

Individual Project: SIM State changes over time

Introduction:

This waterfall chart shows the sim states change (activated, deactivated, purged, retired etc.) over the chosen period. It also provides the option to look for sim state changes for all accounts or choose the account that you want to look for.

Period: 1-month, 3-month, 6-month, 12-month

Start Period: It shows the number of sims that are 'Activated' at the start of the chosen period.

End Period: It shows the number of sims that are 'Activated' at the end of the period.

Newly Activated: Number of sims that were not active at the start of the period but are active at the end of the period.

Colors:

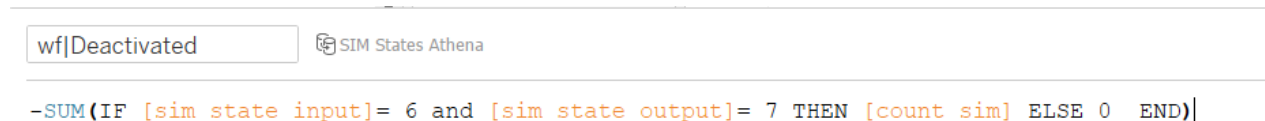
- Red shows the sim states that are not activated
- Grey shows the Active SIM states.

Descriptions:

- 1- SQL Query ready to fetch the data from aws Athena
- 2- Through SQL query got the field with
 - Account Name
 - sim state input
 - sim state output
 - sim count
- 3- Created few calculated fields to achieve the desired result by selecting the SIM States Data source:
 - a) wf|Input: It only counts the sims that are 'activated(6)' at the start period.



- b) wf|Deactivated: It counts the sims when start period sim state is 'Activated(6)' and end period sim state is 'Deactivated(7)'.



- c) wf|Retired: It counts the sims when start period sim state is 'Activated(6)' and end period sim state is 'Retired(8)'.

```
wf|Retired SIM States Athena
-SUM(IF [sim_state_input]= 6 and [sim_state_output]= 8 THEN [count_sim] ELSE 0 END)|
```

- d) wf|Purged: It counts the sims when start period sim state is 'Activated(6)' and end period sim state is 'Purged(9)'.

```
wf|Purged SIM States Athena
-SUM(IF [sim_state_input]= 6 and [sim_state_output]= 9 THEN [count_sim] ELSE 0 END)|
```

- e) wf|Inventory: It counts the sims when start period sim state is 'Activated(6)' and end period sim state is 'Inventory(4)'.

```
wf|Inventory SIM States Athena
-SUM(IF [sim_state_input]= 6 and [sim_state_output]= 4 THEN [count_sim] ELSE 0 END)|
```

- f) wf|Test Ready: It counts the sims when start period sim state is 'Activated(6)' and end period sim state is 'Test Ready(10)'.

```
wf|Test Ready SIM States Athena
-SUM(IF [sim_state_input]= 6 and [sim_state_output]= 10 THEN [count_sim] ELSE 0 END)|
```

- g) wf|Replaced: It counts the sims when start period sim state is 'Activated(6)' and end period sim state is 'Replaced(13)'.

```
wf|Replaced SIM States Athena
SUM(IF [sim_state_input]= 6 and [sim_state_output]= 13 THEN [count_sim] ELSE 0 END)|
```

- h) wf|Newly Activated: It counts the sims when start period sim state is 'Not Activated(0,4,7,8,9,10,11,13)' and end period sim state is 'Activated(6)'.

wf|Newly Activated

 SIM States Athena

```
SUM(IF ([sim_state_input]= 0 OR
[sim_state_input]= 4 OR
[sim_state_input]= 7 OR
[sim_state_input]= 8 OR
[sim_state_input]= 9 OR
[sim_state_input]= 10 OR
[sim_state_input]= 11 OR
[sim_state_input]= 13)
and [sim_state_output]= 6 THEN [count_sim] ELSE 0 END)
```

- i) wf|Activation Ready: It counts the sims when start period sim state is 'Activated(6)' and end period sim state is 'Activation Ready(11)'.

wf|Activation ready

 SIM States Athena

```
-SUM(IF [sim_state_input]= 6 and [sim_state_output]= 11 THEN [count_sim] ELSE 0 END)
```

- j) wf|Zeros: It counts the sims when start period sim state is 'Activated(6)' and end period sim state is '0'

wf|Zeros

 SIM States Athena

```
-SUM(IF [sim_state_input]= 6 and [sim_state_output]= 0 THEN [count_sim] ELSE 0 END)
```


- k) wf|Output: It counts the sims when end period sim state is 'Activated(6)'

wf|Output

 SIM States Athena

```
SUM(IF [sim_state_output]= 6 THEN [count_sim] else 0 END)
```

- 4- After getting all these calculated performed validation on tableau by creating other calculated fields.

