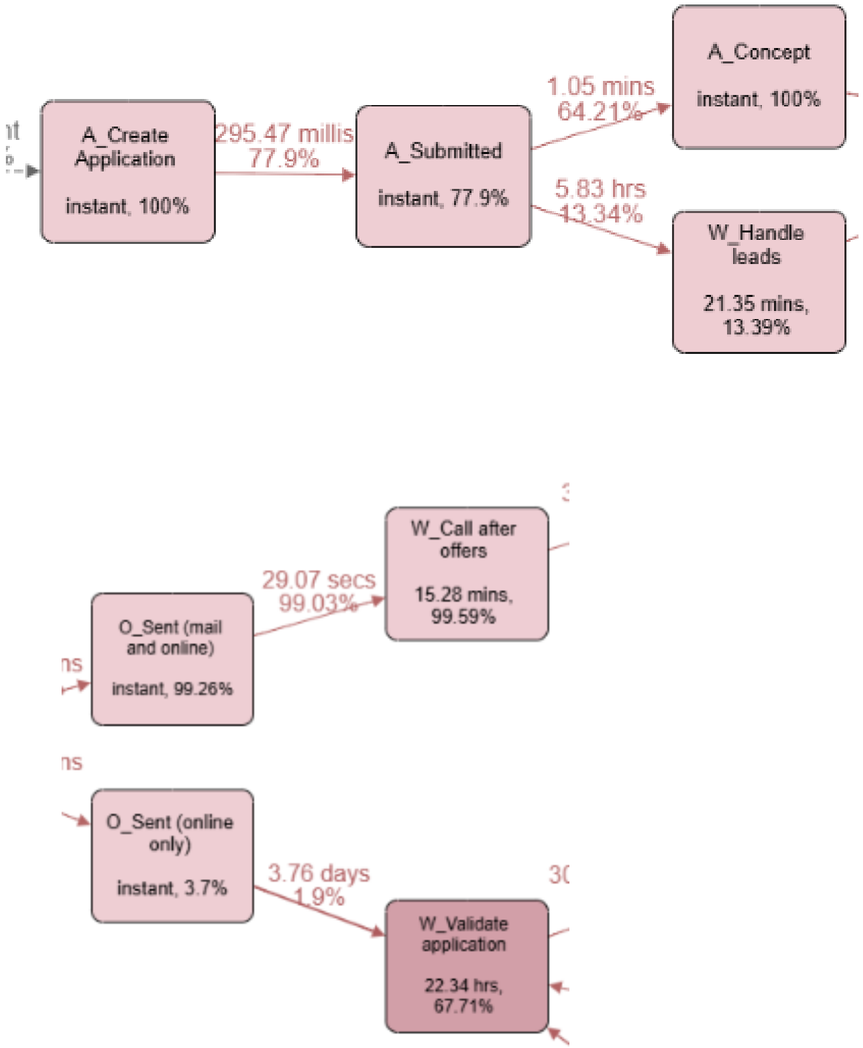
4. All Other Loans



SLA Violation Cases: 772 cases.

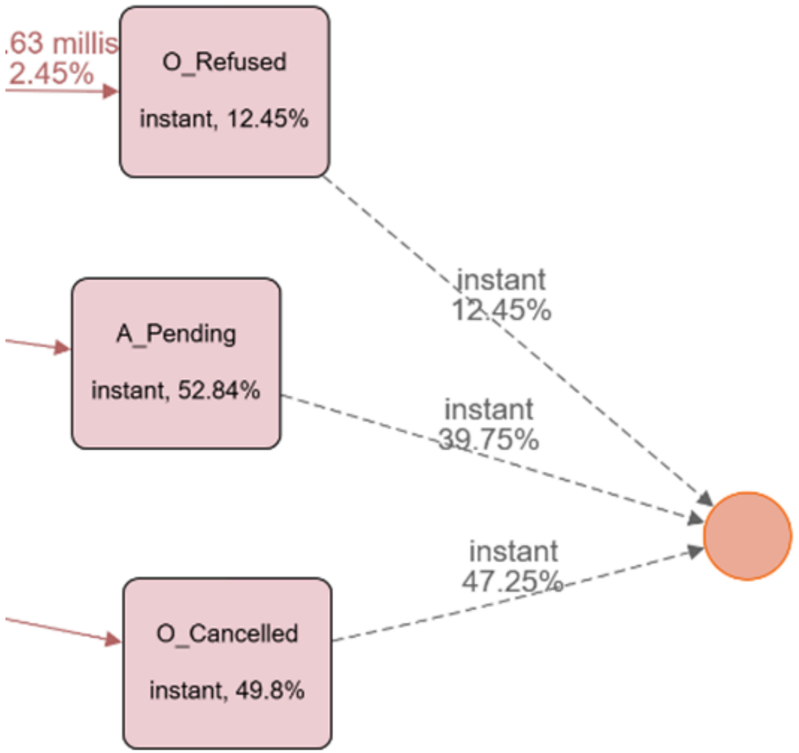
Calculation: (772/ 1,922) × 100 ≈ 40.16%

❷ Cycle Time Analysis



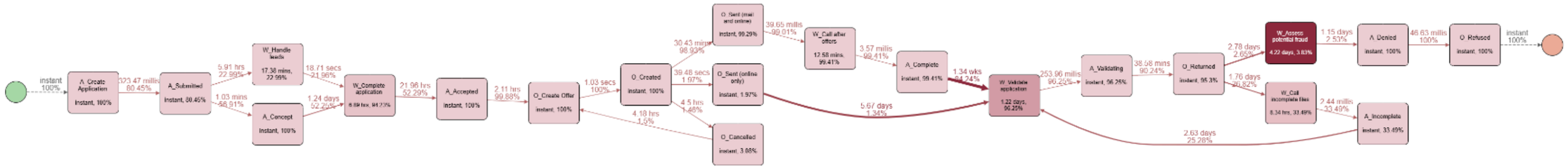
- **A_Create Application**
- **A_Submitted**
- **O_Sent -> W call after offers**
- **O_sent -> W_Validate application**

❷ Cycle Time Analysis



- **O_Refuse**
- **A_Pending**
- **O_Cancelled**

❷ Cycle Time Analysis

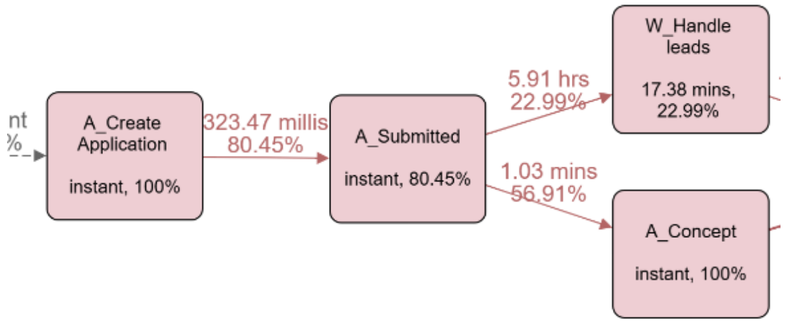


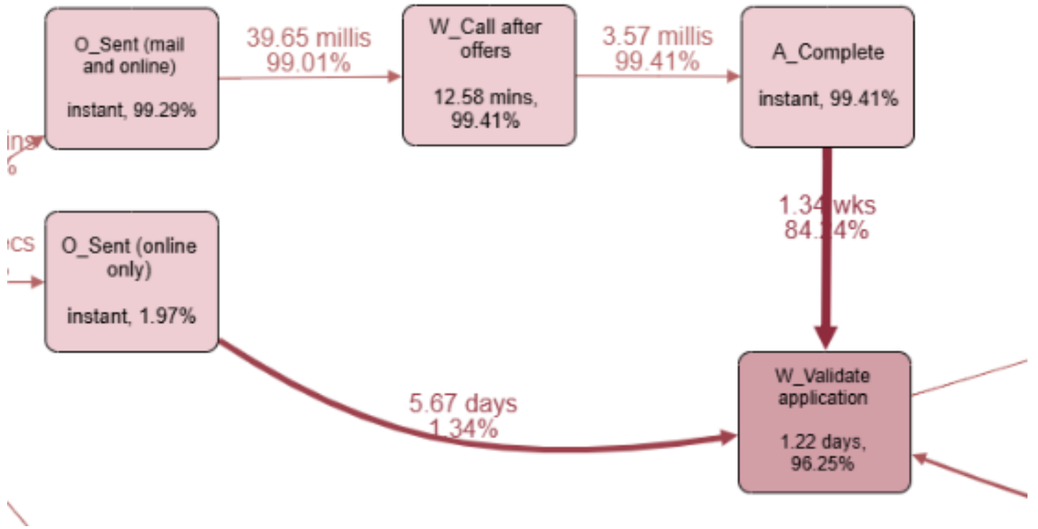
A_Create Application -> O_Refused
Cycle Time: 2.34 weeks

Case duration

Average	2.34 wks
Min - Max	3.35 mins - 3.35 mths
Total	113.46 yrs
Timeframe	01 Jan 16, 11:16

❷ Cycle Time Analysis





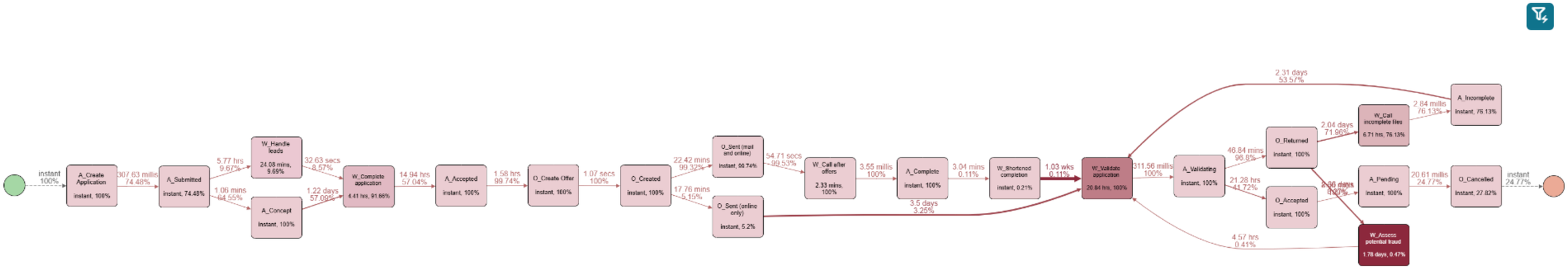
Ignore: A_Create Application
5.91h x 22.99% + 1.03m x 56.91% = 82m

Ignore: O_Sent -> W call after offers
Calculate:O_sent -> W_Validate application
:5.67d x 0.0134 =109m

82m + 109m = 191 m = 3.18h =
0.12d=0.02wks

2.34wks - 0.02wks = 2.32wks

❷ Cycle Time Analysis

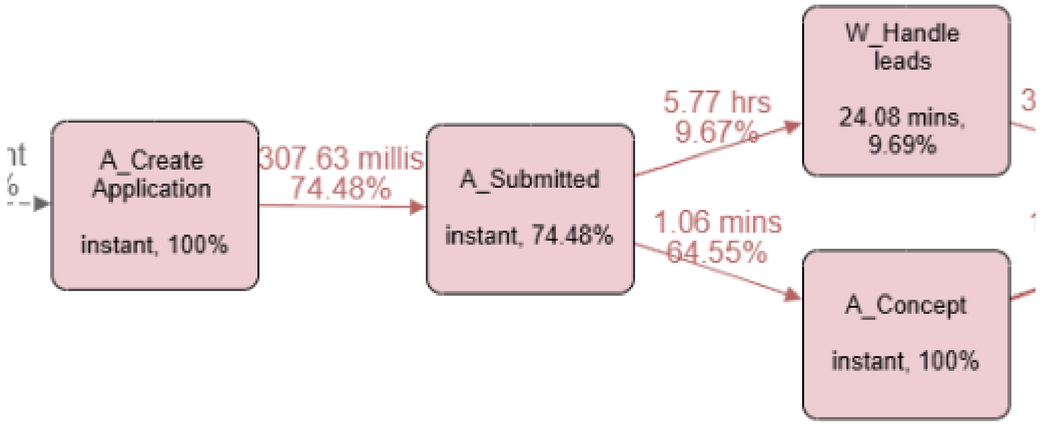


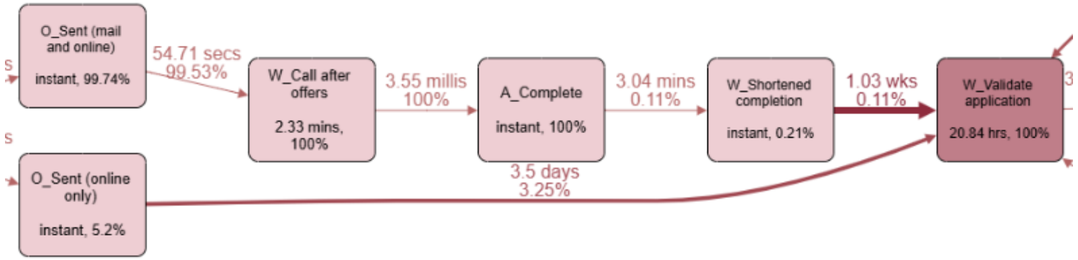
A_Create Application -> A_Peding
Cycle Time: 2.59 weeks

Case duration

Average	2.59 wks
Min - Max	38.47 mins - 4.79 mths
Total	534.10 yrs
Timeframe	01 Jan 16, 10:51

❷ Cycle Time Analysis





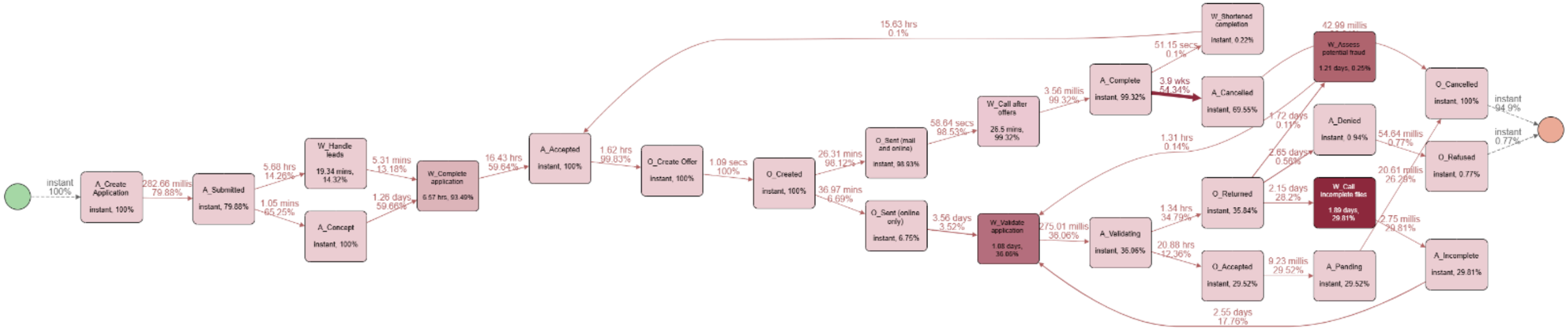
ignore: A_Create Application
5.77h x 9.67% + 1.06m x 64.55% = 34m

Ignore: O_Sent -> W call after offers
Calculate:O_sent -> W_Validate application
:3.5d x 0.0325 =168m

34m + 168m = 202 m = 3.37h =
0.14d=0.02wks

2.59wks - 0.02wks = 2.57wks

❷ Cycle Time Analysis

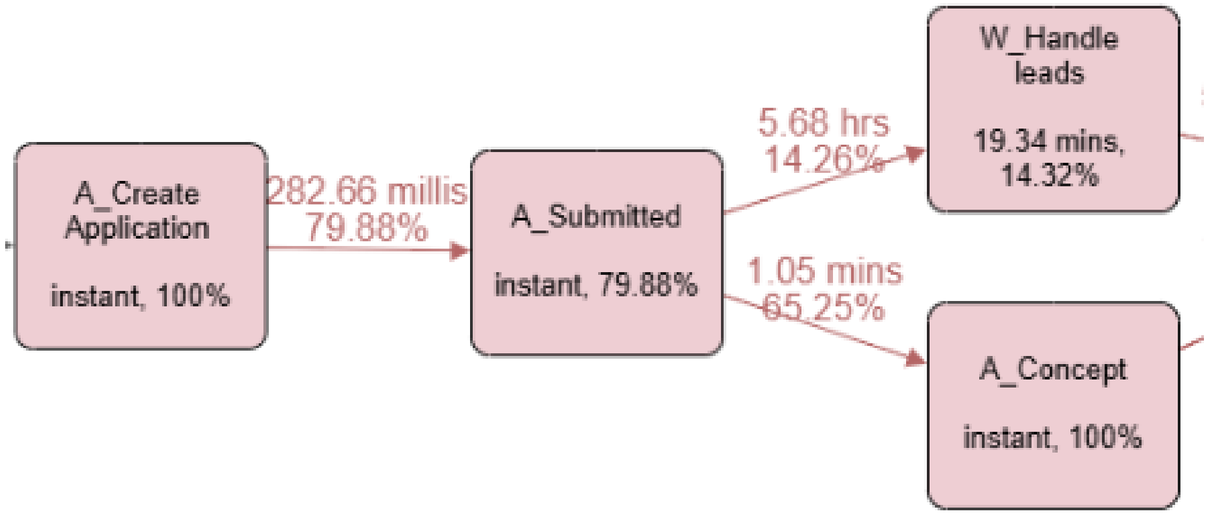


A_Create Application -> O_Cancelled
Cycle Time: 3.93 weeks

Case duration

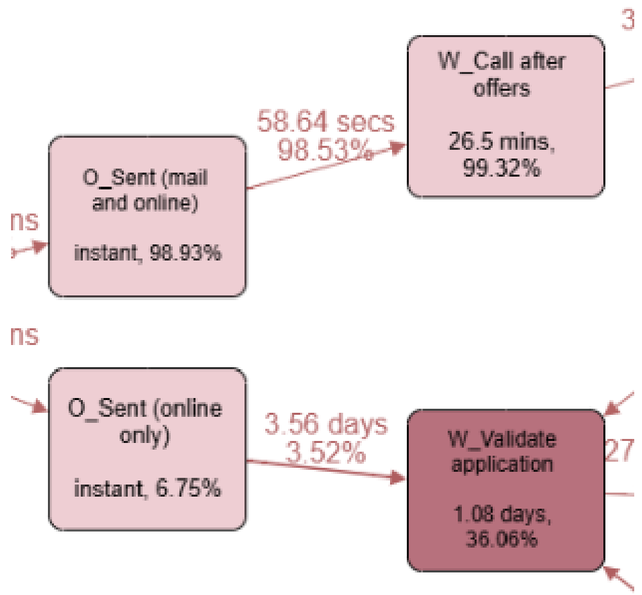
Average	3.93 wks
Min - Max	7.08 mins - 5.52 mths
Total	762.51 yrs
Timeframe	01 Jan 16, 12:19

❷ Cycle Time Analysis



Ignore: A_Create Application
I5.68h x 14.26% + 1.05m x 65.25% = 49m

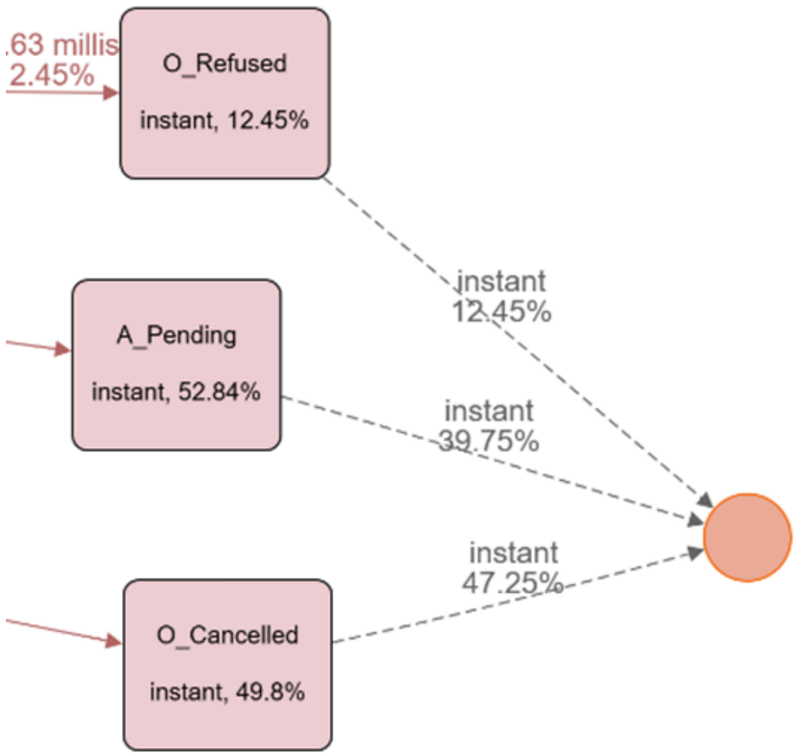
49m + 180m = 229m = 3.82h =
0.16d=0.02wks



