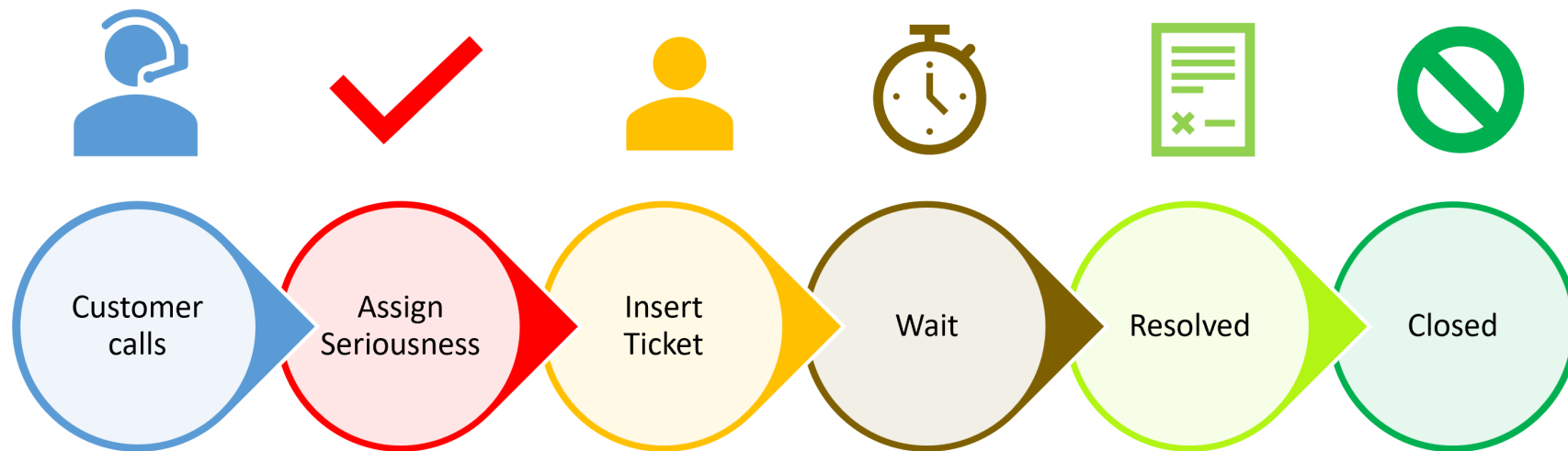


# Deep Dive into Helpdesk Activities

## Process Mining Insights



# Data Overview

13/01/2010

03/01/2014

# of tickets

4,479

# of activities

14

# of events

20,937

# of users

22

# of Variants

193

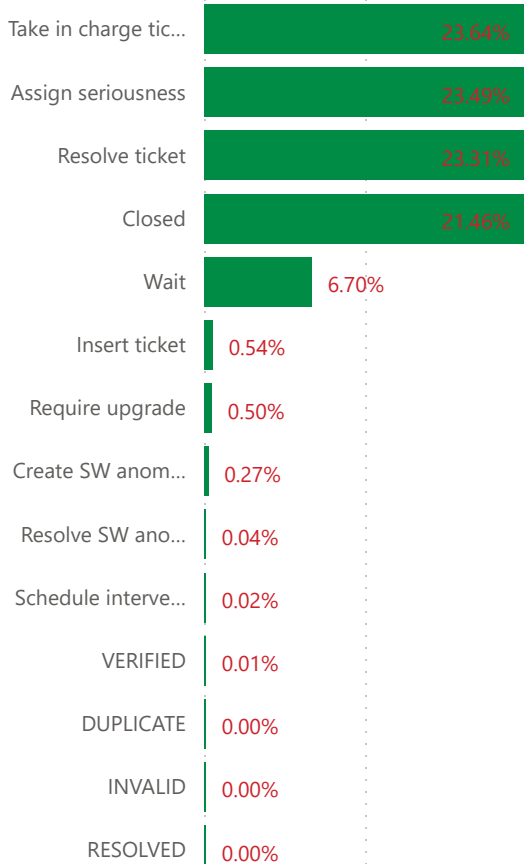
Activities

- Select all
- Assign seriousness
- Closed
- Create SW anomaly
- DUPLICATE
- Insert ticket
- INVALID
- Require upgrade
- Resolve SW anomaly
- Resolve ticket
- RESOLVED
- Schedule intervention
- Take in charge ticket
- VERIFIED
- Wait