Validation  SIM States Athena

$[wf|Input] + [wf|Deactivated] + [wf|Inventory] + [wf|Purged] + [wf|Retired] + [wf|Activation\ ready] + [wf|Newly\ Activated] + [wf|Test\ Ready] + [wf|Zeros]$

And

Difference 

$[wf|Output] - [Validation]$

Got the result that all number are adding up correctly like.

Logic Setup of wf

account...	Inventory	wf Retired	wf Purged	wf Activation ready	wf Newly Activated	wf Output	Validation	wf Test Ready	Difference
Grand To...	-4 712	-126 880	-997	-736 982	3 625 157	21 789 716	21 789 716	-58	0
1oT OÜ	0	0	0	0	0	0	0	0	0
2ma Tec..	0	-764	0	-13	2 305	39 392	39 392	0	0
9d Energ..	0	0	0	0	86	196	196	0	0
9Solutio..	0	0	0	-3 483	3 509	37 744	37 744	0	0
13T LIMi..	0	0	0	0	5	16	16	0	0
A Better ..	0	0	0	0	47	92	92	0	0
A&K Gro..	0	0	0	0	1 724	6 100	6 100	0	0
Aartsys..	0	0	0	0	0	8	8	0	0
AB Gavle..	0	0	0	0	42	144	144	0	0
AB SKF	0	0	0	-177	220	936	936	0	0
AB Tings..	-3	0	0	0	375	2 372	2 372	0	0
ACTE Sol..	0	0	0	0	4	576	576	0	0
Actemli..	0	0	0	0	10	68	68	0	0
ACTIA IT..	0	0	0	-28	3 137	21 420	21 420	0	0
AddMobi..	0	-122	0	-2 323	830	18 060	18 060	0	0

- 5- For Second data source created an excel sheet with just number values in it, these number represent the dimensions that are needed to get the desired waterfall. The number could be as many as we want: like in this one I have only 11 numbers (11 dimensions)

	A	B	C	D
1	values			
2	1			
3	2			
4	3			
5	4			
6	5			
7	6			
8	7			
9	8			
10	9			
11	10			
12	11			
13				
14				
15				

- 6- To achieve the desired waterfall chart, I used both data sources and did data blending.
- 7- For data blending select the values data source and created few calculated fields: like
- a) **"Label"** is the calculated field that is used to create columns(dimesions) with the name of the sim states in the waterfall.

Labels values

```

Case MIN([values])

when 1 then "Start Period"
when 2 then "Activation Ready"
when 3 then "Deactivated"
when 4 then "Retired"
when 5 then "Inventory"
when 6 then "Purged"
when 7 then "Replaced "
when 8 then "Test Ready"
when 9 then "Newly Activated"
when 10 then "End Period"

END

```

b) **“Start”** calculated field determines the point from where we want the values to start in the waterfall chart.

As in the calculated field start period input and end period output both are starting at ‘0’, So, they will start from the bottom of the chart.

And other bars start by adding start period input and the state that appears after the sim states input. We are adding this because we other states have negative values.

start values X


```

Case MIN([values])
When 1 then 0
when 2 then [SIM States Athena].[wf|Input]
when 3 then [SIM States Athena].[wf|Input]+[SIM States Athena].[wf|Activation ready]
when 4 then [SIM States Athena].[wf|Input]+[SIM States Athena].[wf|Activation ready]+[SIM States Athena].[wf|Deactivated]
when 5 then [SIM States Athena].[wf|Input]+[SIM States Athena].[wf|Activation ready]+[SIM States Athena].[wf|Deactivated]+[SIM States Athena].[wf|Retired]
when 6 then [SIM States Athena].[wf|Input]+[SIM States Athena].[wf|Activation ready]+[SIM States Athena].[wf|Deactivated]+[SIM States Athena].[wf|Retired]+[SIM States Athena].[wf|Inventory]
when 7 then [SIM States Athena].[wf|Input]+[SIM States Athena].[wf|Activation ready]+[SIM States Athena].[wf|Deactivated]+[SIM States Athena].[wf|Retired]+[SIM States Athena].[wf|Purged]
when 8 then [SIM States Athena].[wf|Input]+[SIM States Athena].[wf|Activation ready]+[SIM States Athena].[wf|Deactivated]+[SIM States Athena].[wf|Retired]+[SIM States Athena].[wf|Replaced]
when 9 then [SIM States Athena].[wf|Output]-[SIM States Athena].[wf|Newly Activated]
when 10 then 0

End