Ignore: O_Sent -> W call after offers
Calculate:O_sent -> W_Validate application
:3.56d x 0.0352 =180m

3.93wks - 0.02wks = 3.91wks

❷ Cycle Time Analysis



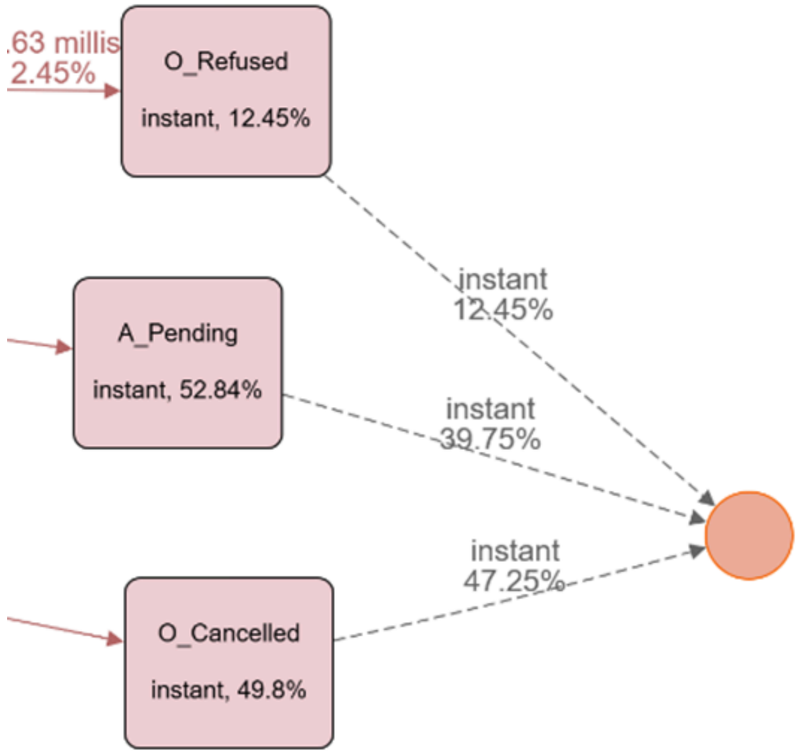
2.31wks x 0.1245 = 0.28wks

2.57wks x 0.3975 = 1.02wks

3.37wks x 0.4725 = 1.59wks

=> 0.28 + 1.02 + 1.59 = 2.89wks

❷ Cycle Time Analysis



Cycle Time: 3.15wks

2.89wks (Spent Inside)

=> 0.26wks(Waiting for Inputs)

(2.89 / 3.15) x 100 = 91.75%

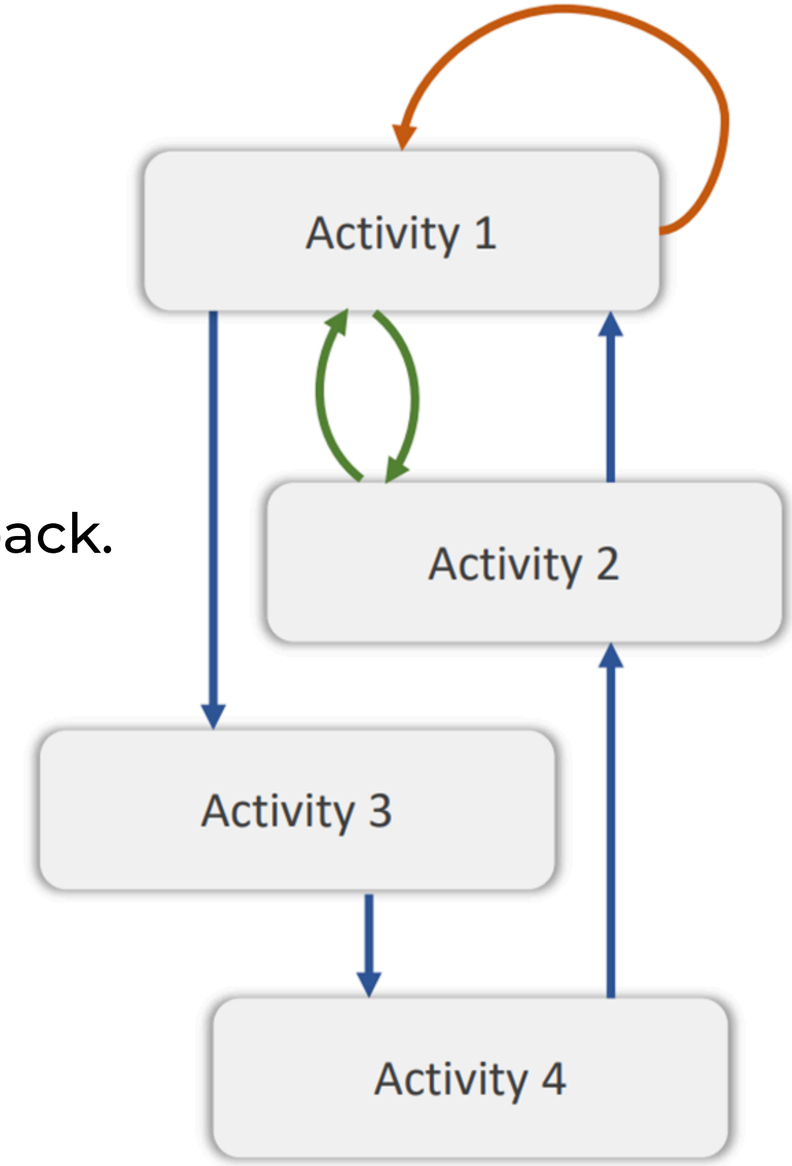
❸ Rework Analysis

Two main reasons for rework

1. The task was not done right the first time,
   so someone has to go and do it again.
2. Information that would have been necessary
   to process a case was missing, so it had to be sent back.

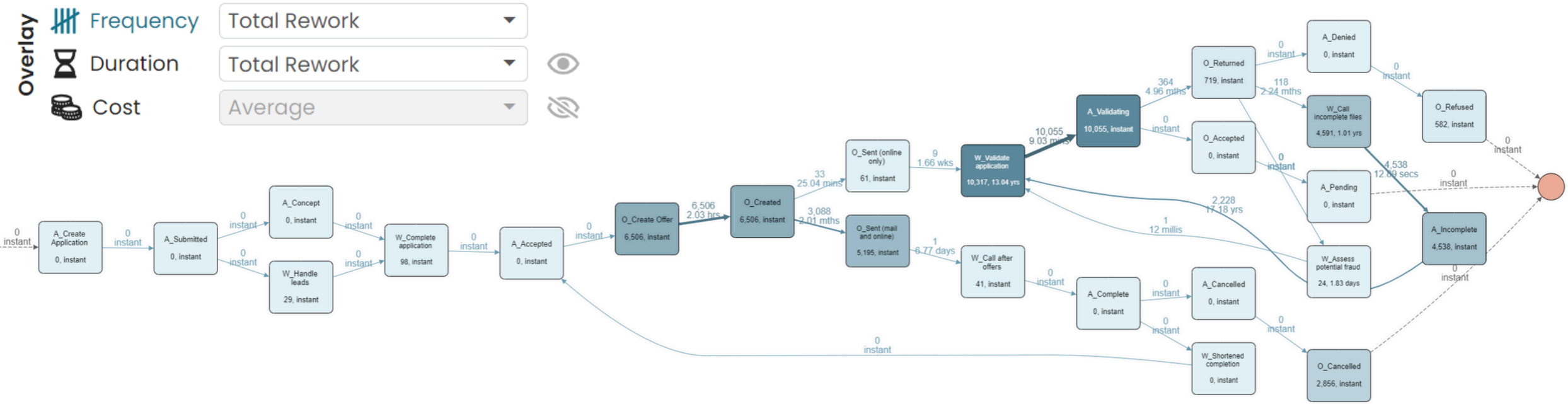
Three types of rework

1. Self loop
2. Short loop
3. Indirect repetition



❸ Rework Analysis

Is there any rework loop in this process?

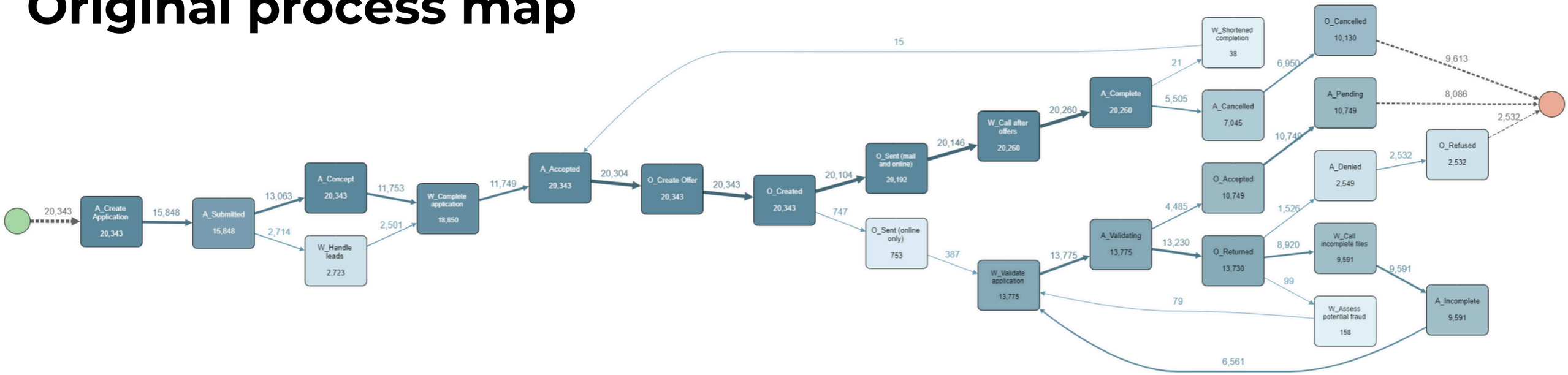


Features:

1. Most of the rework occurred in the mid-to-late part of the process map.
2. The color changes depending on the degree of rework.
3. The thickness of the arrow varies depending on the time required.

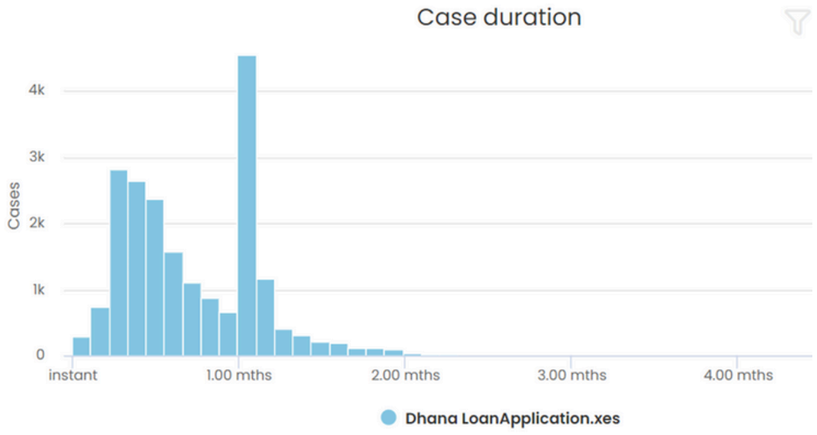
❸ Rework Analysis

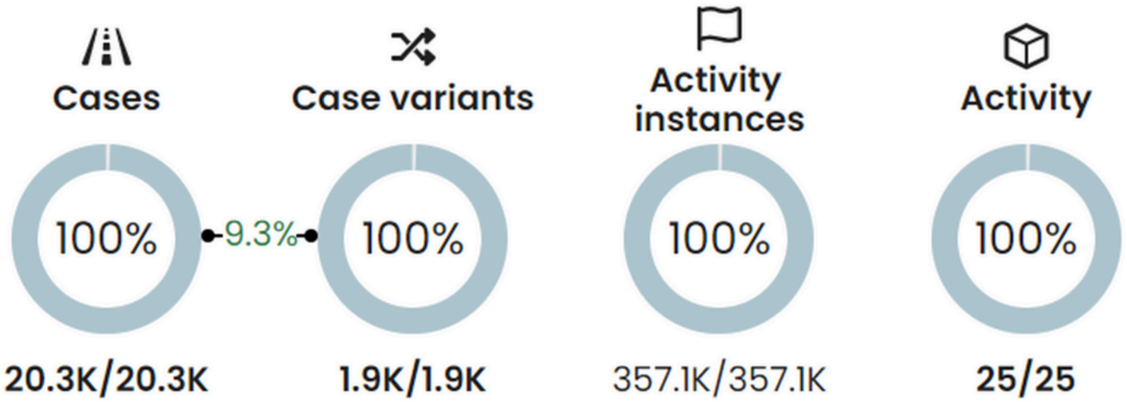
Original process map



Case duration

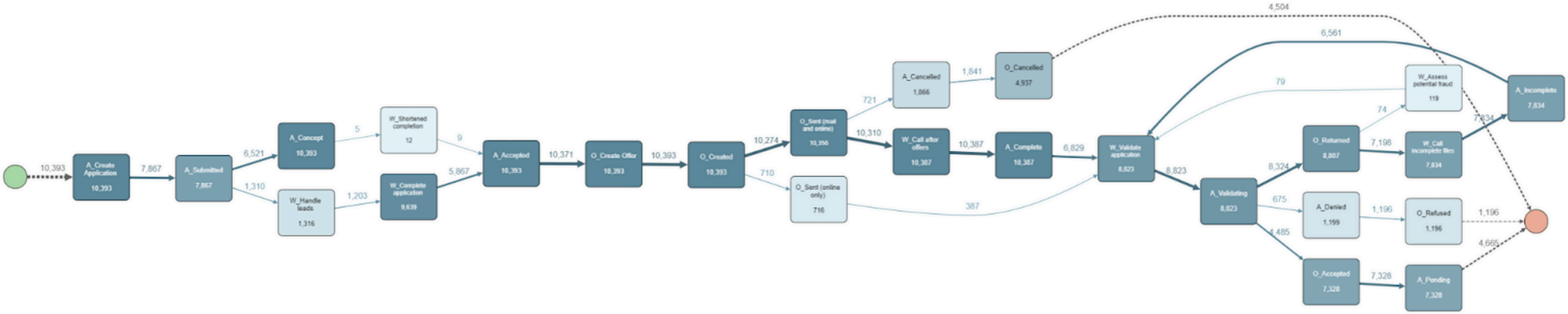
Min	3.35 mins
Median	2.81 wks
Average	3.15 wks
Max	5.52 mths





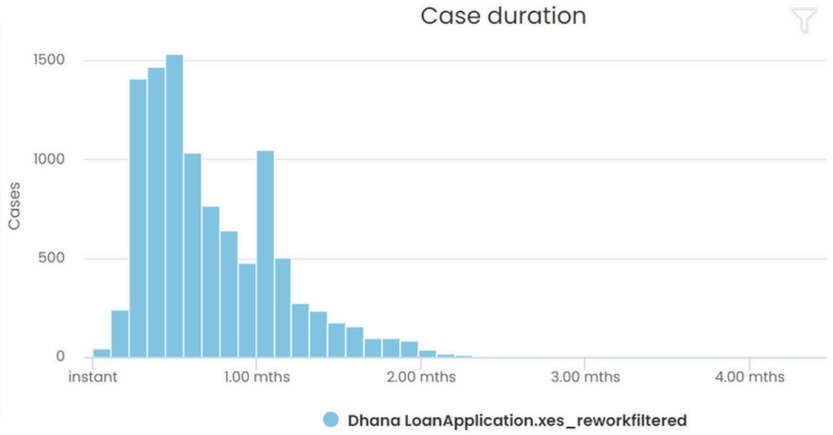
❸ Rework Analysis

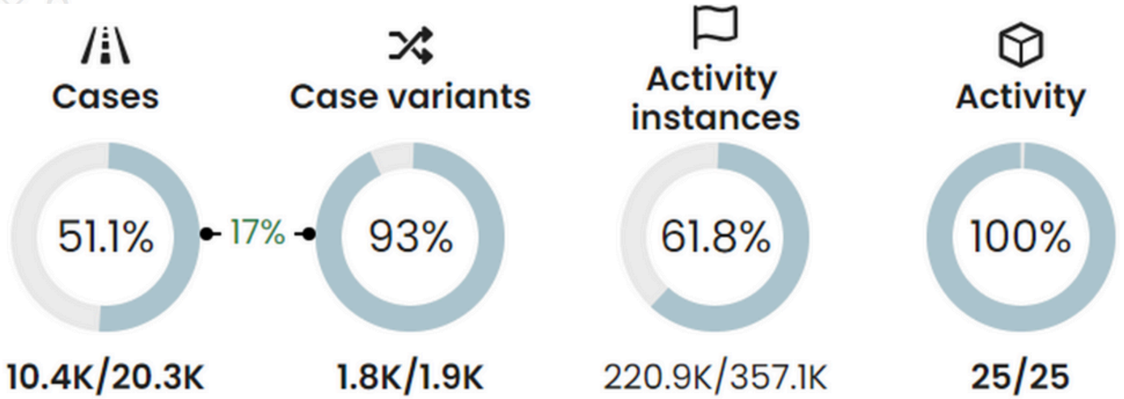
Process map that contains any rework activities



Case duration

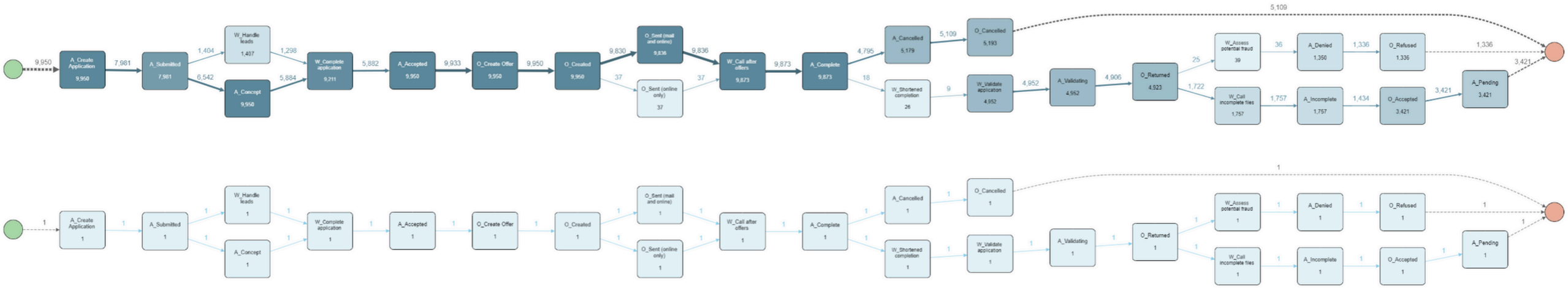
Min	52.57 mins
Median	2.64 wks
Average	3.17 wks
Max	5.52 mths