# of products

20

Events

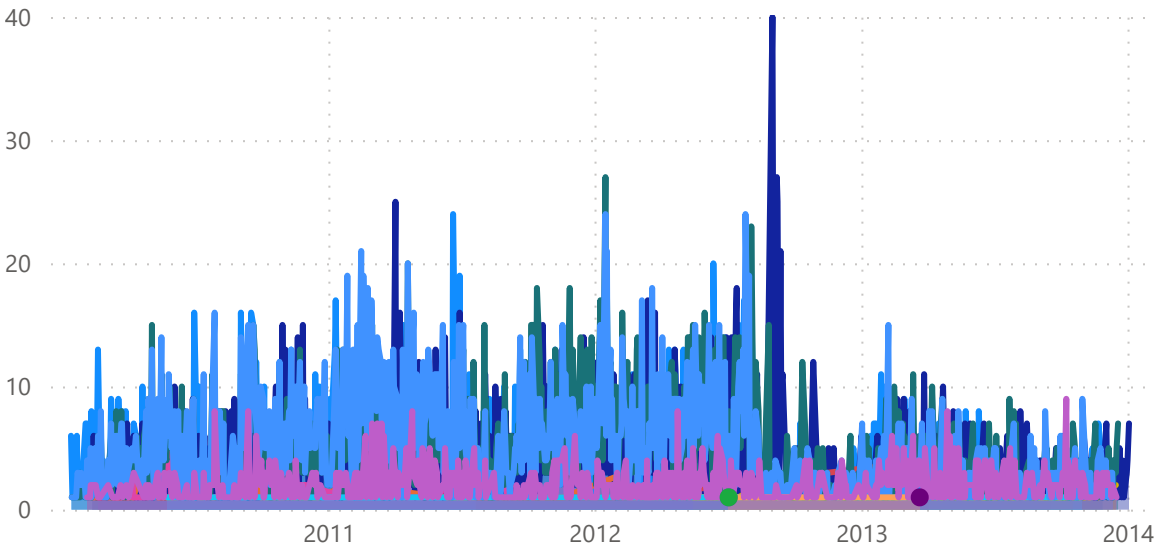


Variants

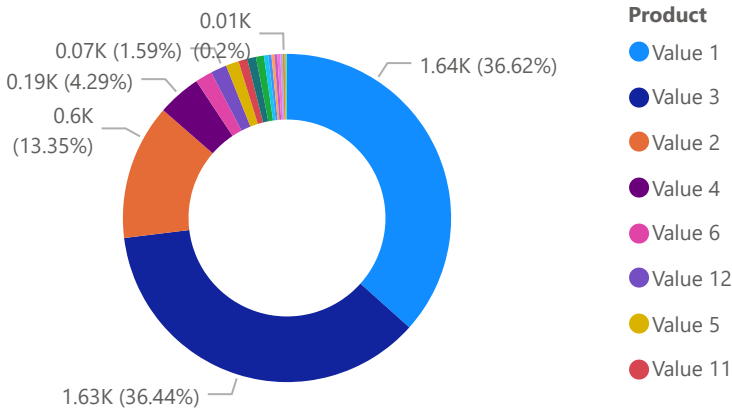
Variants	Count of Variants
1	2366
2	552
3	228
4	213
5	164
6	109
7	69
8	62
9	48
10	40
11	36
12	35

Events

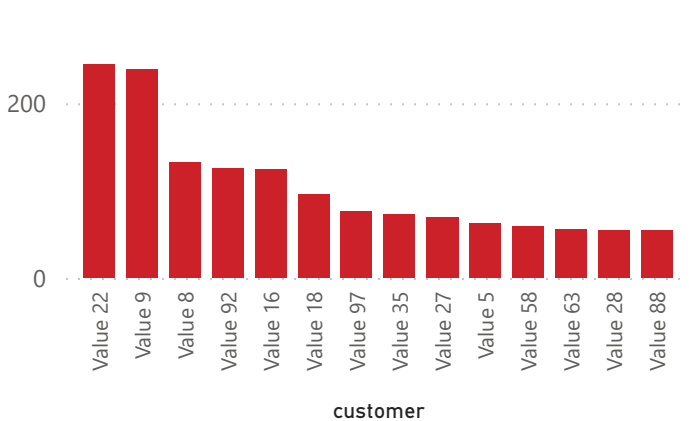
Activity Assign serio... Closed Create SW a... DUPLICATE Insert ticket INVALID Require upgr...



# of tickets by products



No. of tickets by customer



# Process discovery

13/01/2010

03/01/2014

# of tickets

4,479

Recurrence rate

11.97%

Escalation rate

2.05%

FCR rate

88%

## Connections

Connection	Count of Connection
Resolve ticket --> Closed	4479
Assign seriousness --> Take in charge ticket	4142
Take in charge ticket --> Resolve ticket	3510
Take in charge ticket --> Wait	1221
Wait --> Resolve ticket	744
Wait --> Take in charge ticket	547
Assign seriousness --> Assign seriousness	438
Assign seriousness --> Resolve ticket	257
Resolve ticket --> Resolve ticket	246
Resolve ticket --> Take in charge ticket	150
Total	16458