```

c) **“bars”** calculated field is used to decide the height of the bars in the waterfall.

bars  values

```

Case MIN([values])
When 1 then [SIM States Athena].[wf|Input]
when 2 then [SIM States Athena].[wf|Activation ready]
when 3 then [SIM States Athena].[wf|Deactivated]
when 4 then [SIM States Athena].[wf|Retired]
when 5 then [SIM States Athena].[wf|Inventory]
when 6 then [SIM States Athena].[wf|Purged]
when 7 then [SIM States Athena].[wf|Replaced]
when 8 then [SIM States Athena].[wf|Test Ready]
when 9 then [SIM States Athena].[wf|Newly Activated]
when 10 then [SIM States Athena].[wf|Output]

End

```

In this field all the bars height are the number that they have as sim count in different states.

d) **“Color”** calculated field is used to color the bars based on their bars height.

Color  values

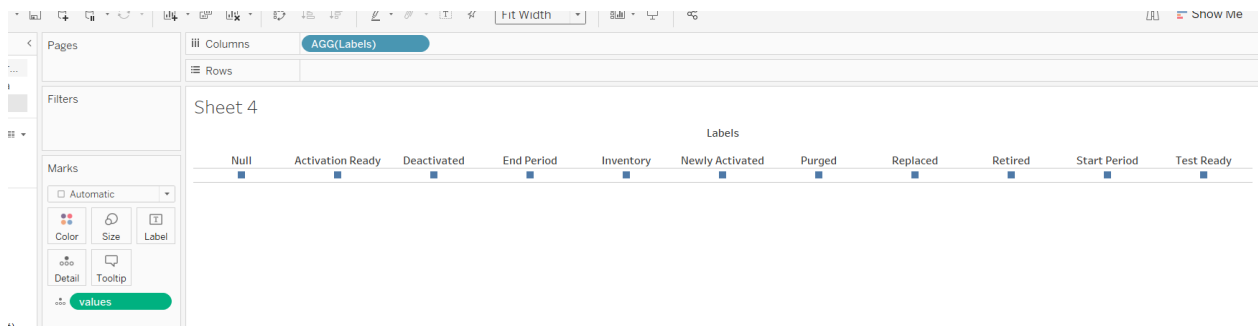
```

SIGN([bars])

```

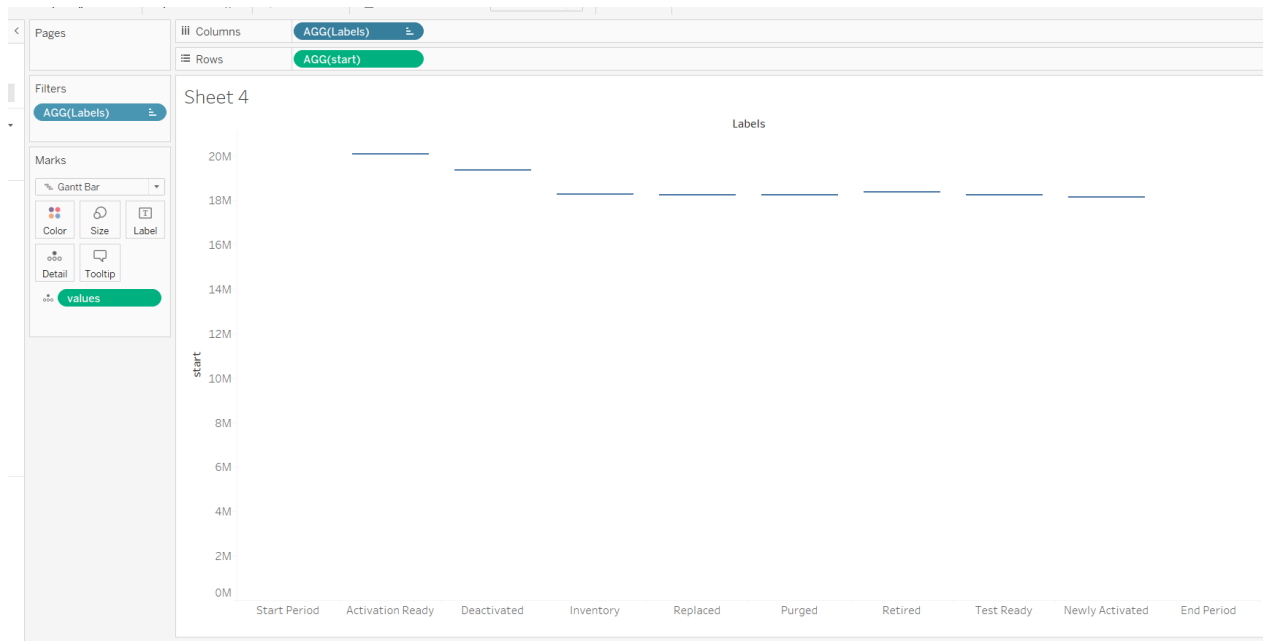
8- Steps to create a waterfall after building so many calculated fields.

a) Dragging labels into columns shelf and values as dimension into details.