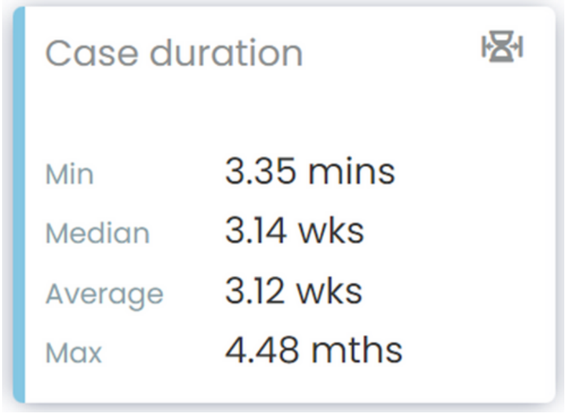


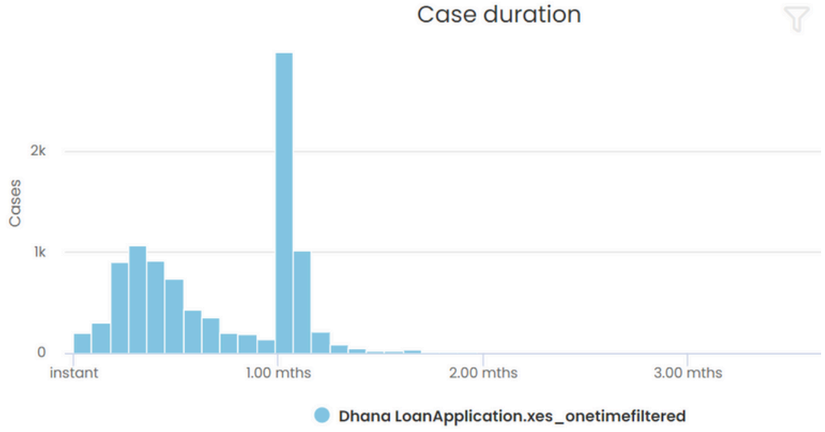


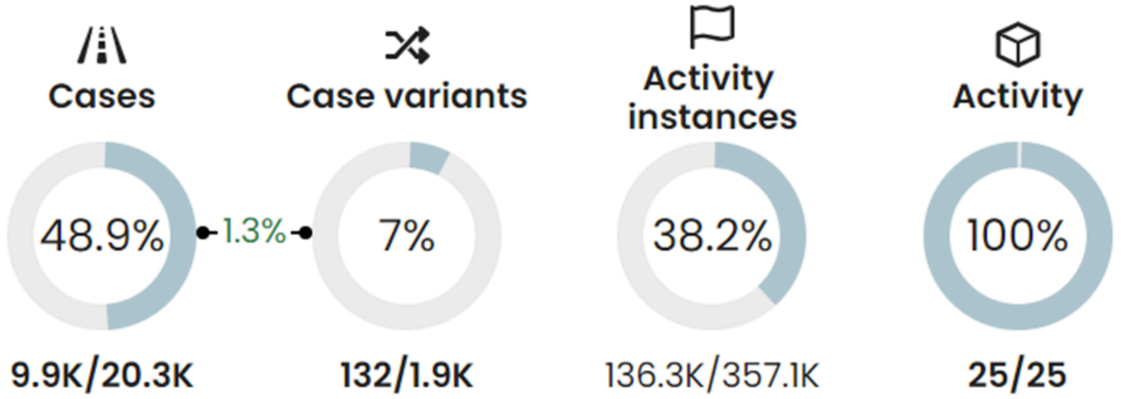
❸ Rework Analysis

Process map that all activities occur once



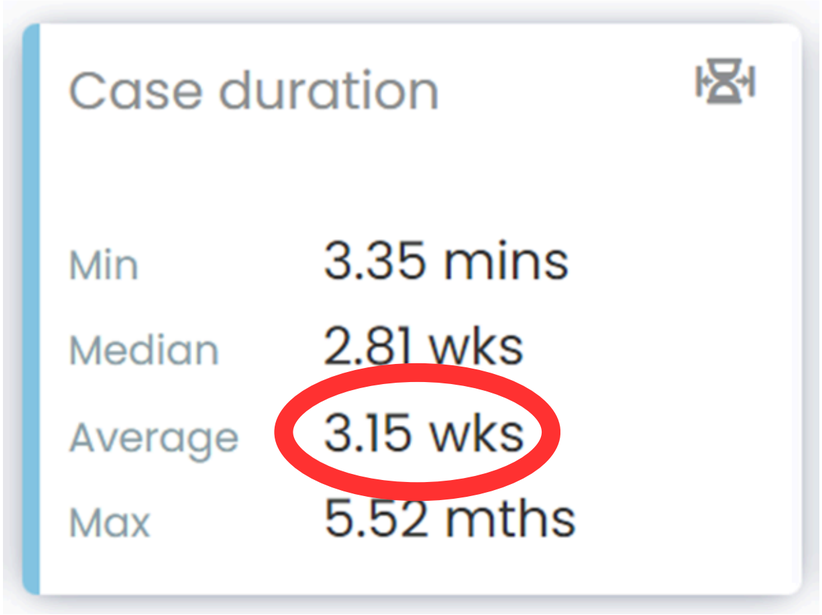




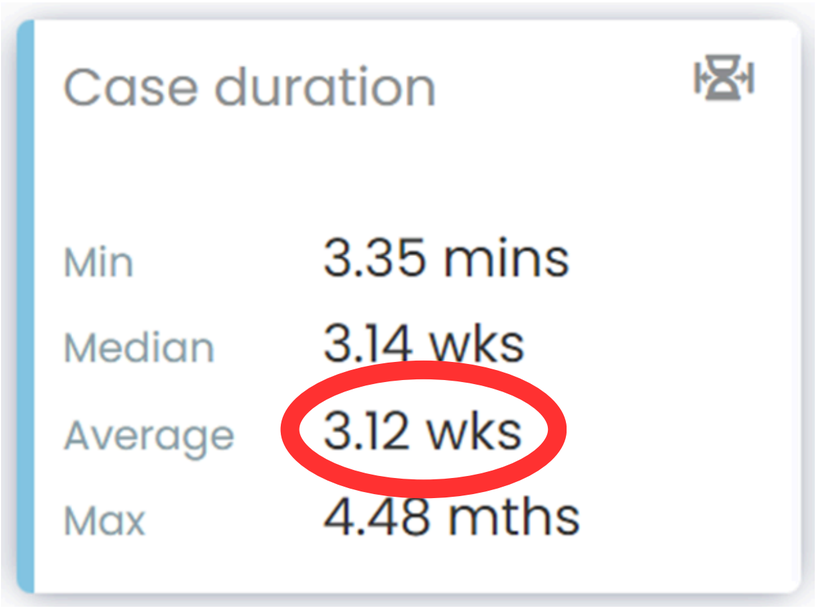


❸ Rework Analysis

Cycle time comparison



Original process map

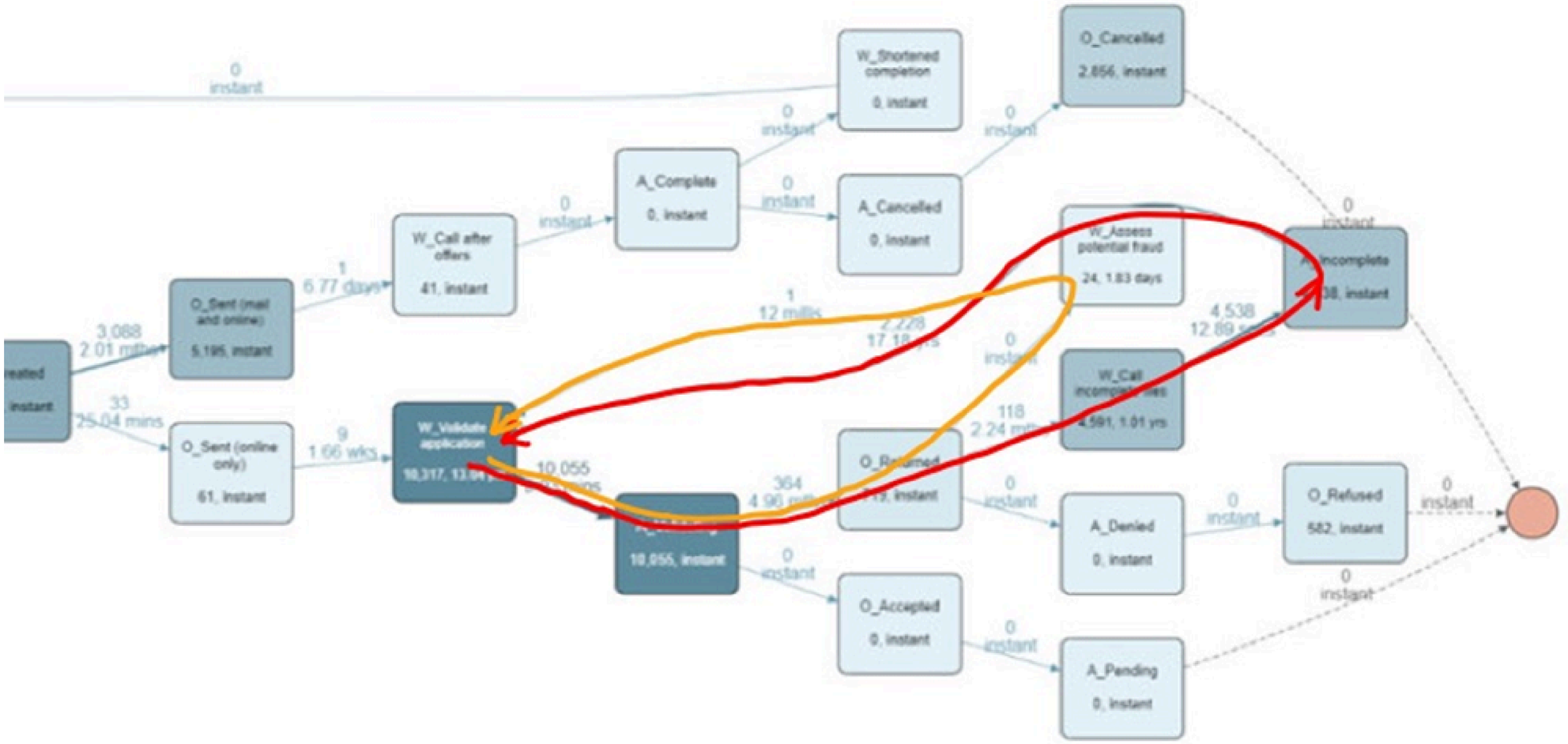


Process map removing reworks

Average time cycle difference = 0.03 weeks = about 5 hours

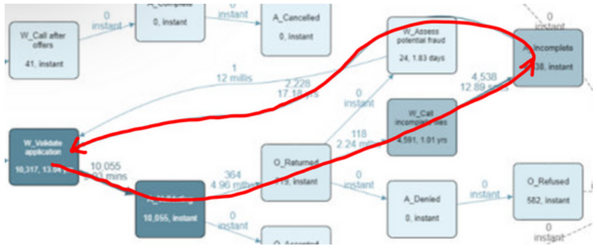
❸ Rework Analysis

Find indirect loops



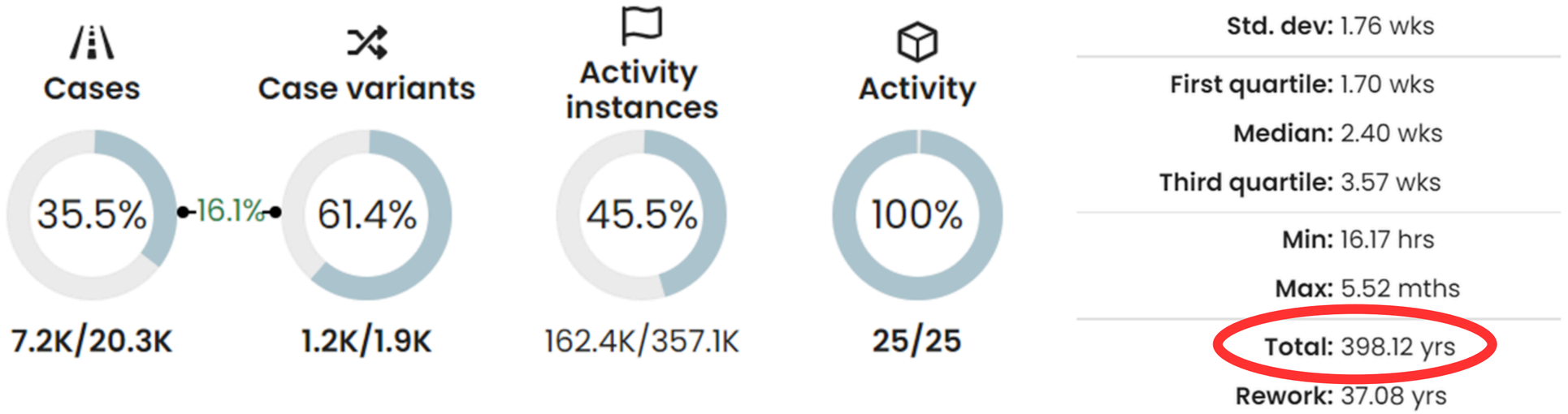
❸ Rework Analysis

Impact of each rework loop on the cycle time



1. W_Validate application -> A_Validating -> O_Returned -> W_Call incomplete -> A_Incomplete -> W_Validate application indirect repetition

filter : Retain all cases where Activity 'W_Call incomplete files' occurs [at least 1 time] AND 'O_Returned' occurs [at least 1 time] AND 'A_Incomplete' occurs [at least 1 time] AND 'A_Validating' occurs [at leas...



Rework Time Rate = 398.55 years / 1.23k years * 100 = 32.40%

❸ Rework Analysis

Impact of each rework loop on the cycle time

2. W_Validate application -> A_Validating -> O_Returned -> W_Assess potential fraud -> W_Validate application indirect repetition

filter : Retain all cases where Activity 'W_Call incomplete files' occurs [at least 1 time] AND 'O_Returned' occurs [at least 1 time] AND 'A_Incomplete' occurs [at least 1 time] AND 'A_Validating' occurs [at leas...

Cases	Case variants	Activity instances	Activity
0.5%	65.6% 3.3%	0.6%	96%
96/20.3K	63/1.9K	2.1K/357.1K	24/25

Average: 3.41 wks
Std. dev: 2.78 wks
First quartile: 1.95 wks
Median: 2.57 wks
Third quartile: 1.04 mths
Min: 6.85 days
Max: 5.52 mths
Total: 6.27 yrs
Rework: 6.22 mths

Rework Time Rate = 6.27 years / 1.23k years * 100 = 0.51%

❸ Rework Analysis

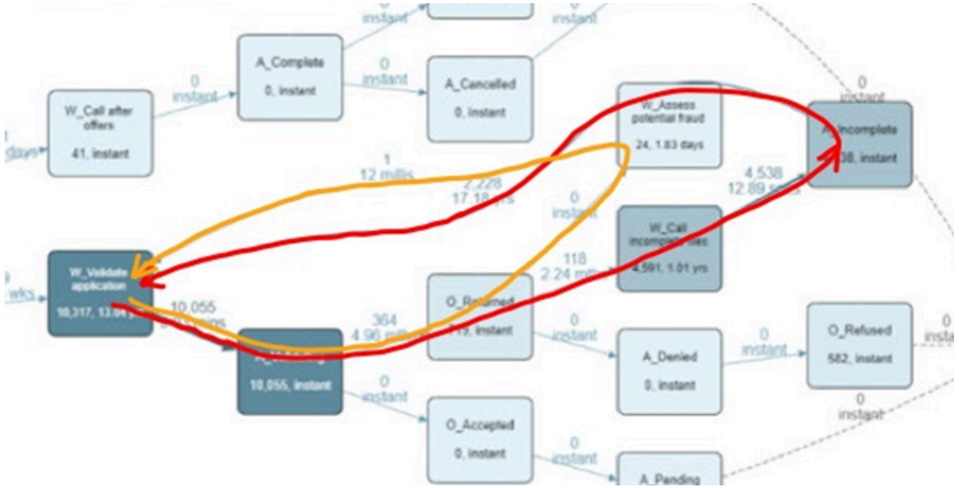
Recommendation

Both loops contains W_Validate application and O_Returned activities.

1. Introduce an automatic checking system

2. Use an auto-complementary ai technology

-> Add some verifying activities between W_Validate application and O_Returned



❹ Impact of Fraud Assessments

4-1) Filtering with W_Assess potential fraud

Filtering the case with and without "Asess potential fraud" and checked the cycle time.

Retain all cases that contain 'Activity' ['W_Assess potential fraud']

Remove all cases that contain 'Activity' ['W_Assess potential fraud']

Case duration

Average	3.14 wks	3.38 wks
Min - Max	3.35 mins - 4.79 mths	1.96 days - 5.52 mths
Total	1.22k yrs	10.23 yrs

Cycle Time

- **Not assessed potential fraud: 3.14 weeks**
- **Assessed potential fraud: 3.38 weeks**

A: Dhana LoanApplication_not_fraud_investigation **B**: Dhana LoanApplication_fraud_investigation

4 Impact of Fraud Assessments

4-2) Analysis Result

Assessing potential fraud took about 0.28 weeks(1.96 days) more than not assessing potential fraud.

❺ Impact of Application Incompleteness

5-1) Final Endpoints

First, chcked 3 stated endpoints in the process.

1. Pending

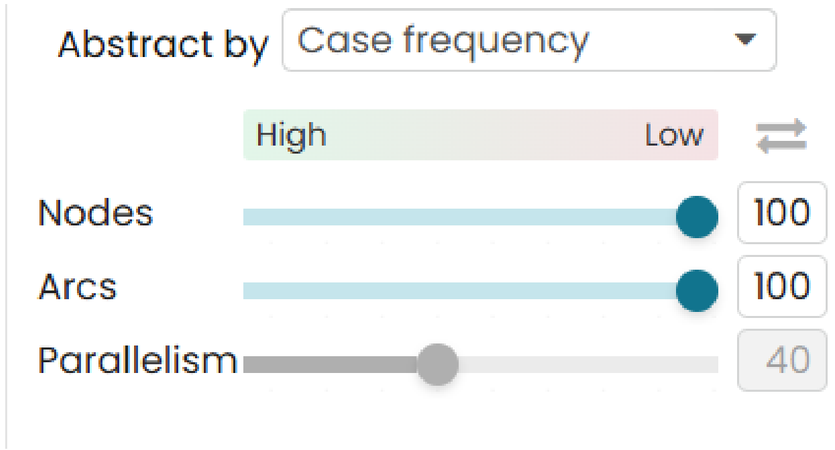
2. Denied

3. Cancelled

- **Pending:** if all documents are received and the assessment is positive, the loan is final, and the customer is paid.
- **Denied:** if somewhere in the process the loan cannot be offered to the customer, because the application does not fit the acceptance criteria, the application is declined, which results in the state 'denied'.
- **Cancelled:** if the customer never sends in their documents or calls to tell they do not need the loan anymore, the application is cancelled.

❺ Impact of Application Incompleteness

Additionally, we find a small amount of two endpoints by setting Arcs 100.