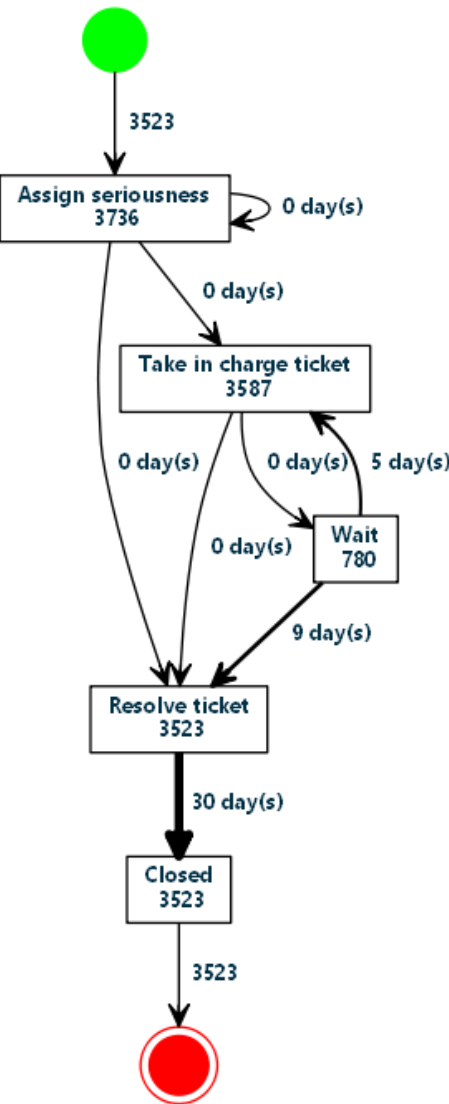
## Activities

- Select all
- Assign seriousness
- Closed
- Create SW anomaly
- DUPLICATE
- Insert ticket
- INVALID
- Require upgrade
- Resolve SW anomaly
- Resolve ticket
- RESOLVED

## Events transition matrix

Activity	Assign seriousness	Closed	Create SW anomaly	DUPLICATE	INVALID	Require upgrade	Resolve
Take in charge ticket	1		47			68	
Assign seriousness	438		4			8	
Resolve ticket	1	4479				1	
Wait	2		2			6	
Insert ticket	111						
Require upgrade			1			12	
Create SW anomaly			3			7	
Closed		14					
Resolve SW anomaly						2	
Schedule intervention							
Total	553	4494	57	1	1	104	