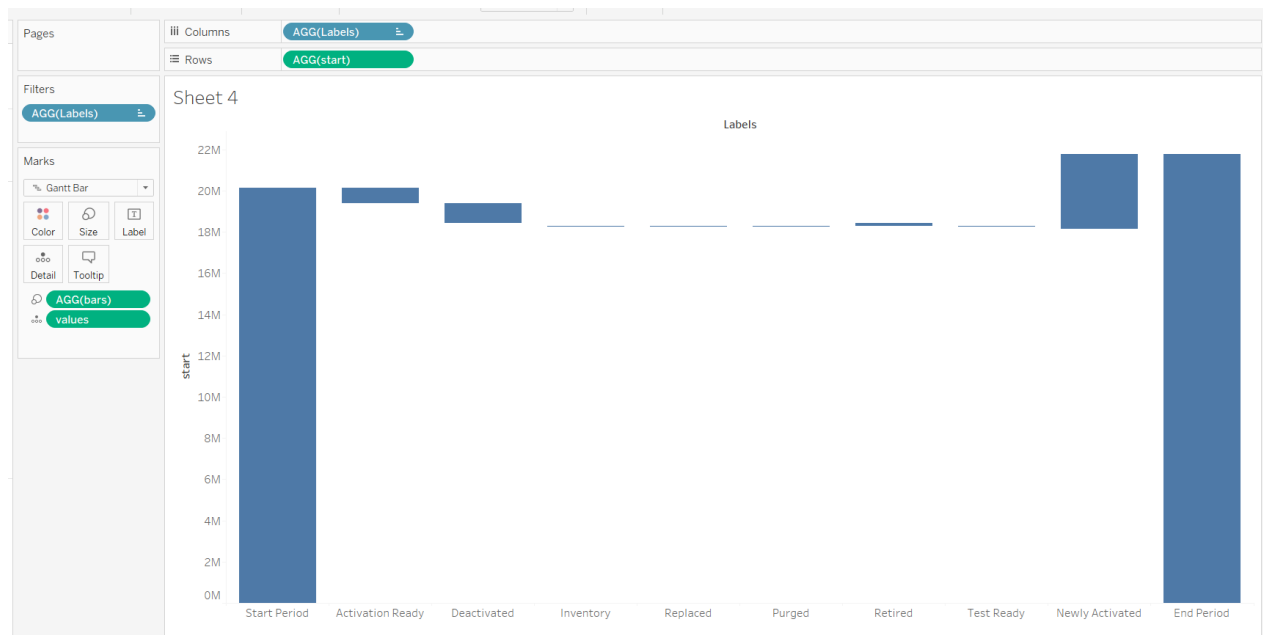


Here we can filter the labels with null values and arrange the order manually to get the desired order that we really want.