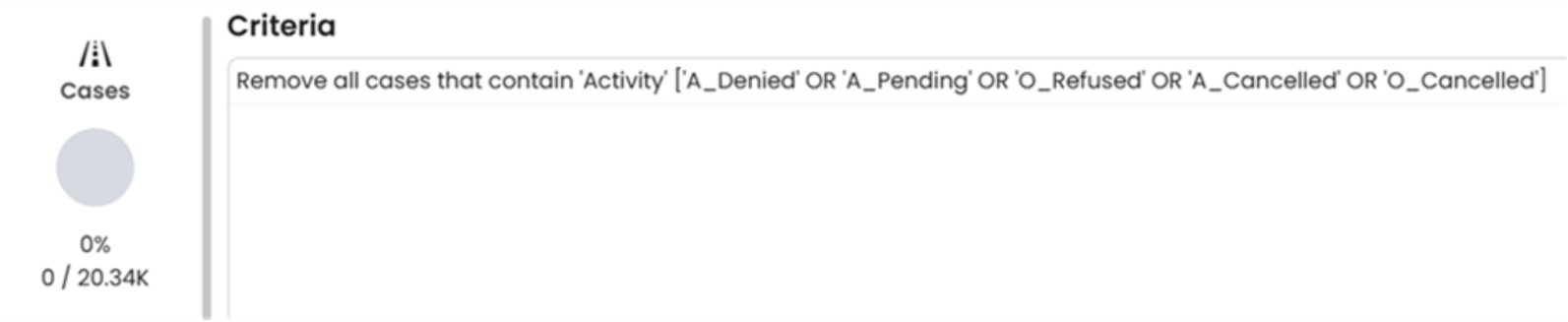


A_Denied > [End]	
FREQUENCY	
Case	17 (0.08% - Relative case)
Average	0
Median	0
Max	1
Min	0
Total	17
DURATION	
Average	instant
Median	instant
Max	instant
Min	instant
Total	instant

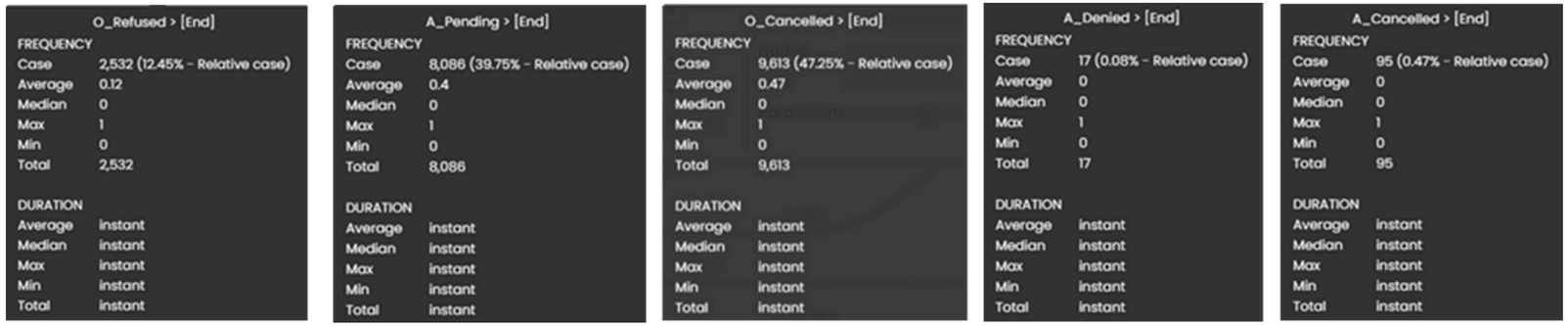
A_Cancelled > [End]	
FREQUENCY	
Case	95 (0.47% - Relative case)
Average	0
Median	0
Max	1
Min	0
Total	95
DURATION	
Average	instant
Median	instant
Max	instant
Min	instant
Total	instant

❺ Impact of Application Incompleteness

Second, we checked there are other endpoints or missing case, but there were no any case.



⇨ **Check 1) There were no cases when we filtered with all endpoints.**



⇨ **Check 2) We confirmed that adding all the cases leading to end at the three endpoints matches the value of start. (20,343 = 2,532+8,086+9,613+17+95)**

❺ Impact of Application Incompleteness

However, we used only three endpoints

1. **O_Refused**
2. **A_Pending**
3. **O_Cancelled,**

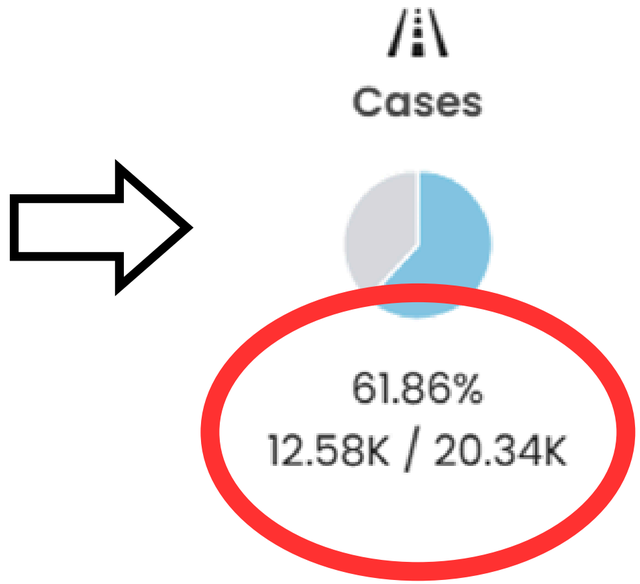
because A_Denied and A_Cancelled account for only 0.55%

❺ Impact of Application Incompleteness

5-2) Impact of the frequency of incompleteness

First,
we checked the percentage of cases where the final state is O_Refused or O_Canceled.

Retain all cases that contain 'Activity' ['O_Refused' OR 'O_Cancelled']

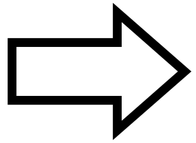


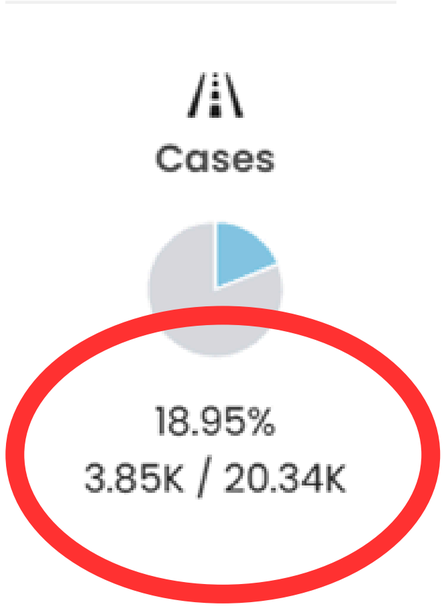
❺ Impact of Application Incompleteness

Second,
we filtered with O_Refused or O_Cancelled attributes and W_Call incomplete files event.

Retain all cases that contain 'Activity' ['O_Refused' OR 'O_Cancelled']

Retain all activity instances where attribute 'Activity' is equal to ['W_Call incomplete files']





❺ Impact of Application Incompleteness

In Dashboard,

Case variants

Case variant ID	Activity instances	Cases	Min duration	Median duration	Average duration	Max duration
1	1	2,405	0 secs	0 secs	2.08 days	4.01 mths
2	2	1,057	40.59 secs	3.18 days	6.12 days	2.67 mths
3	3	301	6.27 hrs	6.94 days	1.41 wks	4.23 mths
4	4	72	1 days	1.28 wks	2.8 wks	5.22 mths
5	5	14	1.86 days	1.38 wks	1.87 wks	1.88 mths
6	6	3	1.59 wks	1.85 wks	2.21 wks	3.17 wks
7	7	2	1.84 wks	2.5 wks	2.5 wks	3.16 wks

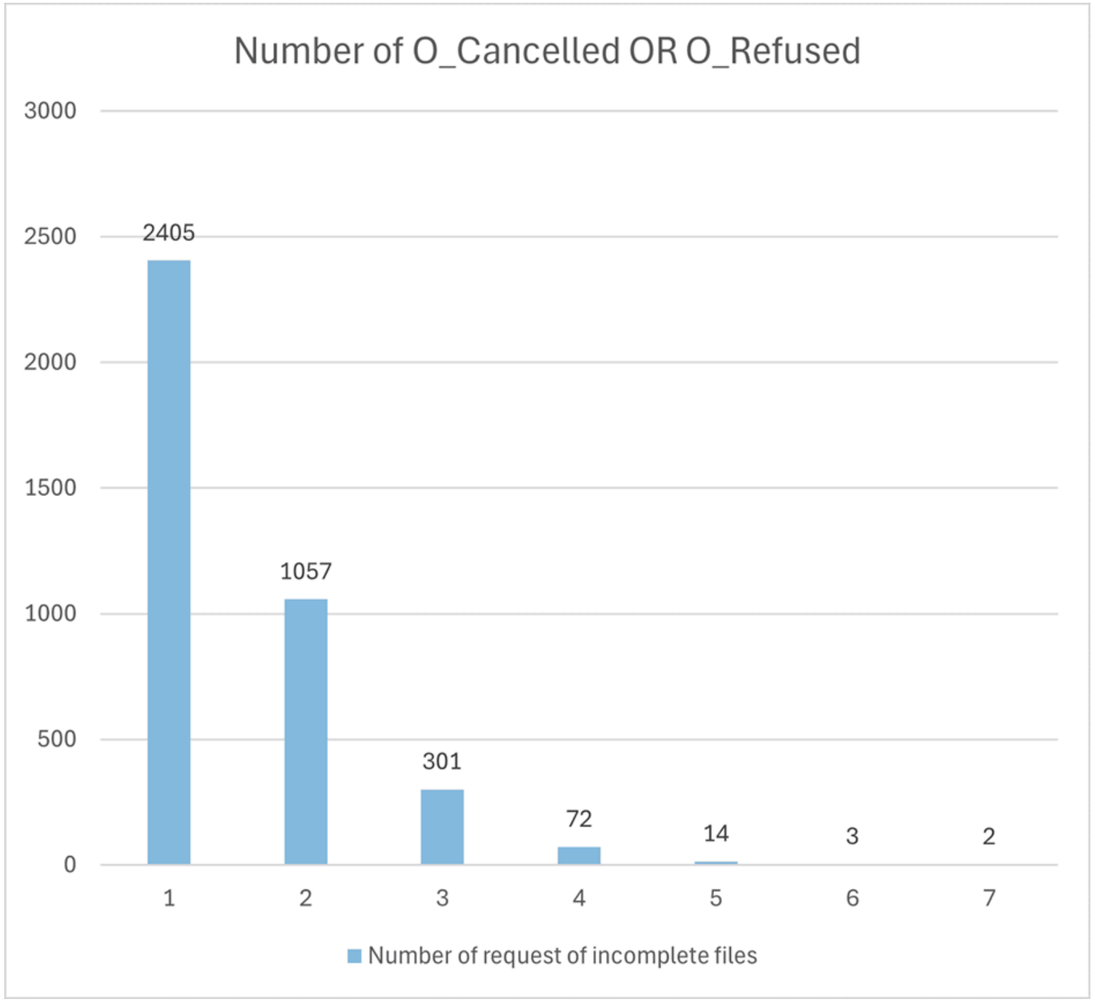
1 to 7 incomplete file requests

More than 97%

have been rejected or cancelled in cases where 3 or less requests have been received.

❺ Impact of Application Incompleteness

Moving the dashboard data to Excel



❺ Impact of Application Incompleteness

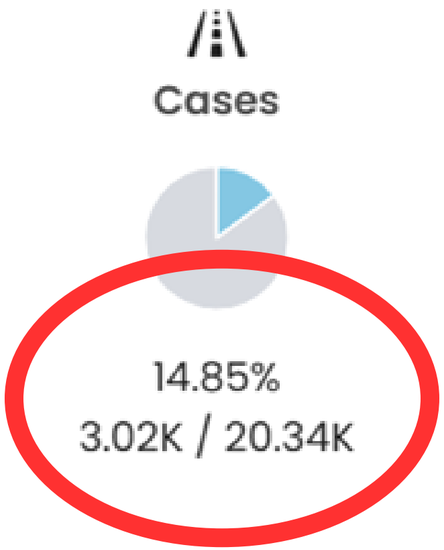
Third,
Checked at the cases of final
cancelled and refused, respectively.

❺ Impact of Application Incompleteness

1-1) Final Cancelled case

Retain all cases that contain 'Activity' ['O_Cancelled']

Retain all activity instances where attribute 'Activity' is equal to ['W_Call incomplete files']



❺ Impact of Application Incompleteness

1-2) Final Cancelled case in Dashborad

Case variants

Case variant ID	Activity instances	Cases	Min duration	Median duration	Average duration	Max duration
1	1	1,771	0 secs	0 secs	2.78 days	4.01 mths
2	2	903	40.59 secs	3.14 days	6.32 days	2.67 mths
3	3	266	6.27 hrs	6.84 days	1.4 wks	4.23 mths
4	4	63	1 days	1.69 wks	2.99 wks	5.22 mths
5	5	12	1.86 days	1.38 wks	1.94 wks	1.88 mths
6	6	3	1.59 wks	1.85 wks	2.21 wks	3.17 wks
7	7	2	1.84 wks	2.5 wks	2.5 wks	3.16 wks

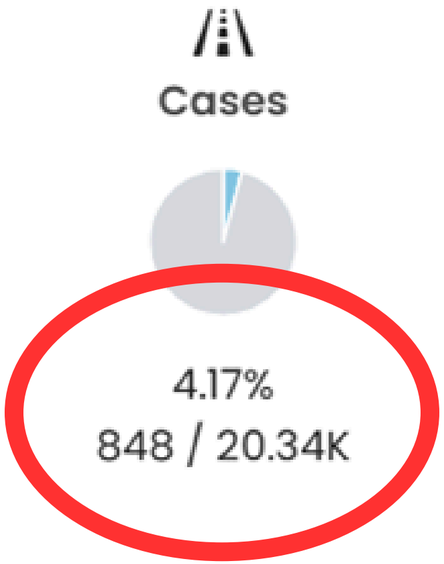
Most cases cancelled in cases where 3 or less requests have been received.

❺ Impact of Application Incompleteness

2-1) Final Refused case

Retain all cases that contain 'Activity' ['O_Refused']

Retain all activity instances where attribute 'Activity' is equal to ['W_Call incomplete files']



❺ Impact of Application Incompleteness

2-2) Final Refused case in Dashborad

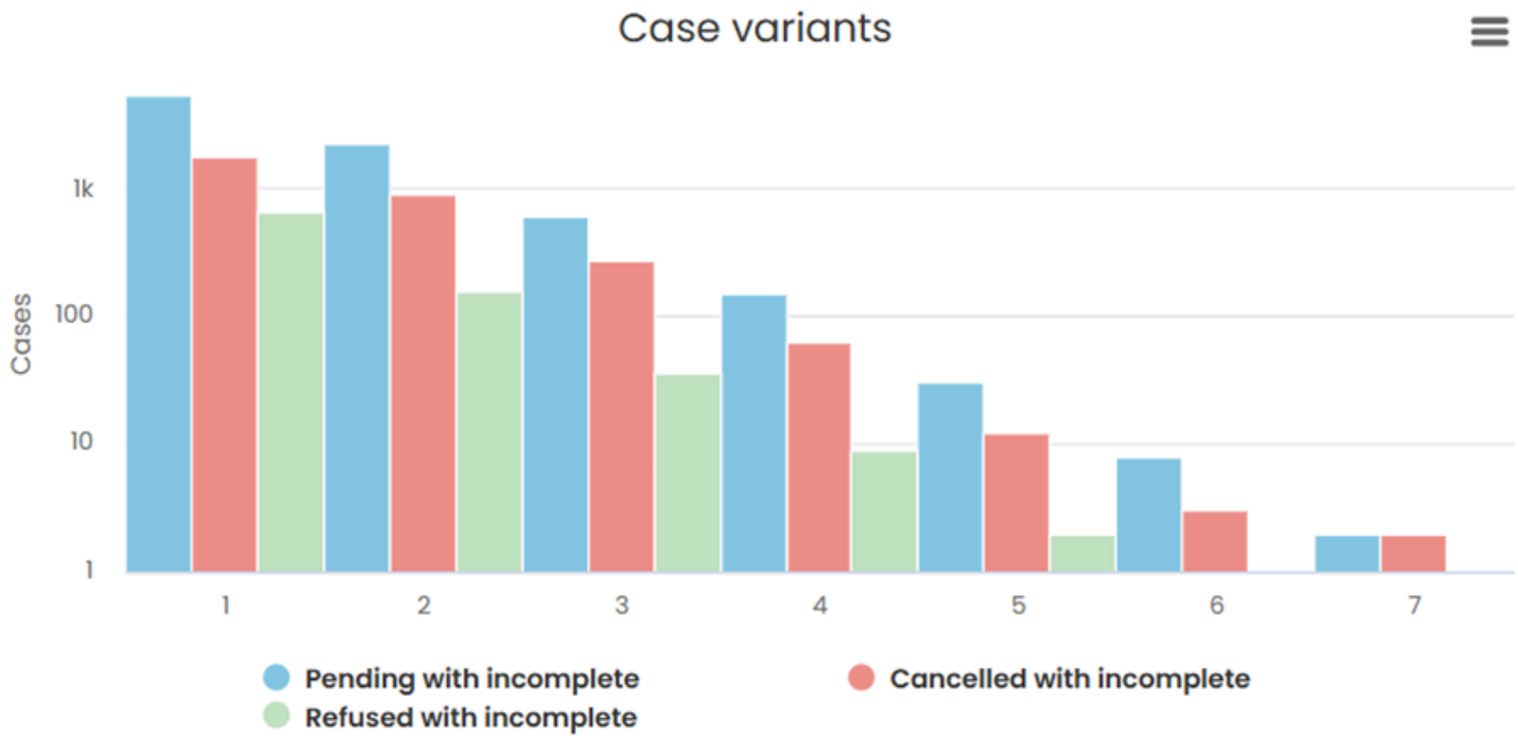
Case variants

Case variant ID	Activity instances	Cases	Min duration	Median duration	Average duration	Max duration
1	1	647	0 secs	0 secs	3.1 hrs	2.12 wks
2	2	154	3.78 mins	3.71 days	4.94 days	3.86 wks
3	3	36	2.94 days	1.25 wks	1.46 wks	4.27 wks
4	4	9	2.72 days	1 wks	1.46 wks	3.7 wks
5	5	2	5.98 days	1.48 wks	1.48 wks	2.11 wks

Most cases cancelled in cases where 3 or less requests have been received.

❺ Impact of Application Incompleteness

Finally,
we checked comparison with all final endpoints .



The graph comparing the number of incomplete file requests with the final results.

Most cases cancelled in cases where 3 or less requests have been received.

❺ Impact of Application Incompleteness

5-3) Conclusion

- Most *O_Cancelled* and *O_Refused* occurred when 3 or less requests of incomplete files were received, as was the case with *A_pending.*

- Therefore, the bank's hypothesis that many incomplete document requests affect the final outcome is not established.

❺ Impact of Application Incompleteness

5-3) Conclusion

- **In addition, the percentage of incomplete file request events in the case of final cancelled and refused is 18.95% ⇨ the incomplete request itself does not significantly affect the final not accept cases.**

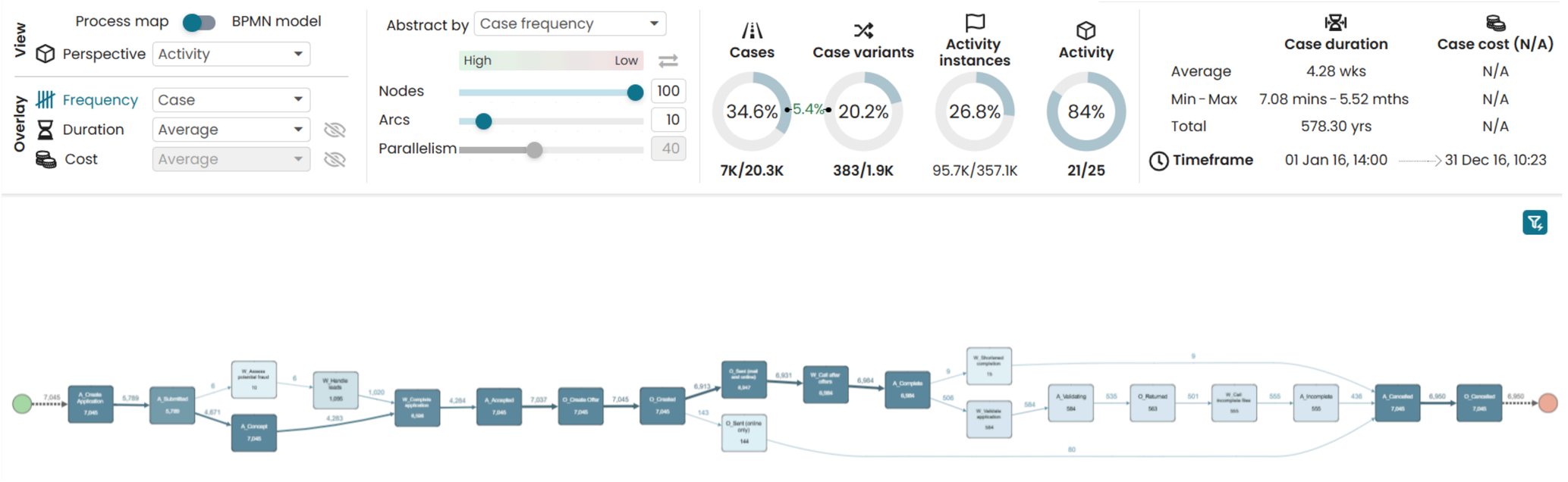
- **It is expected that there have been other factors for final not accept.**

6 Analysis of Cancellations

- **How many loan applications are cancelled?**

  Total number of cases: **20,343**

  Cancelled cases (A Cancelled): **7,045 cases** (approximately 34.6%)



6 Analysis of Cancellations

- **The characteristics and pattern of the loan applications being cancelled**

1) Loan Types

(Cancellation Rate (%) = (A Cancelled Cases ÷ Total Cases) × 100)

loangoal	Cases	Frequency	A Cancelled Cases	Frequency	Cancellation Rate
Car	7,705	37.88%	2,925	41.9%	37.96 %
Home improvement	5,923	29.12%	1,881	26.7%	31.76 %
Existing loan takeover	4,793	23.56%	1,514	21.49%	31.59 %
Remaining dept home	680	3.34%	222	3.15%	32.65 %
Extra spending limit	408	2.01%	145	2.06%	35.54 %
Caravan / Camper	299	1.47%	117	1.66%	39.13 %
Motorcycle	227	1.12%	92	1.31%	40.53 %
Boat	166	0.82%	68	0.97%	40.96 %
Tax payment	116	0.57%	41	0.58%	35.34 %
Business goal	24	0.12%	11	0.16%	45.83 %
Dept restructuring	2	0.01%	2	0.03%	100 %

❻ Analysis of Cancellations

- **The characteristics and pattern of the loan applications being cancelled**

1) Transportation Loans (Car, Motorcycle, Caravan/Camper, Boat):

- High cancellation rate: 37%+
- Car loans: Stable, relatively low cancellation rate despite large volume.