## Process flow showing the Top 5 variants



# of Variants

193

## Variants

- Select all
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

## First activity

- Select all
- Assign seriousness
- Insert ticket

# Timing analysis

13/01/2010

03/01/2014

# of orders

4,479

Med. duration in days

39

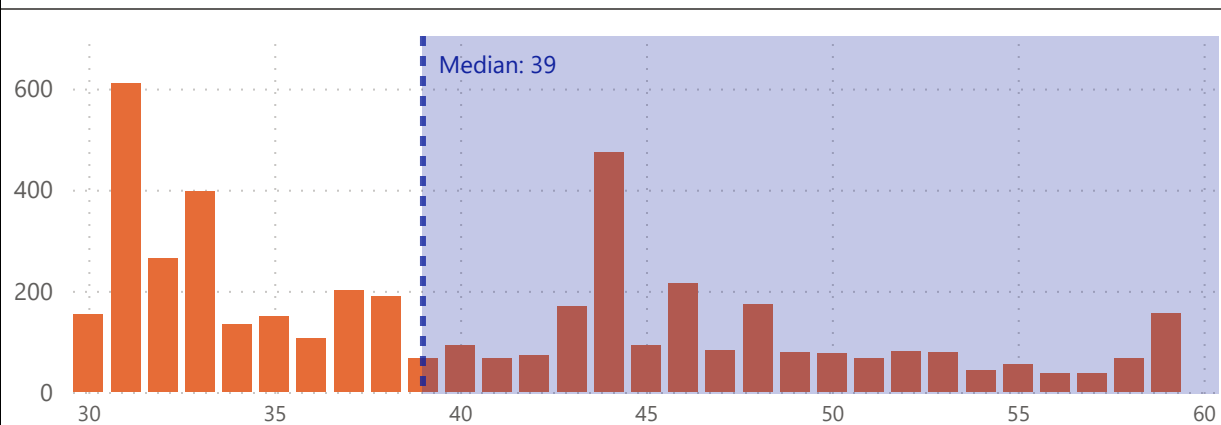
Max. duration in days

59

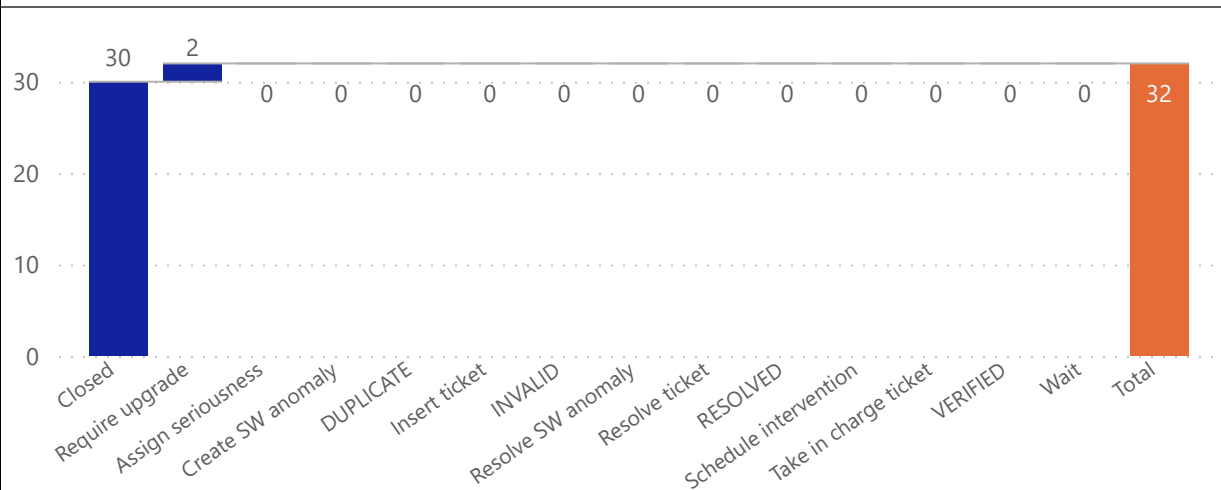
SLA breach rate

28%

Case duration



Median of activity duration



Median cycle times between activities

Activity	Assign seriousness	Closed	Create SW anomaly	DUPLICATE	INVALID	Require upgrade	Resolve SW
Assign seriousness	0		10			12	
Closed		0					
Create SW anomaly			0			4	
DUPLICATE							
Insert ticket	0						
INVALID							
Require upgrade			4			1	
Resolve SW anomaly						0	
Resolve ticket	13	30				1	
RESOLVED					0		
Total	0	30	0	0	0	2	

Median duration between activities

Connection	Median of Duration
Resolve ticket --> Closed	30
DUPLICATE --> Resolve ticket	28
VERIFIED --> Closed	23
Take in charge ticket --> Resolve SW anomaly	21
Resolve SW anomaly --> Resolve ticket	18
Create SW anomaly --> Resolve ticket	15
Require upgrade --> Resolve ticket	15
Resolve ticket --> Assign seriousness	13
Assign seriousness --> Require upgrade	12
Assign seriousness --> Create SW anomaly	10
Schedule intervention --> Resolve ticket	10
Wait --> Resolve ticket	9
Wait --> Assign seriousness	8
Wait --> Take in charge ticket	5
Create SW anomaly --> Resolve SW anomaly	5
Wait --> Create SW anomaly	5
Total	3

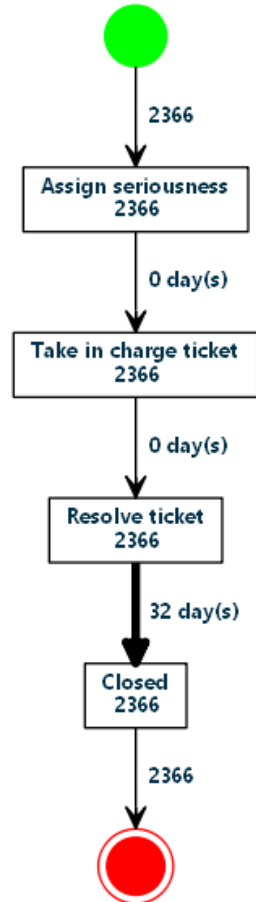
Median case duration by product

product	Median of Case_Duration_days
Value 18	52
Value 9	45
Value 17	44
Value 3	43
Value 1	38
Value 12	38
Value 19	38
Value 2	38
Value 5	37
Value 20	36
Value 7	36
Value 4	35
Value 6	35
Value 13	34
Value 14	34
Value 11	33
Value 15	33