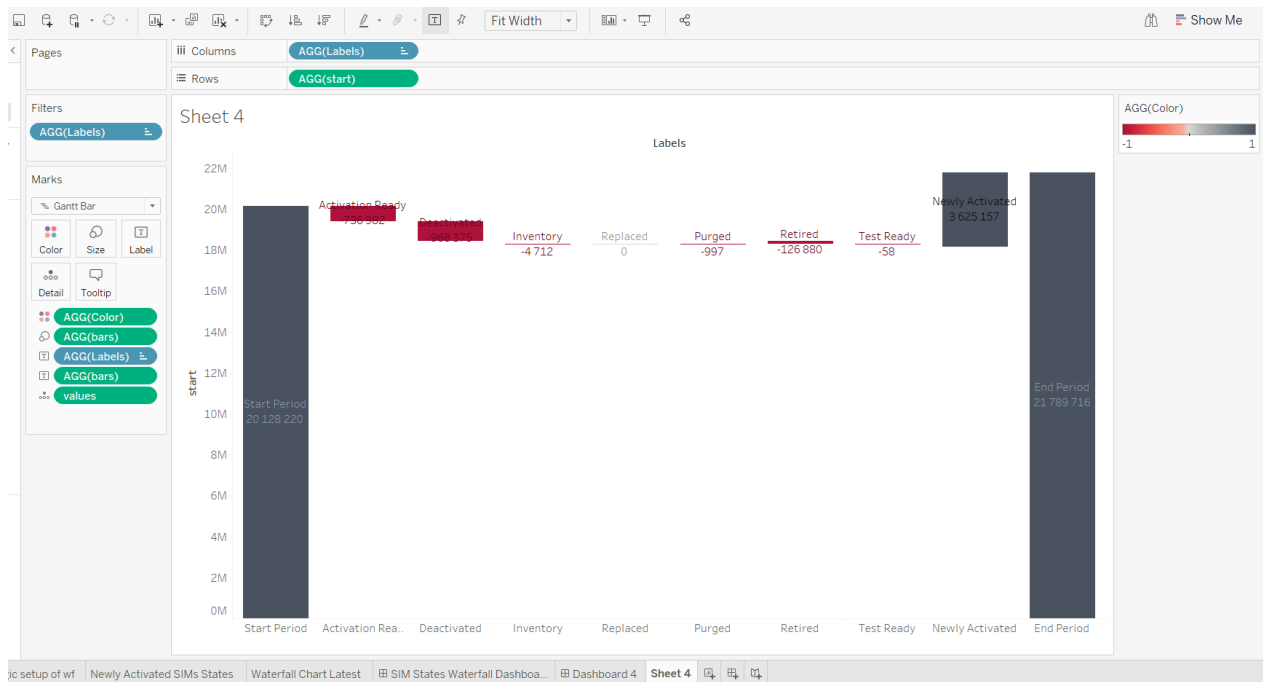
b) Drag the start calculated field into rows shelf and in chart type select Gantt Bar. By doing this we will get



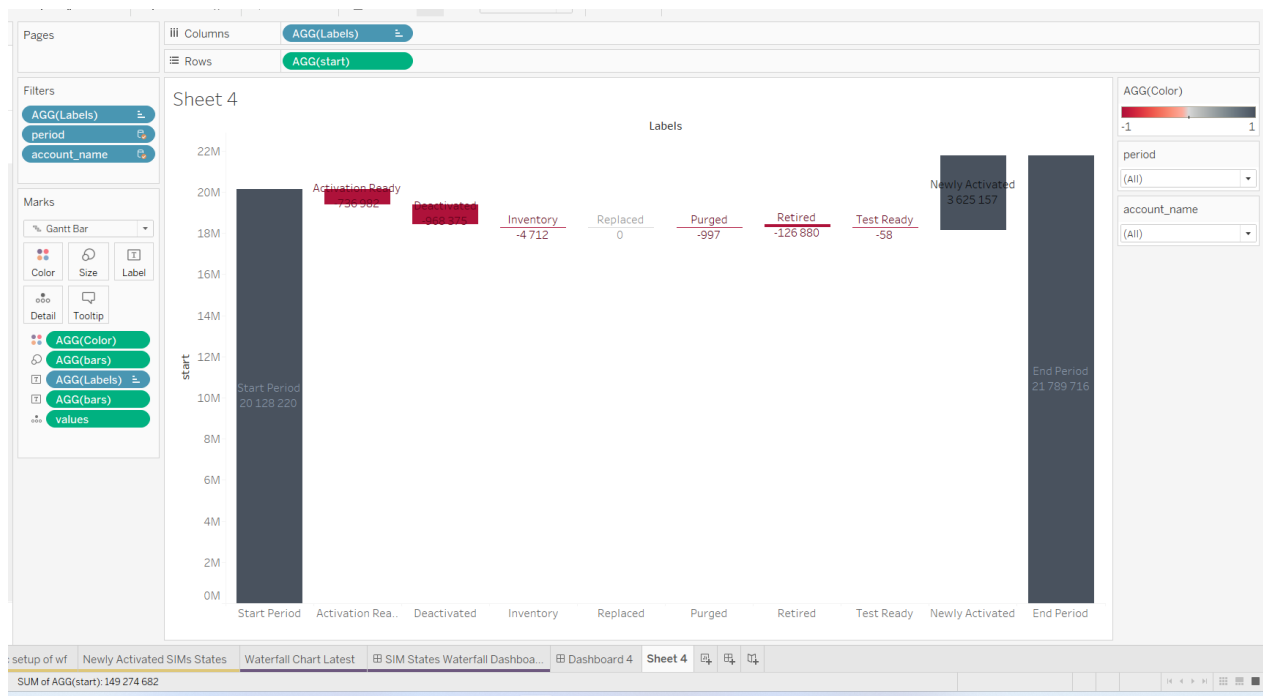
c) Drag the bars calculated field into the size:



d) Dragging the color calculated field into color section, label, and bars into label section we will get this:



e) Last, we can filter on account names and period by bring account name and period into filter.



Here is the final waterfall chart we wanted to get.