2) Business Goal Loans: Very high cancellation rate: 45.83%

3) Caravan/Camper, Motorcycle, Boat, Tax Payment, Business Goal, Debt Restructuring:

- Fewer cases, high cancellation rates.
- Debt Restructuring Loans: Extreme cancellation rate: 100% (2/2 cases canceled).

6 Analysis of Cancellations

- **The characteristics and pattern of the loan applications being cancelled**

1) Business goal: The average duration of W Call Incomplete Files is higher compared to other loan goal types.
-> It appears that the average duration of W Call Incomplete Files has a significant impact on the cancellation rate.

❻ Analysis of Cancellations

- **The characteristics and pattern of the loan applications being cancelled**

  2) Loan Amount

  - **0–9,999**: 2,599 cancellations out of 6,748 cases (Cancellation Rate: 38.5%)
  - **10,000–19,999**: 2,415 cancellations out of 7,475 cases (Cancellation Rate: 32.3%)
  - **20,000–39,999**: 1,528 cancellations out of 4,725 cases (Cancellation Rate: 32.3%)
  - **40,000–100,000**: 502 cancellations out of 1,381 cases (Cancellation Rate: 36.4%)
  - **100,000+**: 1 cancellation (400,000) out of 14 cases (Cancellation Rate: 7.1%)

❻ Analysis of Cancellations

- **The characteristics and pattern of the loan applications being cancelled**

  1) Cancellation Rate Trends by Loan Amount

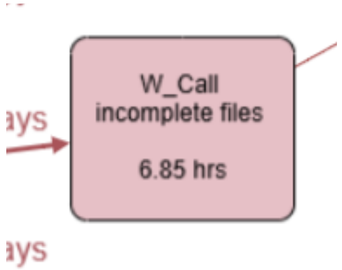
  - **Low Amount (0–9,999)**: Highest cancellation rate at 38.5%, as small loans are often canceled with less hesitation.
  - **Medium Amount (10,000–39,999)**: Both 10,000–19,999 and 20,000–39,999 have a cancellation rate of 32.3%, showing more cautious decision-making compared to small loans.
  - **High Amount (40,000–100,000)**: Cancellation rate rises to 36.4%, likely due to stricter terms or customer hesitation.
  - **Very High Amount (100,000+)**: Lowest cancellation rate at 7.1%, as applications are more deliberate and likely to proceed.

❻ Analysis of Cancellations

- **The characteristics and pattern of the loan applications being cancelled**

  1) Comparison of

  Removing A Cancelled Activity vs. **Retaining A Cancelled Activity**



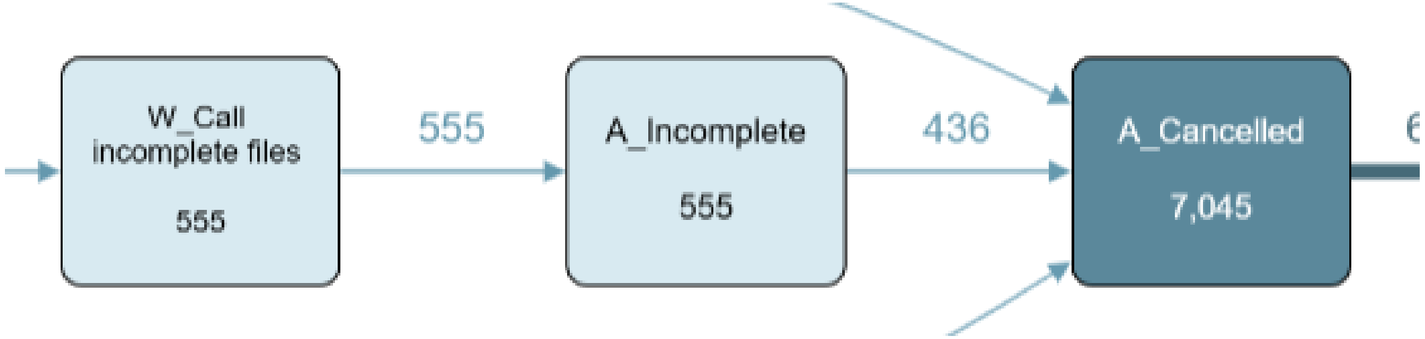
6.85 hrs

1.35 wks

- If there is no response to the request for missing document submission, the process remains in a waiting state.
- Failure to respond at this stage results in cancellation.

❻ Analysis of Cancellations

- **The characteristics and pattern of the loan applications being cancelled**
  - **Key Path**: W Call Incomplete Files → A Incomplete → A Cancelled



  - In cases Retaining A Cancelled Activity, 436 cases followed this path to cancellation.

❻ Analysis of Cancellations

- **The characteristics and pattern of the loan applications being cancelled**

2) Comparison of Duration

Retain all cases that contain 'Activity' ['O_Cancelled'] **&**

Retain all cases that contain 'Activity' ['A_Pending']

Remove all cases that contain 'Activity' ['O_Cancelled']

⇨ **In this filted log, filtering with**

Retain all cases that contain the eventually-follows relation 'O_Returned' -> 'W_Call incomplete files' between Activity nodes

Retain all cases that contain 'Activity' ['O_Returned' AND 'W_Call incomplete files']

Retain all activity instances where attribute 'Activity' is equal to ['O_Returned' OR 'W_Call incomplete files']

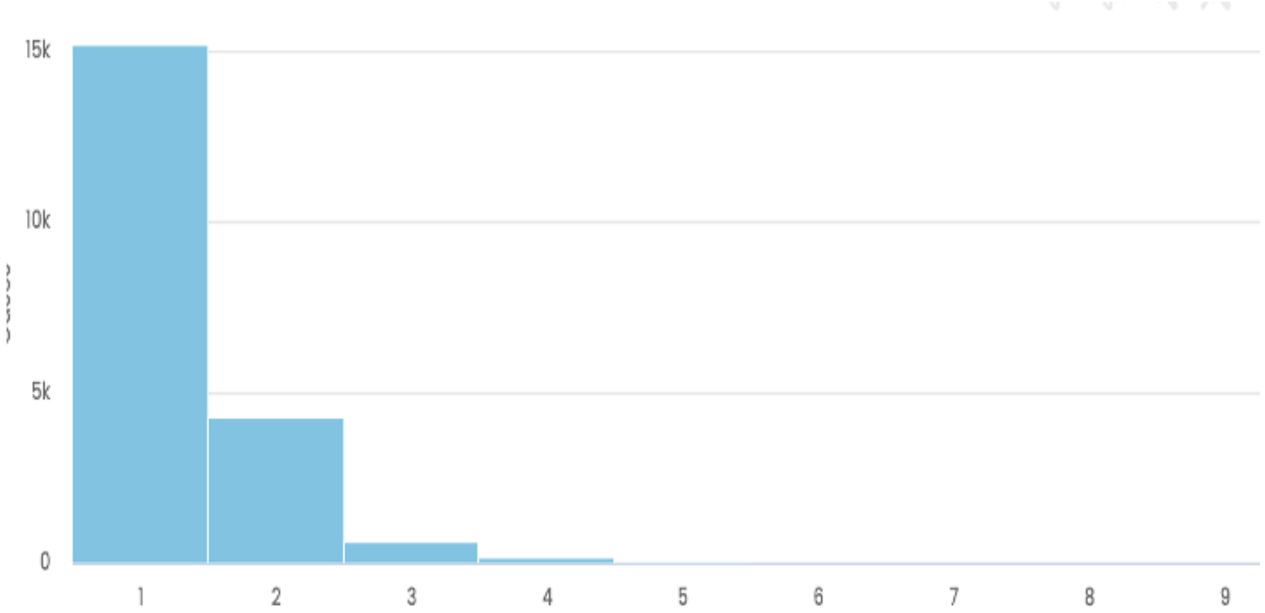
	Case duration
Average	1.08 wks
Min - Max	4.79 secs - 5.22 mths
Total	61.15 yrs

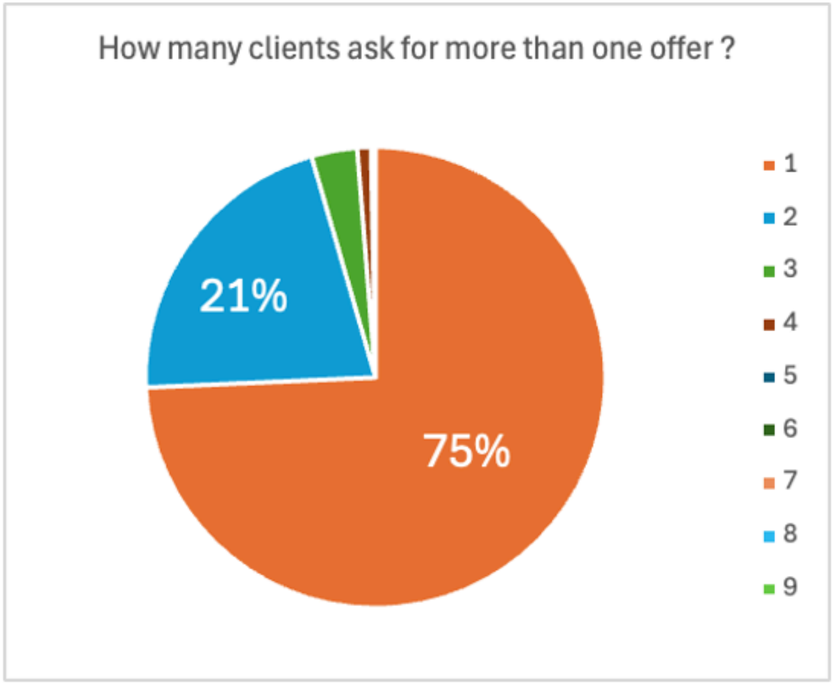
&

	Case duration
Average	3.73 days
Min - Max	1.78 secs - 3.08 mths
Total	55.03 yrs

❼ Analysis of Multiple Offers

Q 7-1 . How many customers ask for more than one offer?

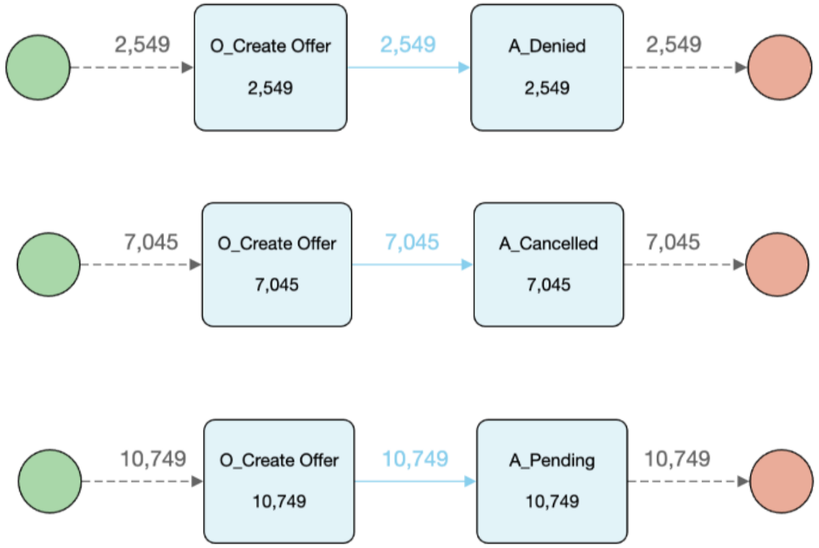


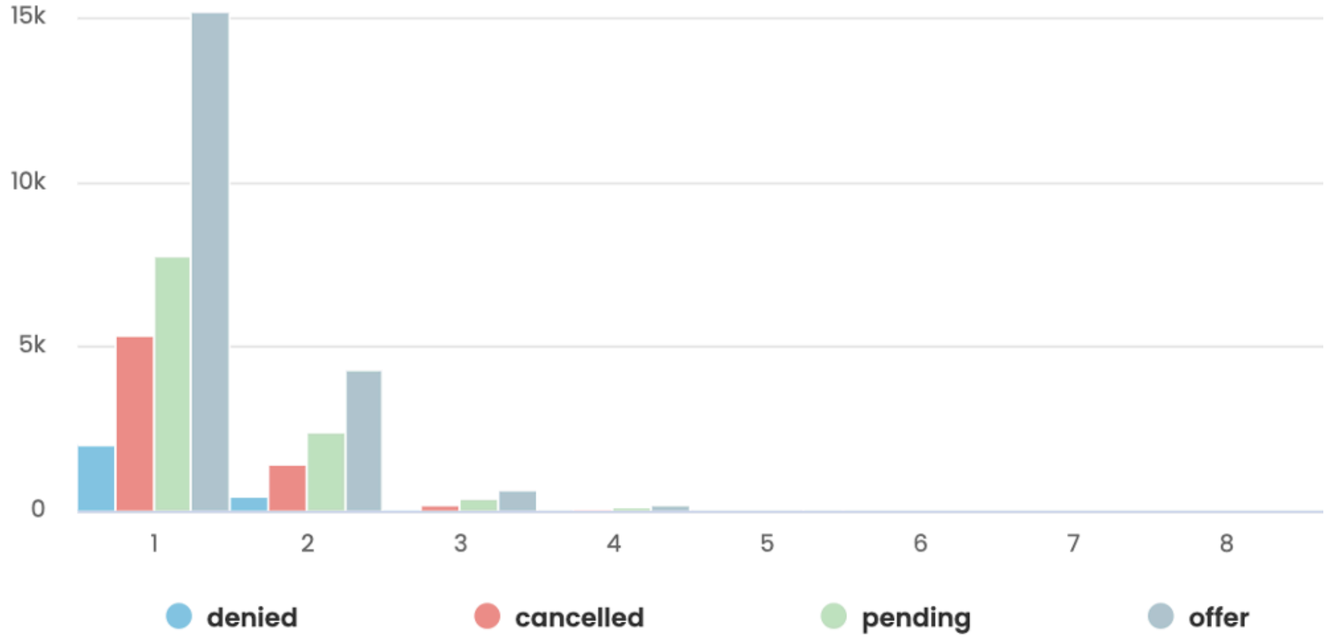


- **<u>75% of customers request only one offer.</u>**
- **<u>25% of customers request more than one offer.</u>**

❼ Analysis of Multiple Offers

Q 7-2 . Is it a successful outcome to present multiple proposals?



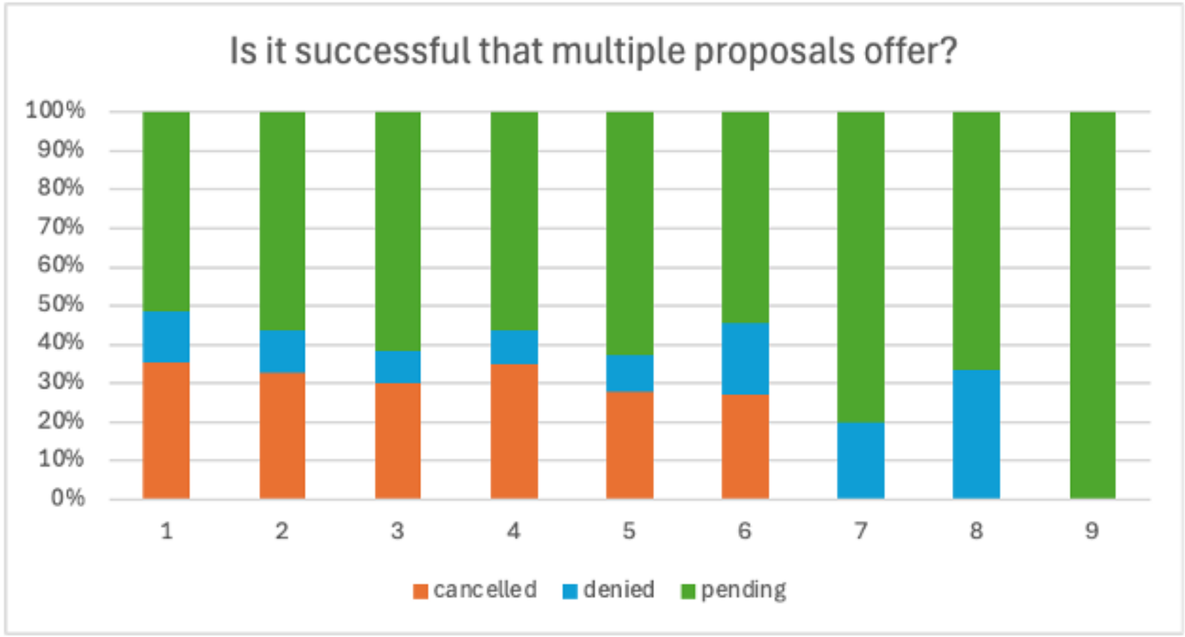


Show how the results of cancelled, denied, and pending after creating offers were divided.

❼ Analysis of Multiple Offers

Q 7-2 . Is it a successful outcome to present multiple proposals?

	cancelled	denied	pending
1	0.354327	0.132376	0.513297
2	0.326763	0.108534	0.564703
3	0.299237	0.083969	0.616794
4	0.350254	0.086294	0.563452
5	0.27907	0.093023	0.627907
6	0.428571	0.285714	0.857143
7	0	0.166667	0.666667
8	0	0.166667	0.333333
9	0	0	1



Pending tends to increase as the number of proposals increases.

On the other hand, the more suggestions there are, the less cancelled rate.

❼ Analysis of Multiple Offers

Q 7-3. Are these offers asked as part of a single conversation or multiple conversations?