# Process Benchmarking

Process flow



Variant

1

No. of tickets

2,366

Med. duration

38

FCR rate

86%

SLA breach rate

26%

Variant

2

No. of tickets

552

Med. duration

38

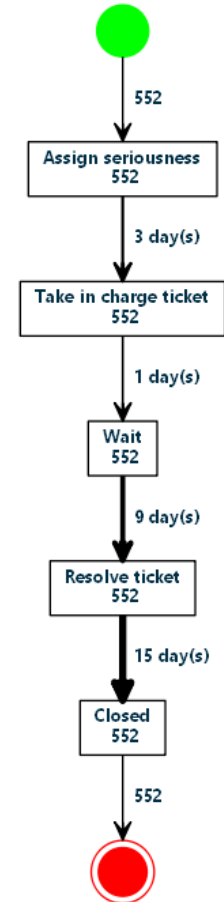
FCR rate

81%

SLA breach rate

29%

Process flow



Filter

Product

All

Responsible section

All

Service type

All

Filter

Product

All

Responsible section

All

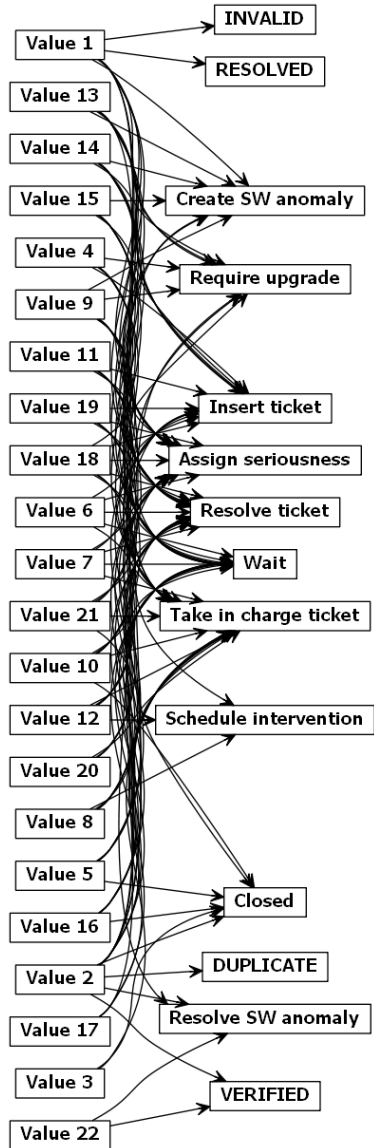
Service type

All

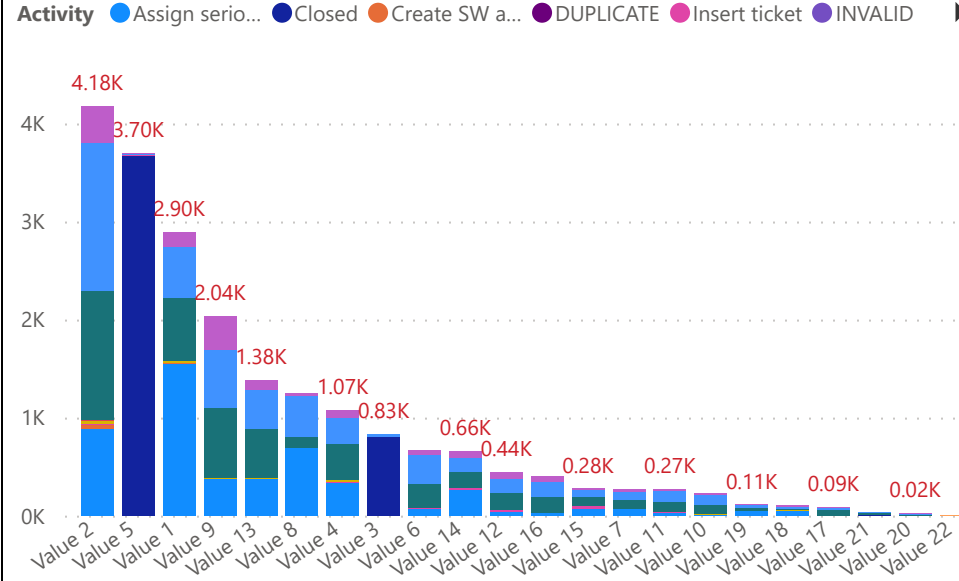


# Users analysis

Users and activities



Count of activities per user



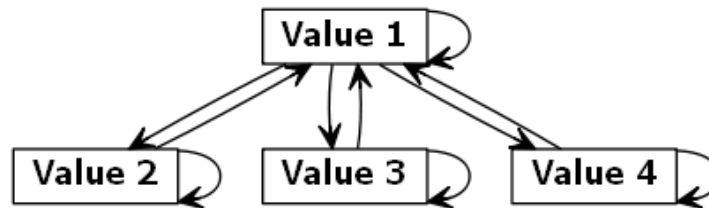
Activity

- Select all
- Assign seriousness
- Closed
- Create SW anomaly
- DUPLICATE
- Insert ticket
- INVALID
- Require upgrade
- Resolve SW anomaly
- Resolve ticket
- RESOLVED
- Schedule intervention
- Take in charge ticket
- VERIFIED

Earliest timestamp per user

Earliest Complete Timestamp	Resource
13/01/2010 08:40:25	Value 2
20/01/2010 09:15:20	Value 15
22/01/2010 08:46:15	Value 11
08/02/2010 15:06:58	Value 16
09/02/2010 15:01:11	Value 21
11/02/2010 15:59:39	Value 5
15/02/2010 16:17:46	Value 10
25/02/2010 16:56:34	Value 12
12/03/2010 11:17:34	Value 6
23/06/2010 14:35:52	Value 14
29/06/2010 12:42:13	Value 19
29/06/2010 14:00:48	Value 9
08/07/2010 15:19:15	Value 7
04/08/2010 12:45:34	Value 17
02/12/2010 16:39:04	Value 8
20/12/2010 14:10:32	Value 13
12/09/2011 09:53:36	Value 1
06/10/2011 14:29:43	Value 4
03/07/2012 17:25:15	Value 22
22/08/2012 14:24:49	Value 3
02/09/2013 13:32:56	Value 18
13/09/2013 10:57:14	Value 20

Handover of work between workgroup



Median duration of users per activity

Resource	Activity	Median of Duration
Value 2	Closed	59
Value 10	Closed	31
Value 5	Closed	31
Value 16	Closed	22
Value 21	Take in charge ticket	19
Value 18	Resolve ticket	16
Value 3	Closed	15
Value 20	Resolve ticket	13
Value 20	Assign seriousness	9
Value 13	Require upgrade	7
Value 21	Resolve ticket	7
Value 21	Create SW anomaly	5