3 criteria

1) single conversation - single

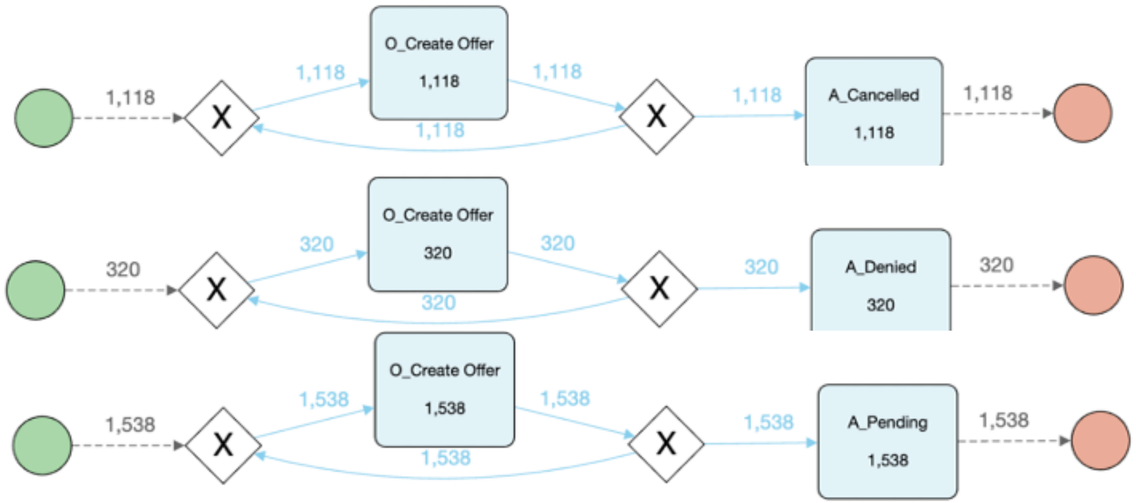
2) Phone Consultation After First Offer - multiple

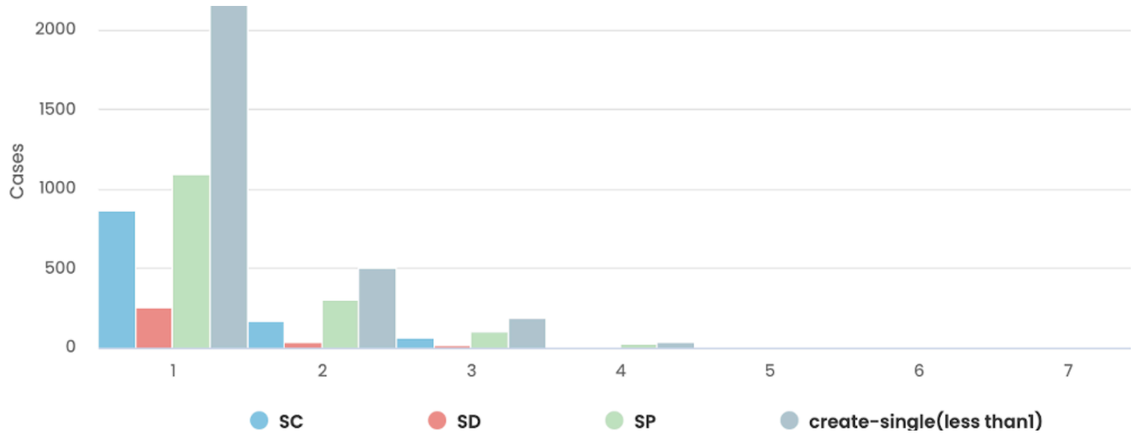
3) Second Offer Due to Incomplete Documents - multiple

❼ Analysis of Multiple Offers

1) single conversation

O_Create Offer → O_Create Offer





To extract only two proposals made within a single conversation

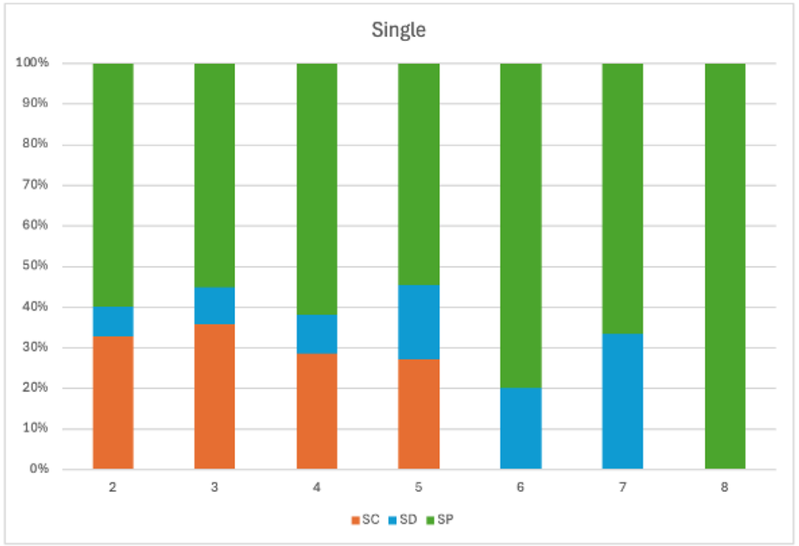
→

Filter by: Directly-follows
From: O_Create Offer
To: O_Create Offer
Time interval:
Lower bound = 0
Upper bound = 1

❼ Analysis of Multiple Offers

1) single conversation

O_Create Offer → O_Create Offer



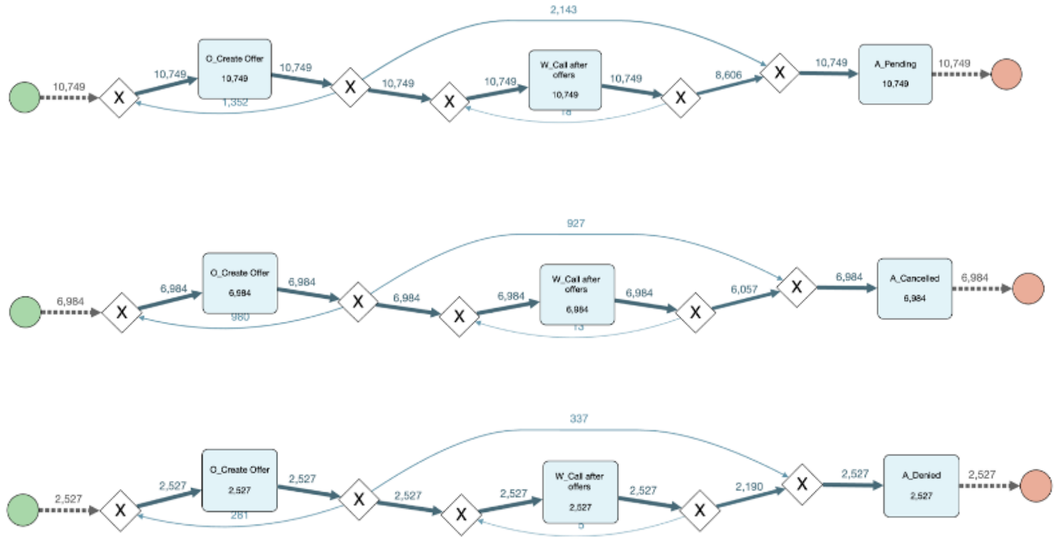
	SC	SD	SP
2	0.32874	0.072835	0.598425
3	0.358289	0.090909	0.550802
4	0.285714	0.095238	0.619048
5	0.428571	0.285714	0.857143
6	0	0.166667	0.666667
7	0	0.166667	0.333333
8	0	0	1

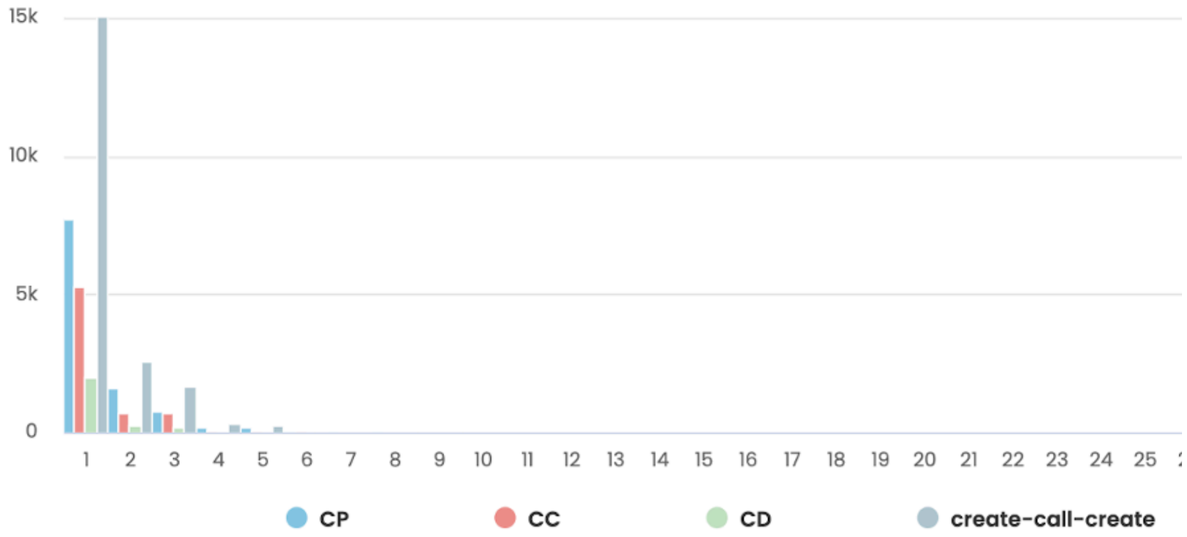
- **It's almost the same as the conversion rate of the overall process.**
- **Although the pending rate is relatively high, the ratio of denied and cancelled is low and shows a stable pattern.**

❼ Analysis of Multiple Offers

2) Phone Consultation After First Offer

O_Create Offer → W_Call after offers → O_Create Offer

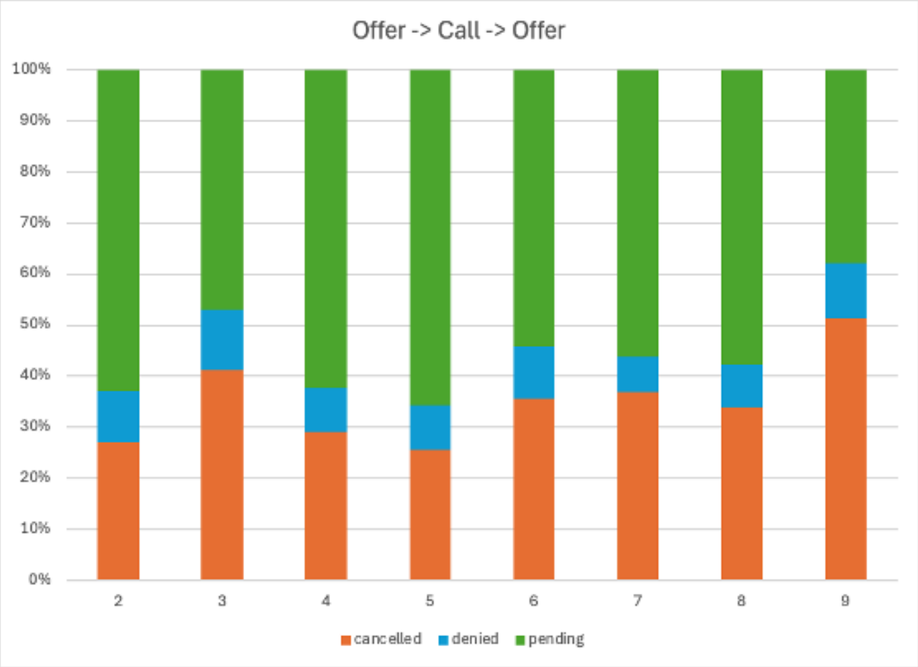




❼ Analysis of Multiple Offers

2) Phone Consultation After First Offer

O_Create Offer → W_Call after offers → O_Create Offer



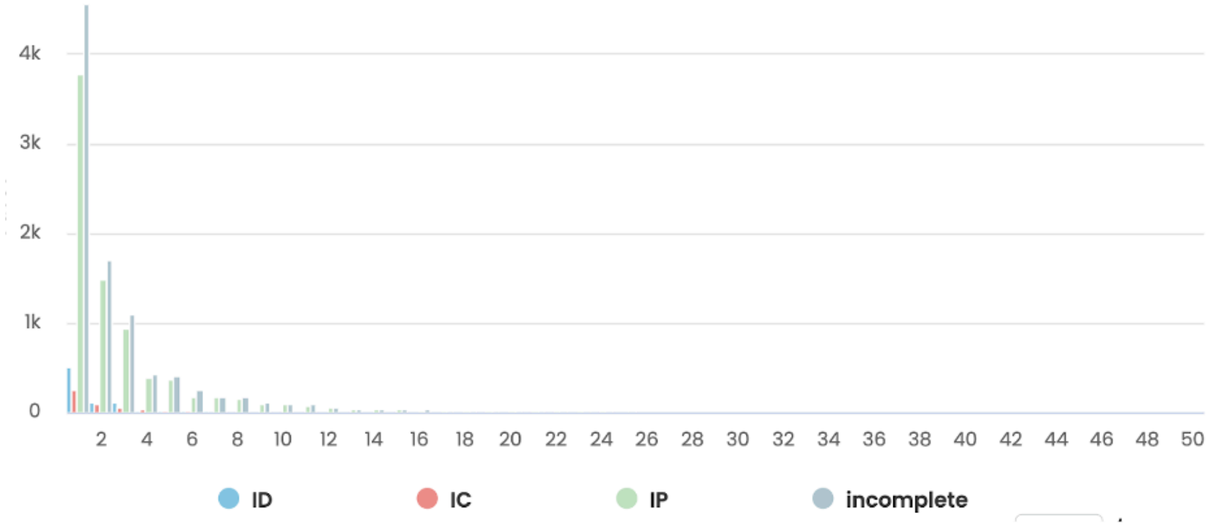
	CC	CD	CP
2	0.270073	0.101806	0.628121
3	0.412389	0.118584	0.469027
4	0.323232	0.094276	0.690236
5	0.22695	0.078014	0.58156
6	0.388889	0.111111	0.588889
7	0.364865	0.067568	0.554054
8	0.3125	0.078125	0.53125
9	0.542857	0.114286	0.4

- **After Calling consultation, the offering is repeated, and the cancelled rate tends to increase slightly.**

7 Analysis of Multiple Offers

3) Second Offer Due to Incomplete Documents

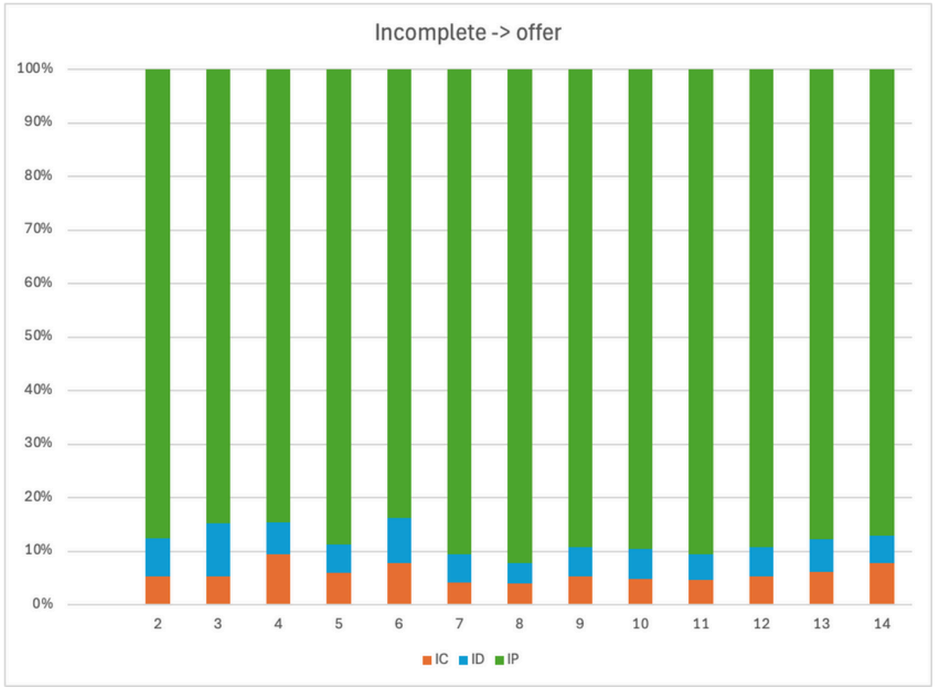
O_Create Offer → O_Sent → A_incomplete → O_Create Offer



❼ Analysis of Multiple Offers

3) Second Offer Due to Incomplete Documents

O_Create Offer → O_Sent → A_incomplete → O_Create Offer



	IC	ID	IP
2	0.052538	0.071429	0.876033
3	0.053636	0.099091	0.847273
4	0.102138	0.064133	0.916865
5	0.059524	0.052381	0.87619
6	0.068826	0.072874	0.736842
7	0.043956	0.054945	0.945055
8	0.038674	0.038674	0.911602
9	0.054054	0.054054	0.900901
10	0.048077	0.057692	0.903846
11	0.045455	0.045455	0.875
12	0.055556	0.055556	0.925926
13	0.06383	0.06383	0.914894
14	0.083333	0.055556	0.944444

- **Pending percentage is high**
- **It is positive in that the possibility of loan approval is still high.**

❼ Analysis of Multiple Offers

Q7-4. Insight

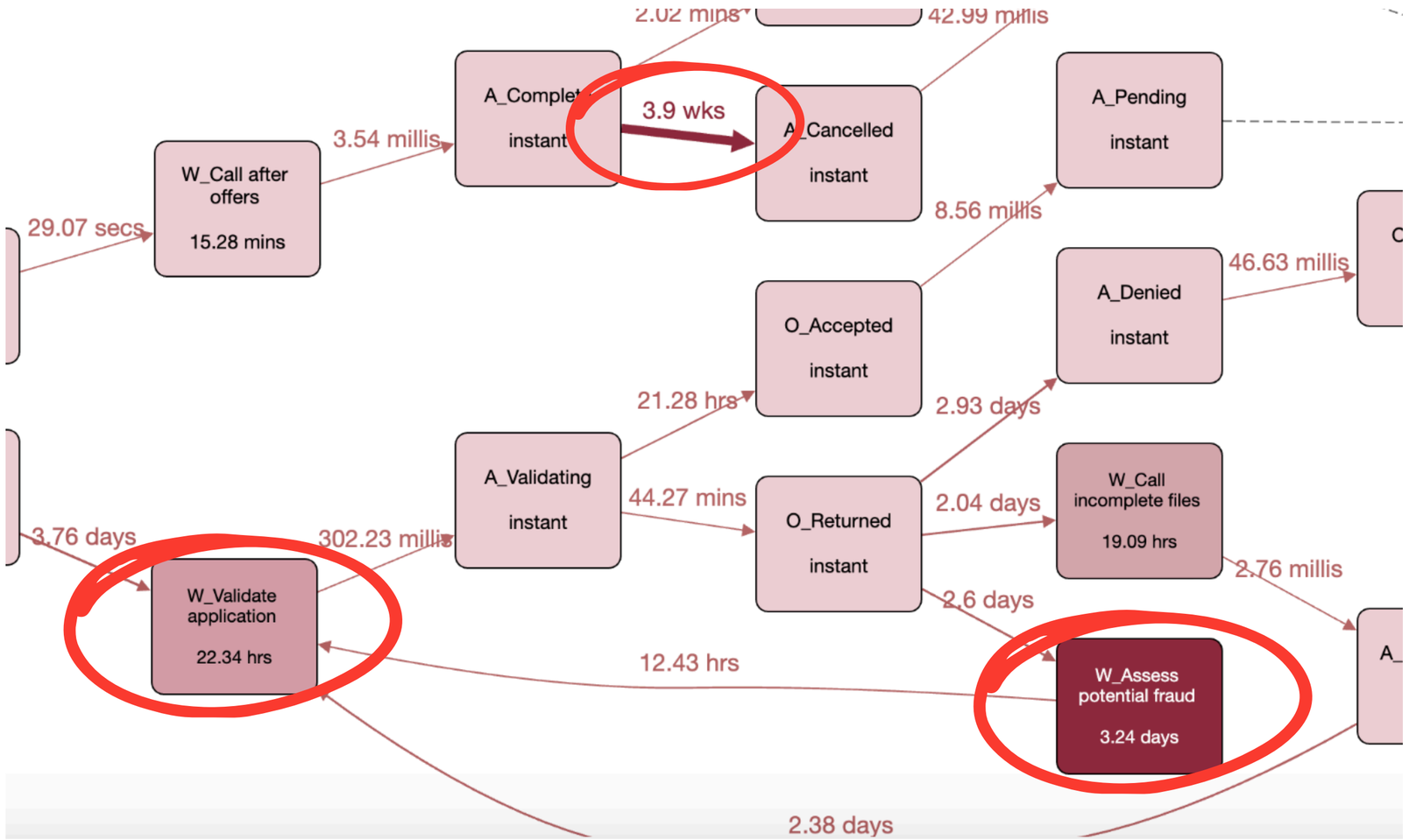
1) If a customer receives multiple offers in a short period of time, the chances of approving a loan are high and the rejection status is low. The loan approval rate is increased by about 30%.

2) When a proposal is made after a telephone consultation, the customer considers it carefully, and the cancellation rate increases slightly. This leads to dissatisfaction or condition review, and a response that clearly presents unclear conditions is needed to reduce cancellation.

3) If a second offer is made due to a document incomplete, the high number of waiting conditions is a positive sign. Banks should quickly adjust the terms of the offer to quickly process loan approvals.

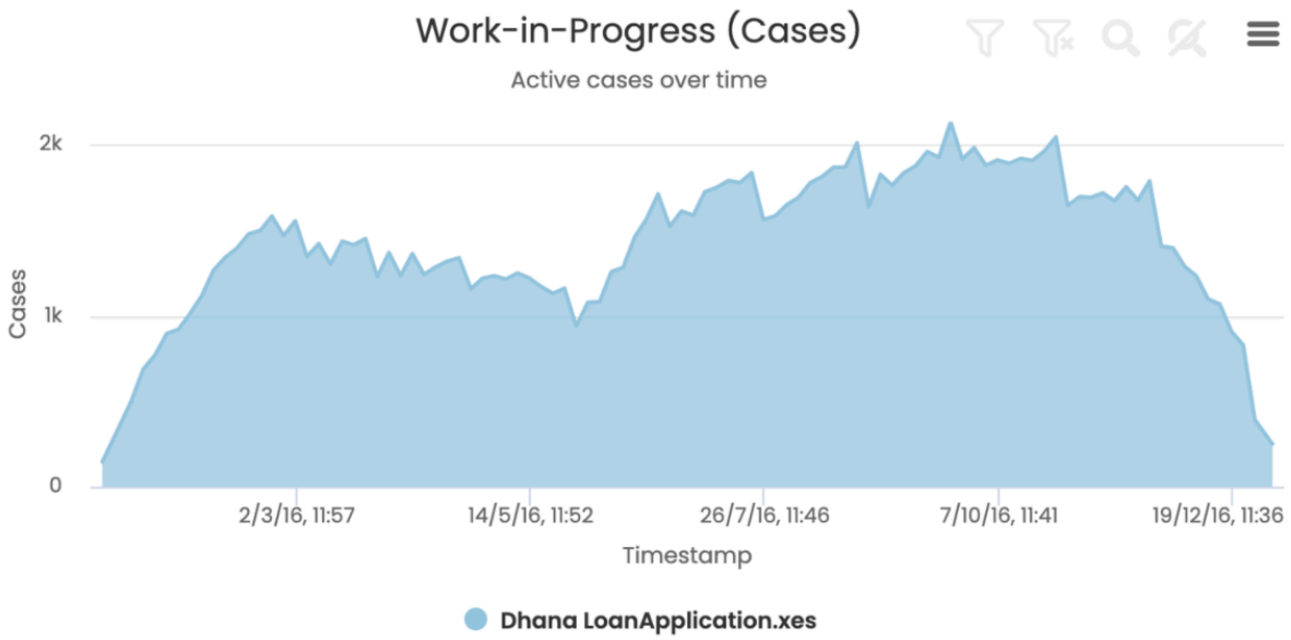
8 WIP Analysis

WIP (Work In Progress): Indicates the number of jobs (cases) being processed within the process at a specific time



8 WIP Analysis

Is the WIP of the process constant over the timeframe of the log?



WIP Trend Observations

- **Initial Increase**:
  In the early phase, the graph shows a rapid increase in WIP. This indicates a surge in the number of tasks being processed due to the activation of initial processes.
- **Mid-Phase Plateau**:
  During the mid-phase (March to June), the WIP stabilizes, forming a plateau. This indicates that the process is maintaining a balance between inflow and outflow, with no significant increase or decrease in active cases. However, this plateau might also suggest potential bottlenecks or resource limitations that prevented further progress during this period.
- **Final Decrease**:
  In the later phase (from October onward), the graph shows a gradual decline in WIP. This suggests that the process is entering the completion stage, with the number of tasks being processed decreasing over time.

Conclusion

WIP is not constant over time.

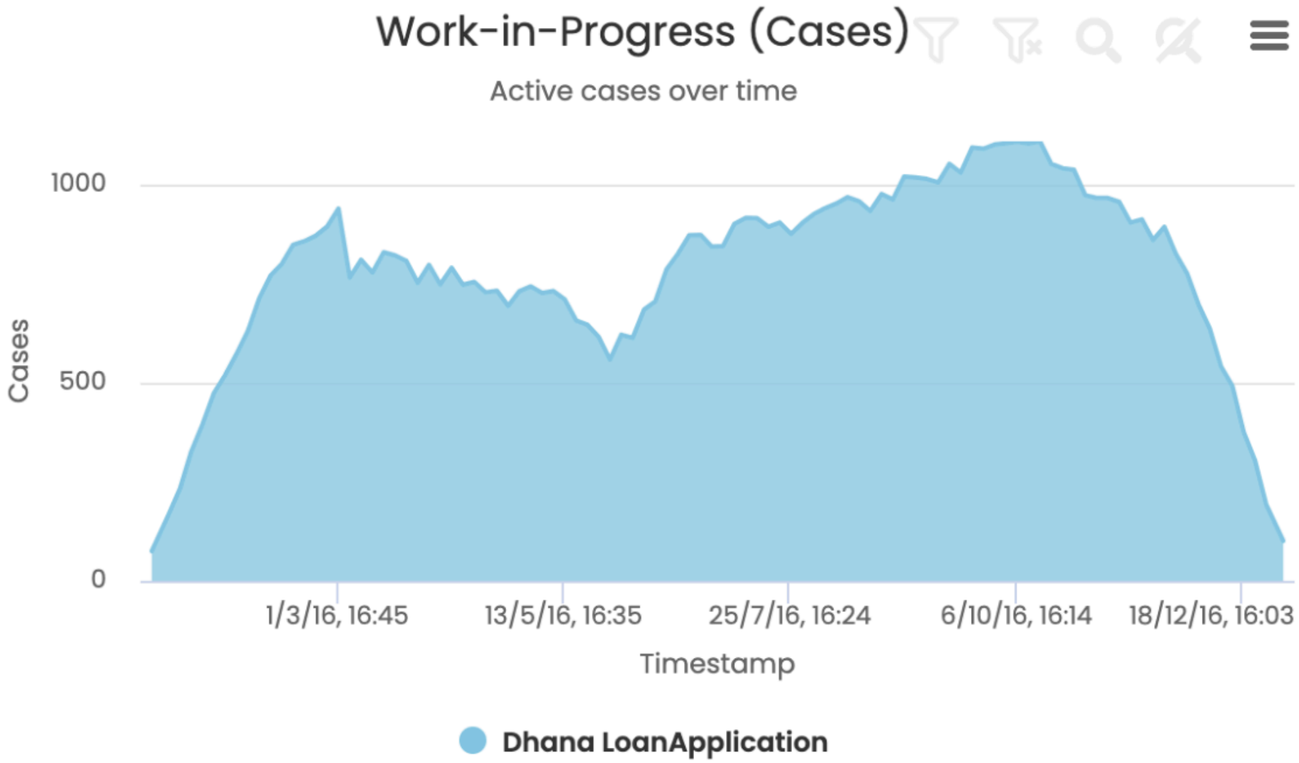
It is influenced by various factors, including:

- **Bottlenecks**
- **Processing Speed**
- **Rework**

8 WIP Analysis

What factors can explain the change(s) in WIP?

1 Retain all cases that contain 'Activity' ['O_Refused' OR 'A_Cancelled']



Key Observations:

- Gradual Increase:
  - O_Refused: Early phases (January to June) showed a gradual increase in rejection activity due to stricter review criteria, contributing to WIP growth.
  - A_Cancelled: Customer cancellations slowly added to WIP during the same period, driven by unmet requirements or incomplete submissions.
- Midpoint Plateau:
  - O_Refused: Rejection rates stabilized during the mid-period (July to September), maintaining WIP levels without further spikes.
  - A_Cancelled: Cancellation activities balanced out as customer adjustments and better alignment with process standards reduced disruptions.
- Sharp Decline:
  - O_Refused: A sharp decrease in rejected cases after October as review criteria relaxed or processes improved.
  - A_Cancelled: A significant drop in cancellations due to clearer communication and customer alignment by the later phases (October to December).

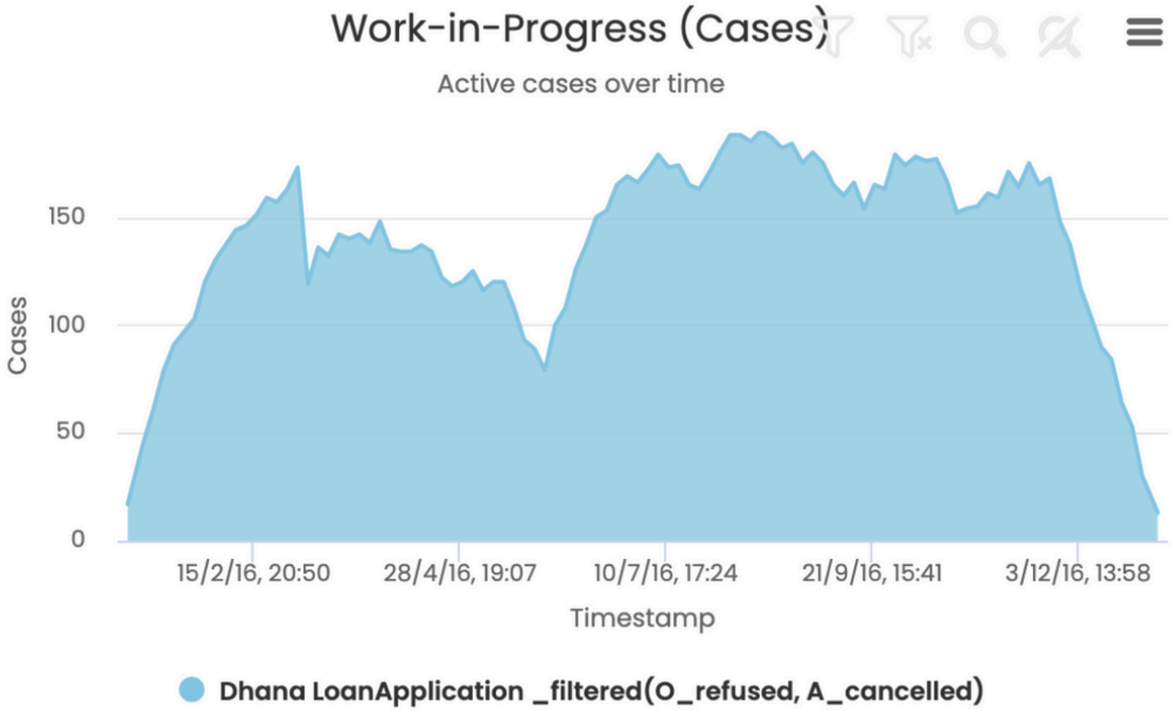
Conclusion:

- O_Refused: Played a dual role—key driver of WIP increase during early stages and a contributor to WIP reduction in later phases.
- A_Cancelled: Initially contributed to WIP growth but later helped reduce WIP through better-managed customer interactions.

8 WIP Analysis

What factors can explain the change(s) in WIP?

1-1 Retain all cases that contain 'Activity' ['W_Handle leads']



Key Observations

- **Initial Spike**: High activity at the start, indicating significant involvement of W_Handle leads in early stages.
- **Mid-Level Stability**: Activity stabilizes or slightly declines over time.

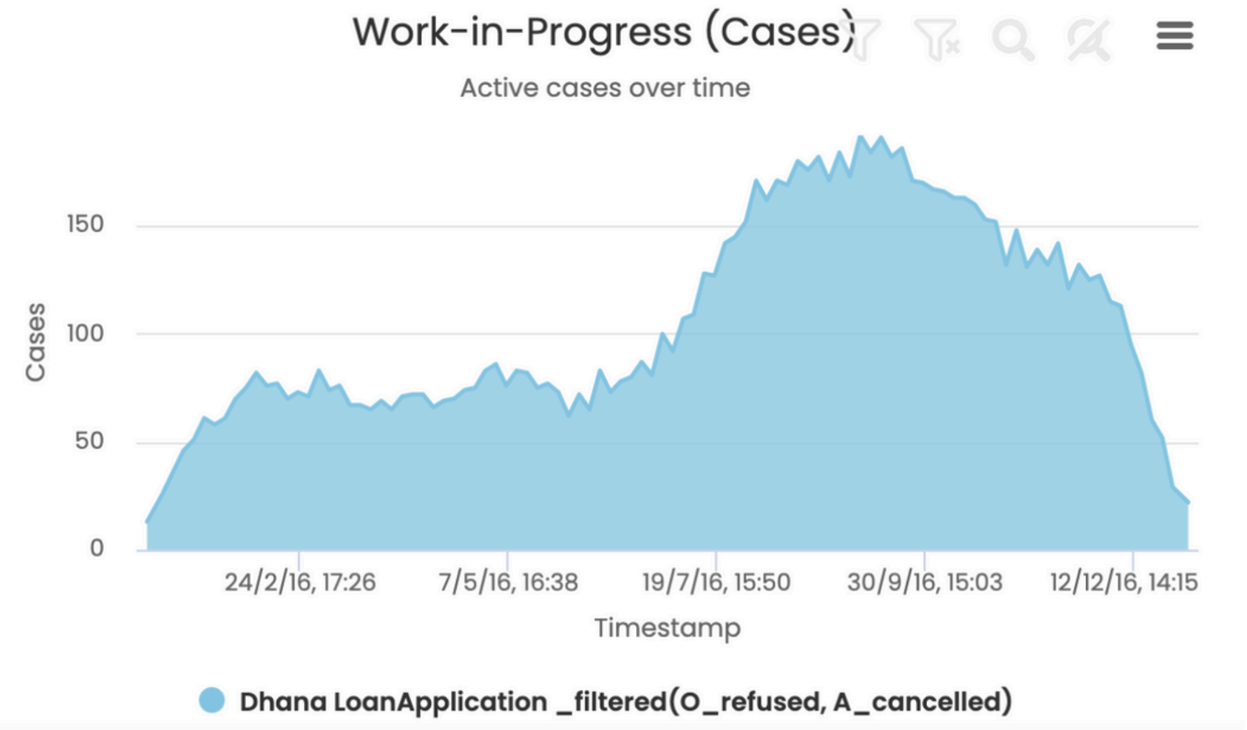
Conclusion

- W_Handle leads strongly influences the early phase of cases.

8 WIP Analysis

What factors can explain the change(s) in WIP?

1-2 Retain all cases that contain 'Activity' ['W_Call incomplete files']



Key Observations

- **Gradual Increase**: Activity rises steadily, avoiding sharp spikes in the early phase.
- **Midpoint Peak**: A clear peak emerges mid-period, showing concentrated activity at that time.
- **Sharp Decline**: Late-phase activity drops off rapidly, indicating its primary role was limited to a specific timeframe.

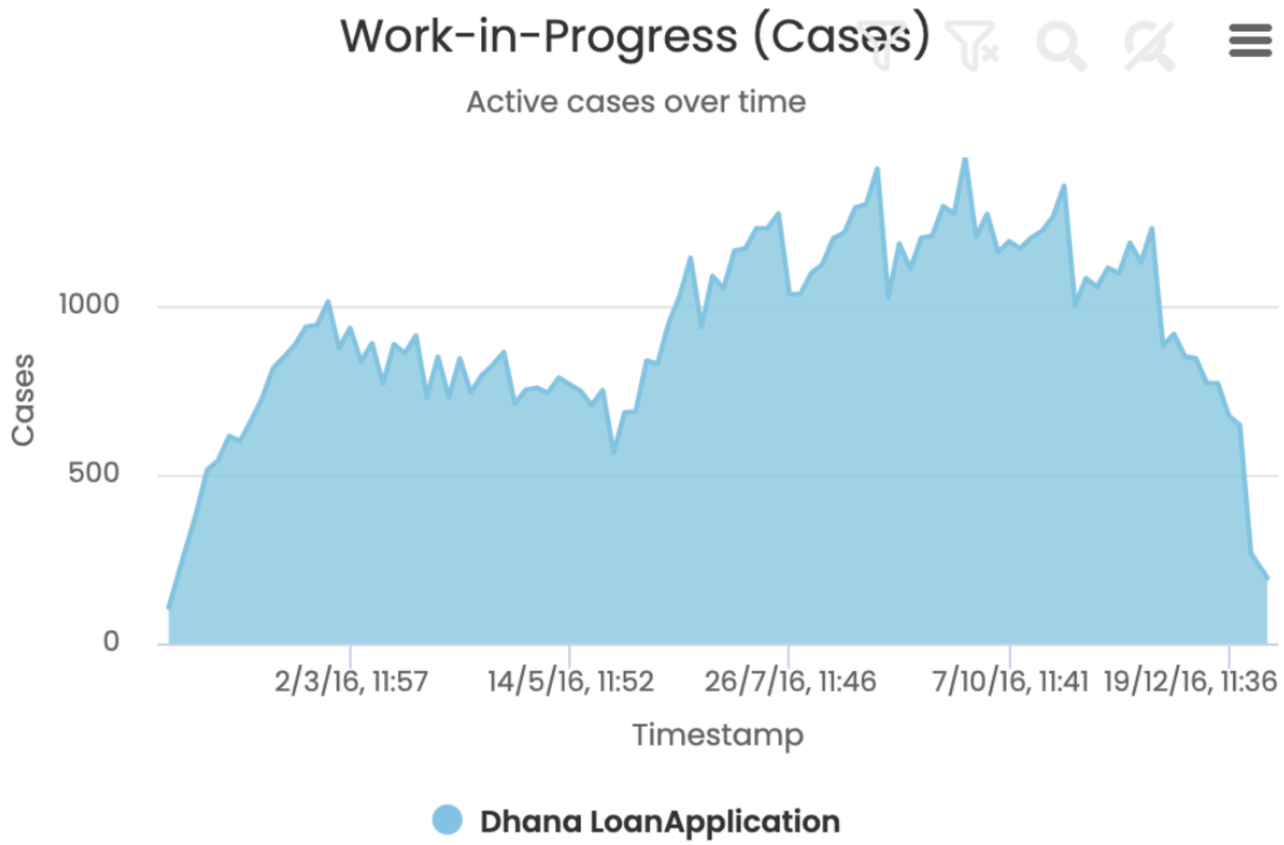
Conclusion

- W_Call incomplete files primarily impacts mid-process activities.

8 WIP Analysis

What factors can explain the change(s) in WIP?

2 Retain all cases that contain 'Activity' ['W_Handle leads' OR 'W_Validate application']



Key Factors Influencing WIP Changes:

- Sharp WIP Increase (July to October):
  - Significant activity growth leading to bottlenecks.
  - W_Handle leads: Likely caused by delays in lead processing.
  - W_Validate application: Possibly exacerbating the bottlenecks.
- Plateau During Stagnation (July to October):
  - WIP remained steady, indicating resource limitations or lack of sufficient parallel processes.

Factors Contributing to Bottlenecks

- W_Handle leads:
  - Insufficient processing capacity or imbalance in lead distribution.
  - Requires automation or increased resources.
- W_Validate application:
  - Slower application validation processes affecting flow.
  - Simplification, automation, or priority adjustments needed.