# Customer

Value 103

Customer

Value 103

No. of tickets

8

Med. duration in days

39

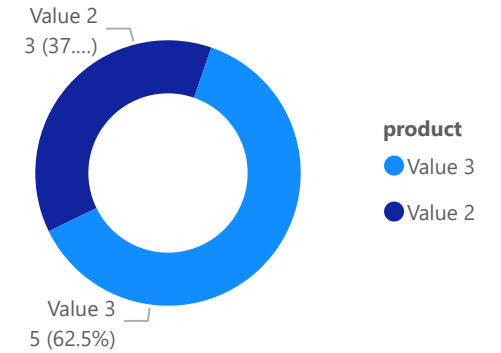
Max. duration in days

48

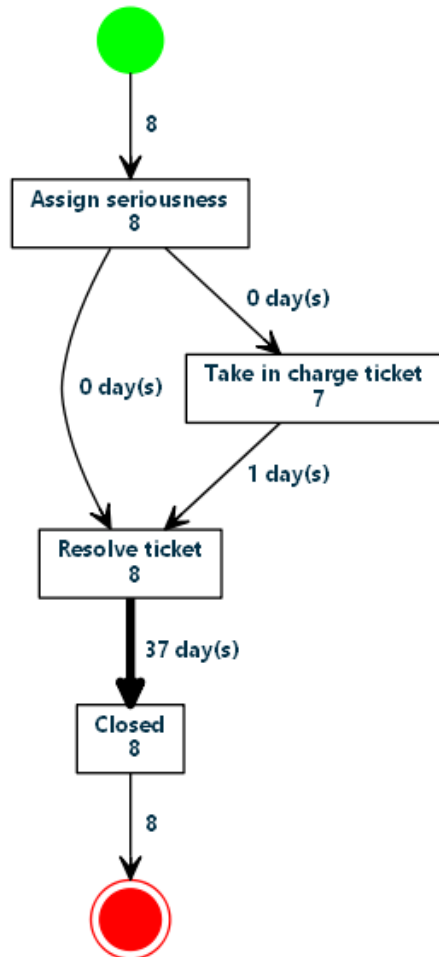
Customer variants

All

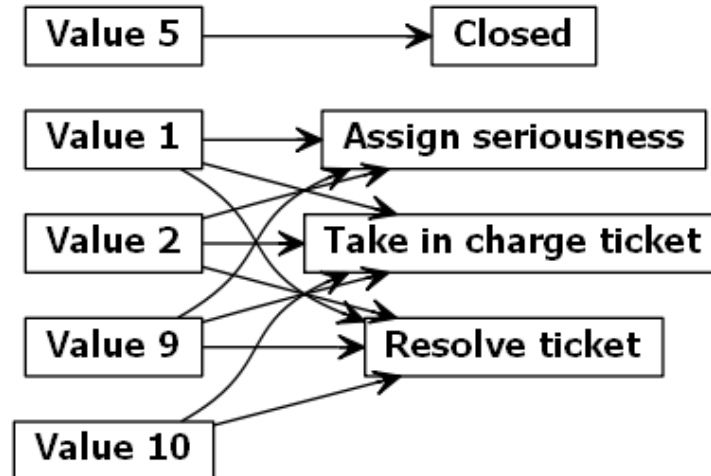
Product hierarchy



Process flow



Segregation of duties



Seriousness

- Select all
- Value 1

Service type

All

Tickets raised by customer

Case ID	Complete Timestamp	product	customer	Case_Duration_days
Case 390	18 January 2010	Value 3	Value 103	44
Case 4331	30 September 2010	Value 3	Value 103	44
Case 1372	07 July 2011	Value 3	Value 103	48
Case 2178	05 October 2011	Value 2	Value 103	31
Case 2494	23 November 2011	Value 2	Value 103	31
Case 4552	09 January 2012	Value 3	Value 103	31
Case 3871	12 January 2012	Value 3	Value 103	33
Case 2969	05 March 2012	Value 2	Value 103	45

# Ticket details

Order number

Case 100

Start time

12 April 2013

Product

Value 1

Responsible section

Value 1

Seriousness

Value 1

Service type

Value 1

Duration (days)