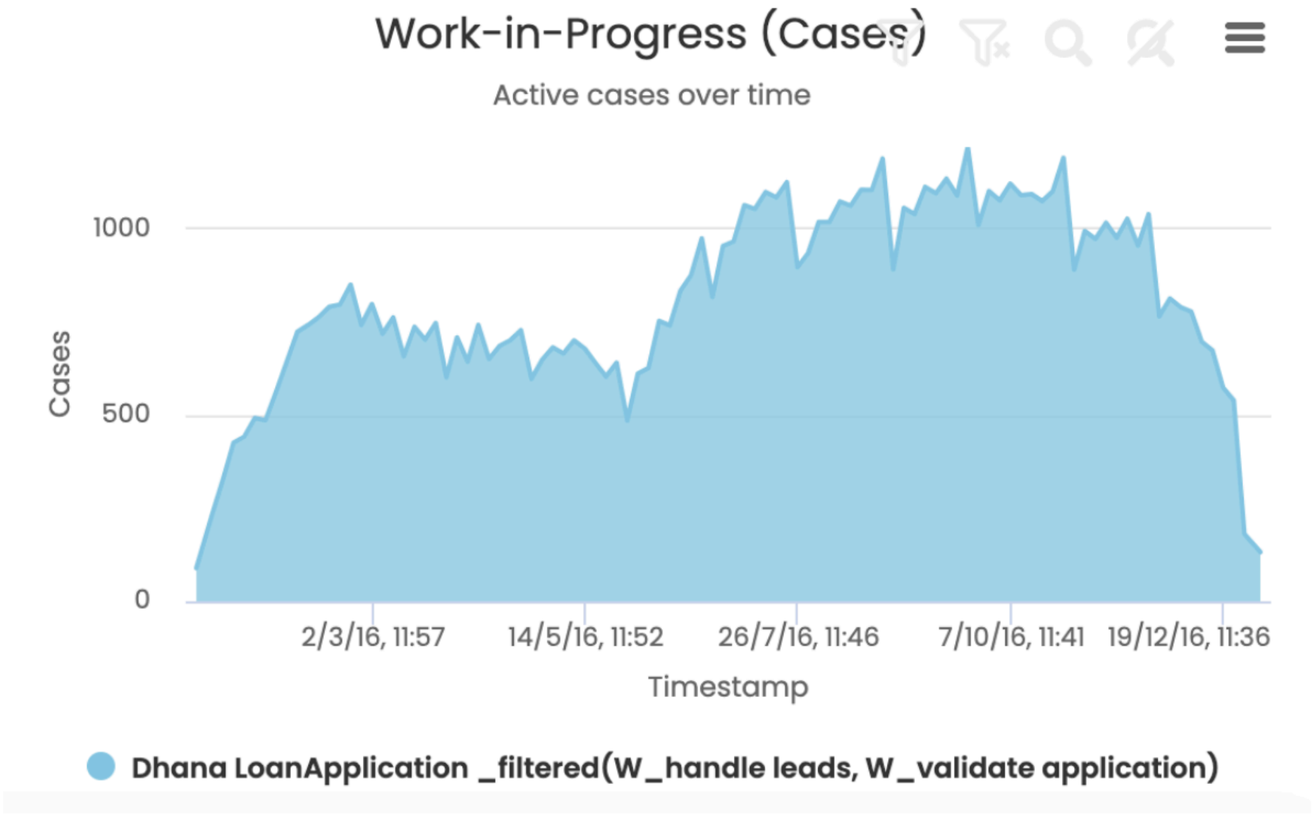
Conclusion

- WIP Growth and Bottlenecks:
  - Caused primarily by delays in W_Handle leads and W_Validate application.
  - Concentration of these activities likely disrupted process flow.
- Improvement Suggestions:
  - Reduce average handling time for these activities.
  - Implement parallel processing to alleviate bottlenecks.
  - Consider workload redistribution for balanced resource utilization.

8 WIP Analysis

What factors can explain the change(s) in WIP?

2-1 Retain all cases that contain 'Activity' ['O_Refused' OR 'W_Call incomplete files' OR 'A_Cancelled']



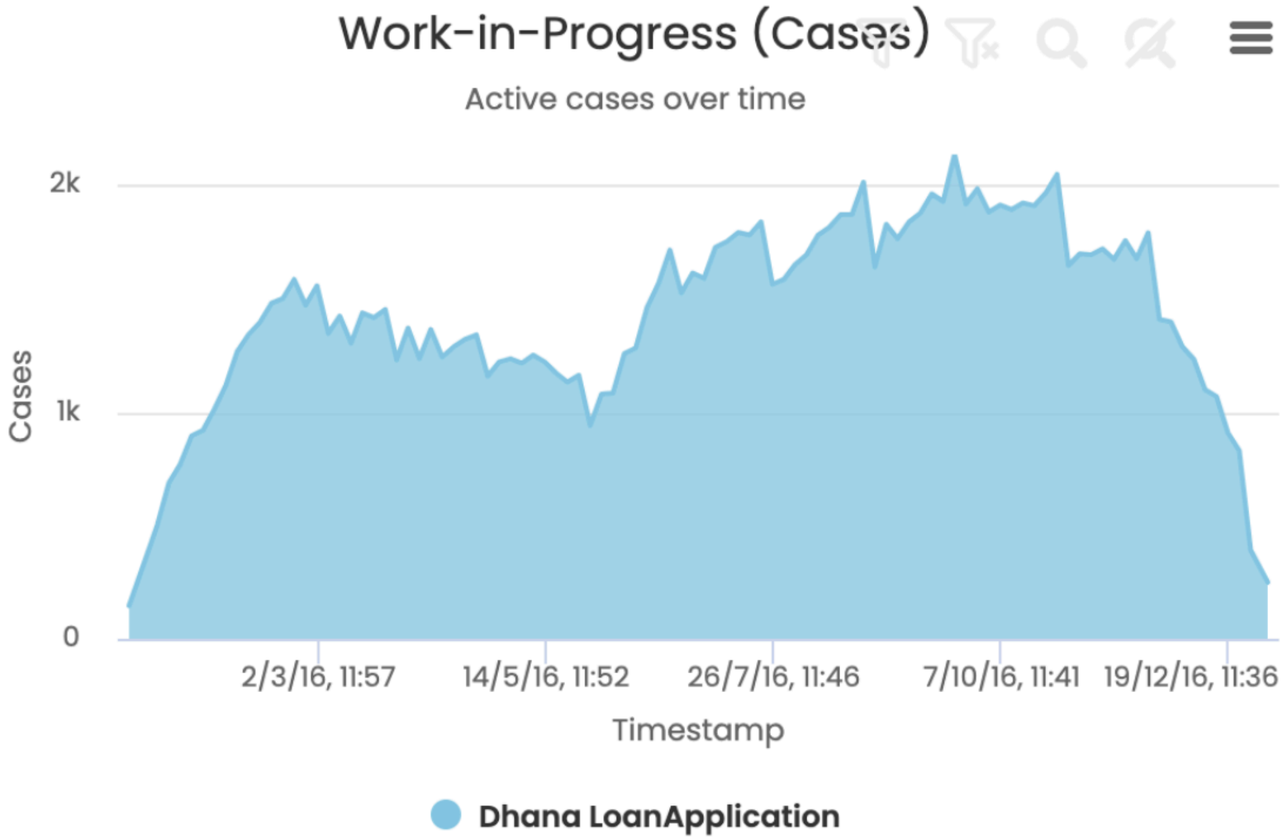
WIP Peak and Stagnation - Key Focus (July to October)

- Characteristics:
  - WIP reaches its peak during this period and remains stagnant for a prolonged time.
  - Severe bottlenecks are observed.
  - W_Handle leads and W_Validate application are identified as major contributors to this stagnation.
- Contributing Factors:
  - O_Refused (Rejected Cases):
    - Increased rejection rates due to stricter screening criteria lead to an accumulation of pending cases.
    - This causes significant blockages in the process flow.
  - W_Call incomplete files (Incomplete File Activities):
    - Growing volume of corrections for missing data results in delays.
    - This disrupts the workflow and increases the waiting time for other tasks.
  - A_Cancelled (Canceled Cases):
    - Process interruptions caused by customer-initiated cancellations.
    - These cases further add to the workload, making the WIP stagnation worse.
- Conclusion:
  - This period represents the most critical bottleneck phase, with W_Handle leads and W_Validate application being the primary culprits.
  - The interaction of O_Refused, W_Call incomplete files, and A_Cancelled significantly contributed to prolonged WIP stagnation.

8 WIP Analysis

What factors can explain the change(s) in WIP?

3 Retain all cases that contain 'Activity' ['W_Complete application' OR 'A_Create Application']



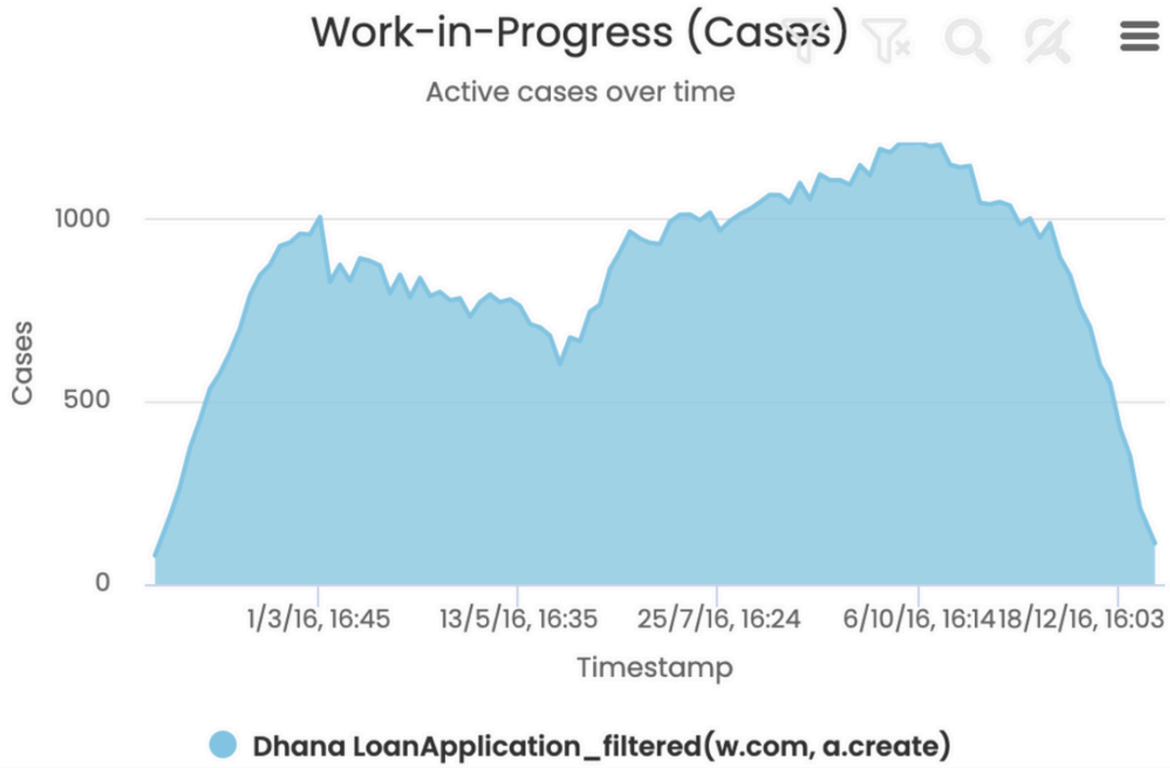
- **WIP Increase Factors:**
  A_Create Application activity caused an influx of new cases, leading to WIP growth as the creation rate exceeded the completion rate.
  (Observed clearly in the early phase, January to March, and mid-period.)
- **WIP Plateau Factors:**
  A balance between **W_Complete application** and **A_Create Application** maintained WIP at a steady level.
  (From July to September.)
- **WIP Decrease Factors:**
  W_Complete application activity accelerated case completions, reducing WIP.
  (After October, alongside a reduction in new case inflow.)

- **Conclusion:**
  - **A_Create Application:** Primary driver of WIP increase.
  - **W_Complete application:** Key contributor to WIP decrease.

8 WIP Analysis

What factors can explain the change(s) in WIP?

3-1 Retain all cases that contain 'Activity' ['W_Handle leads' OR 'O_Refused' OR 'A_Cancelled']



Observations of WIP Change:

- **Increase (Jan ~ Early March):**
  Significant rise due to high activity in **W_Handle leads**, indicating the influx of new cases and workload accumulation.
- **Plateau (Mid-March ~ July):**
  Gradual stabilization as **O_Refused** and **A_Cancelled** activities occurred steadily, balancing process input and output.
- **Peak and Stagnation (Late July ~ Early October):**
  Bottleneck in **W_Handle leads**; decreased cancellation/refusal rates caused backlog and delayed processing.
- **Decline (Mid-October ~ December):**
  High **O_Refused** and **A_Cancelled** rates resolved pending cases, leading to reduced WIP.

❽ WIP Analysis

Conclusion & Recommendations for WIP Optimization

Conclusion:

1. **Peak WIP: Delays in lead processing (W_Handle leads)**
2. **WIP Decline: Increased completion of rejection/cancellation (O_Refused, A_Cancelled)**

Recommendations:

1. **Automation**
2. **Early Screening**
3. **Simplified Workflow**

Main Insight

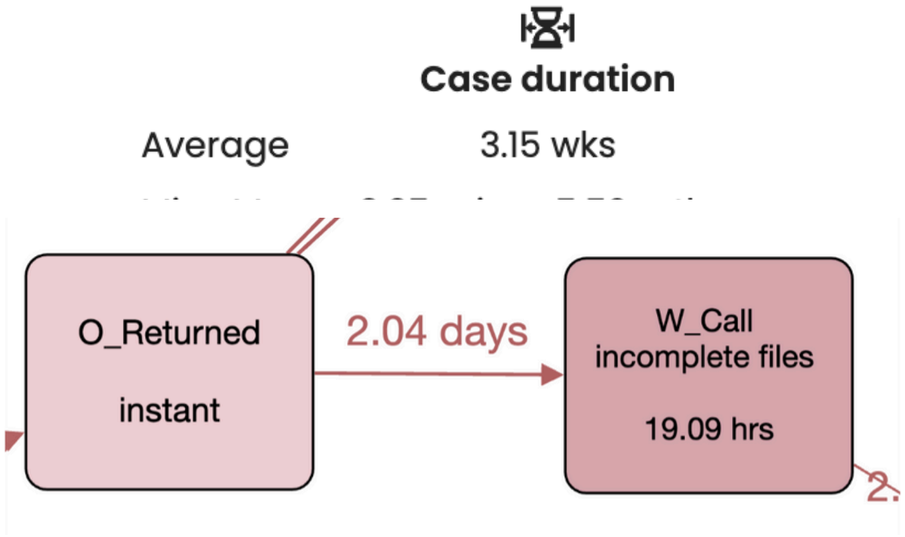
1. Time spent in request for incomplete files

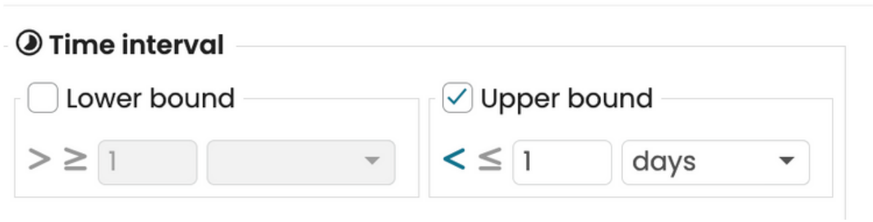
2. Time spent requesting incomplete files after Return occurs

3. Second offer is made due to incomplete documents

Redesign Proposals

Improve the process of requesting and notifying document submissions



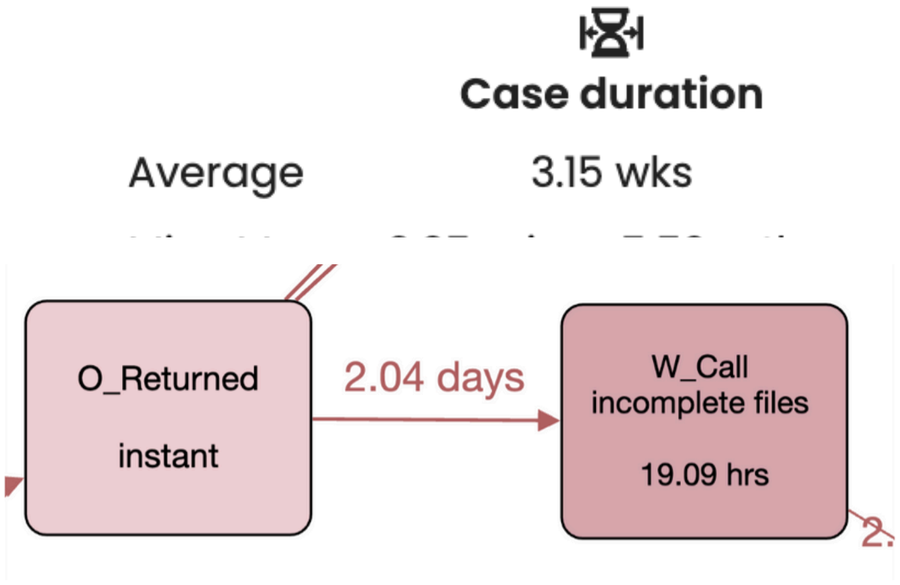


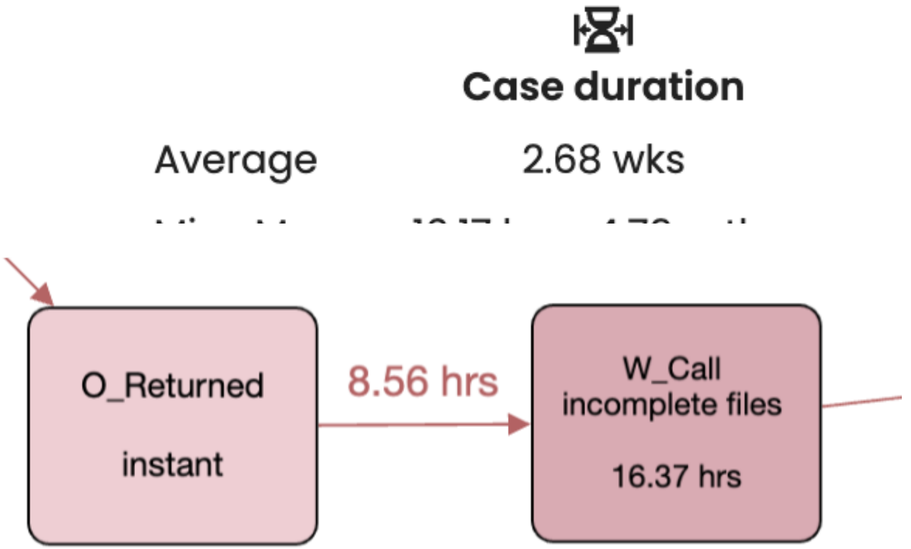
cancelled 2857

within 1 day

Redesign Proposals

Improve the process of requesting and notifying document submissions

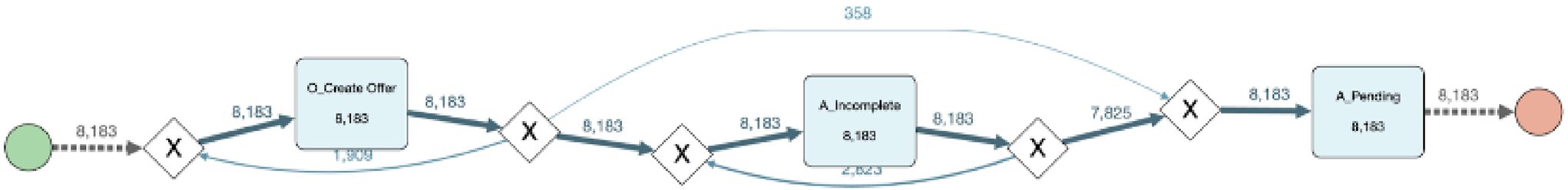




cancelled 2857 -> Pending 2857

Redesign Proposals

Customer customization in multiple offers



offer Medium Amount (10,000–39,999) price loans

❾ Free-Form Analysis

Redesign Proposals

Using self-check table before applying for a loan

신청 대상 확인 항목	해당여부	확인 결과
01 착오송금액이 5만원 이상 5천만원 이하입니까? -착오송금액이 1,000만원 초과 5,000만원 이하인 경우, 착오송금일이 2023년 01월 01일 이후입니까?	● 예 ○ 아니요	대상
02 착오송금일이 2021년 7월 6일 이후입니까?	● 예 ○ 아니요	대상
03 신청일이 착오송금일로 부터 1년 이내입니까?	● 예 ○ 아니요	대상
04 금융회사를 통해 반환신청하였으나, 반환받지 못하였습니까?	● 예 ○ 아니요	대상
05 연락불가, 반환거부 등으로 미반환 통보받으셨습니까?	○ 예 ● 아니오	비대상
06 착오송금과 관련하여 진행중인 법적절차가 없습니까?	○ 예 ● 아니요	비대상
07 개인적인 실거래, 개인간 분쟁, 제3자가 계좌정보를 잘못 알려준 경우, 보이스피싱 등 사기에 따른 송금입니까?	● 예 ○ 아니요	비대상

이전 | 반환지원신청

Example of a Korean company

THANK YOU