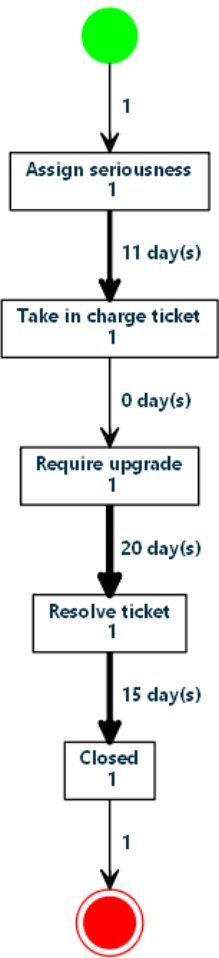
48

Ticket number

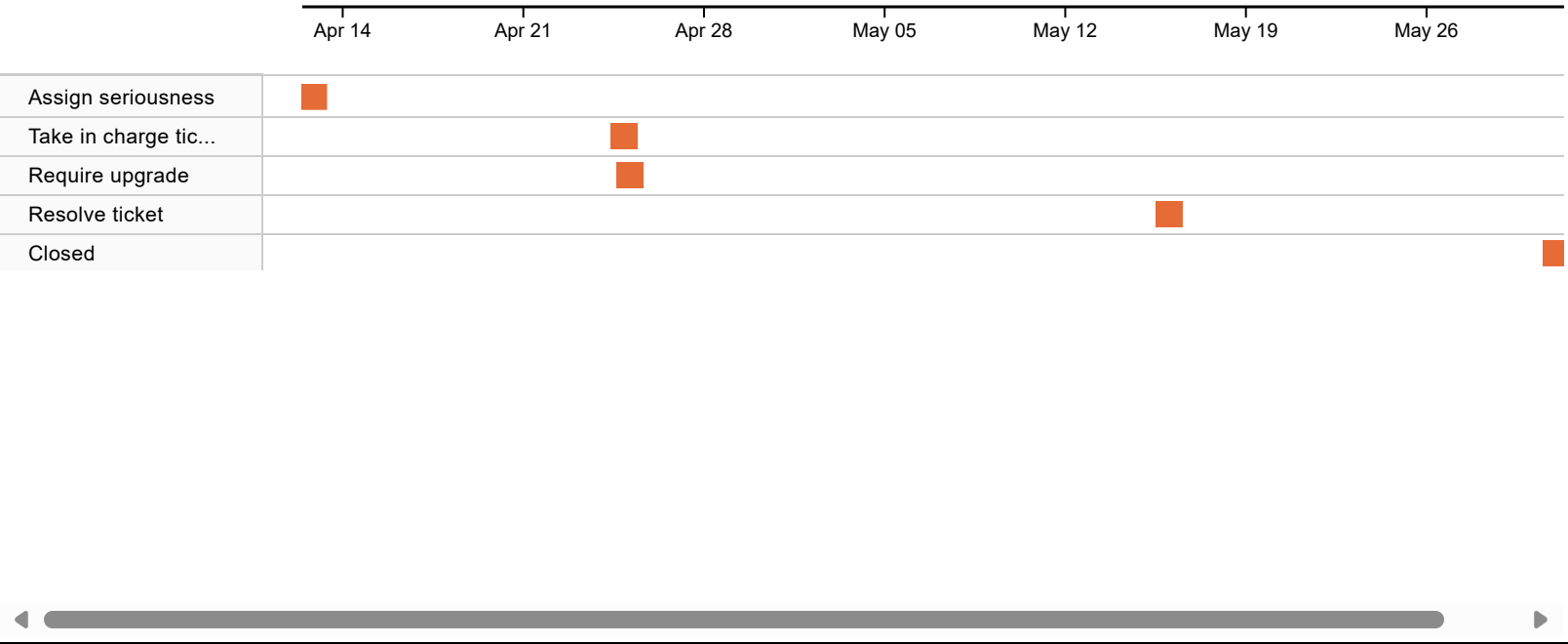
Case 100



## Process flow



## Order timeline

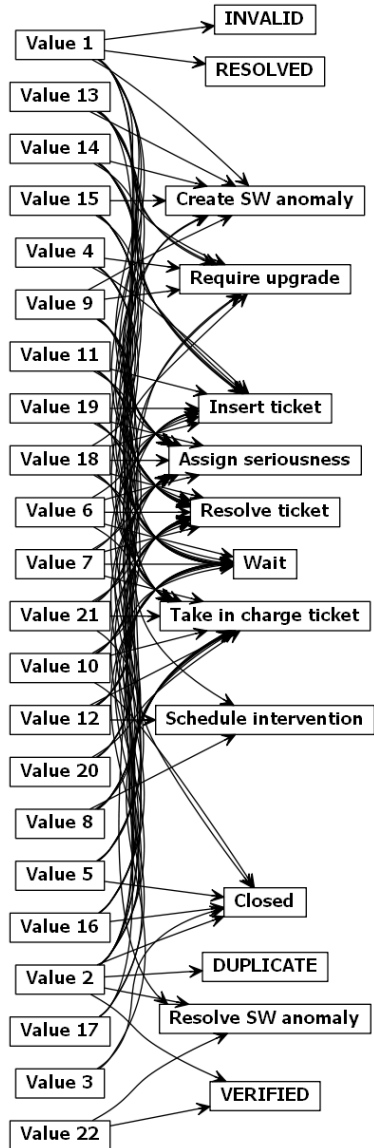




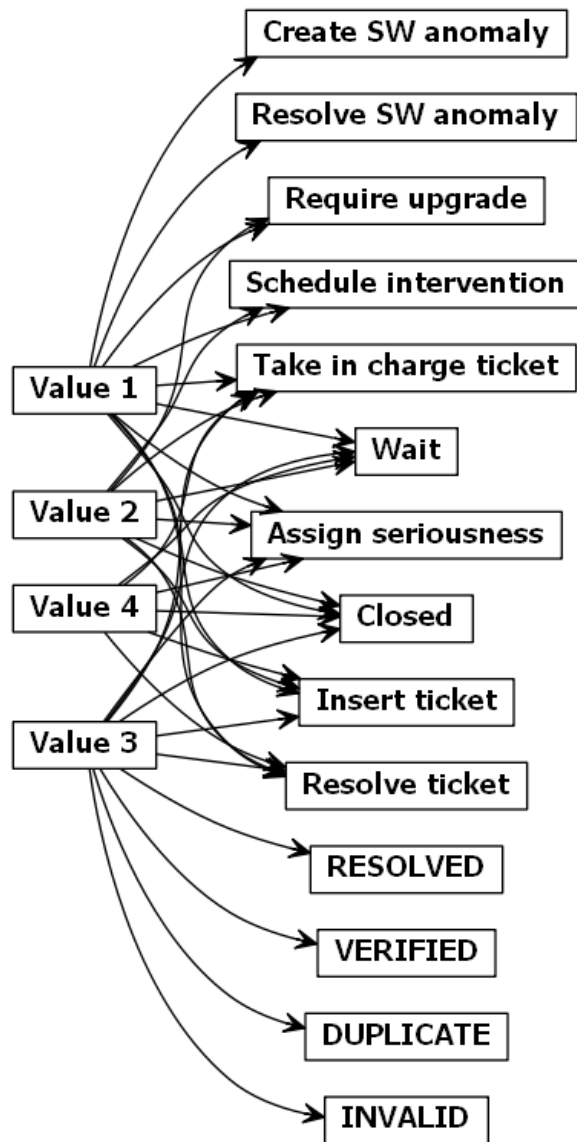


# Users analysis

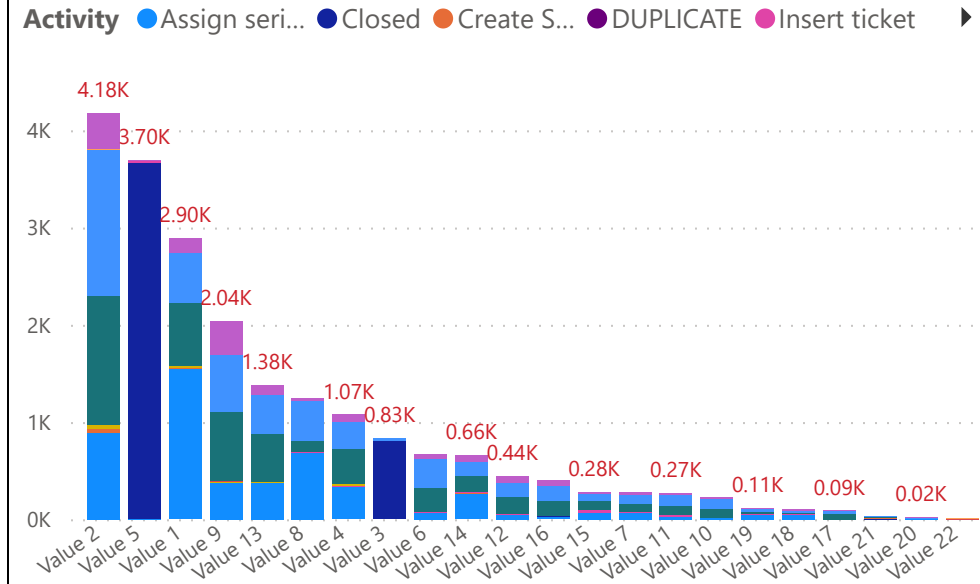
Users and roles



Segregation of duties



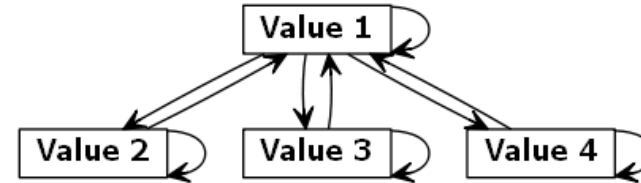
Count of activities per user



Activity

- Select all
- Assign seriousness
- Closed
- Create SW anomaly
- DUPLICATE
- Insert ticket
- INVALID
- Require upgrade
- Resolve SW anom...
- Resolve ticket
- RESOLVED
- Schedule intervent...
- Take in charge ticket

Handover of work between users



Median duration of users per activity

Resource	Activity	Median of Duration
Value 2	Closed	59
Value 10	Closed	31
Value 5	Closed	31
Value 16	Closed	22
Value 21	Take in charge ticket	19
Value 18	Resolve ticket	16
Value 3	Closed	15
Value 20	Resolve ticket	13
Value 20	Assign seriousness	9
Value 13	Require upgrade	7
Value 21	Resolve ticket	7
Value 21	Create SW anomalv	5