



NBA 2k Customer Segmentation

BASED ON BEHAVIORAL ANALYSIS OF PLAYERS

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METHODOLOGY

I perform the segmentation in five steps

Step 1

- Segregate the players into Responders and Non-Responders
- Based on whether they have bought an add-on or not

Step 2

- Formulate Key Performance Indicators for Responders
- Based on extensive EDA

Step 3

- Perform Unsupervised clustering analysis
- Find optimum number of segments

Step 4

- Analyse Non-responders and make Segments

Step 5

- Study each segment and its characteristics
- Devise a marketing strategy for each

Modified version of RFM Analysis: Key Performance Indicators

RECENCY

When was the player last active?

FREQUENCY

For how many days has the player been active?

MONETARY

How much has the player spent already?

PURCHASE FREQUENCY

What is the Average number of days between purchases of the player?

RESPONSES

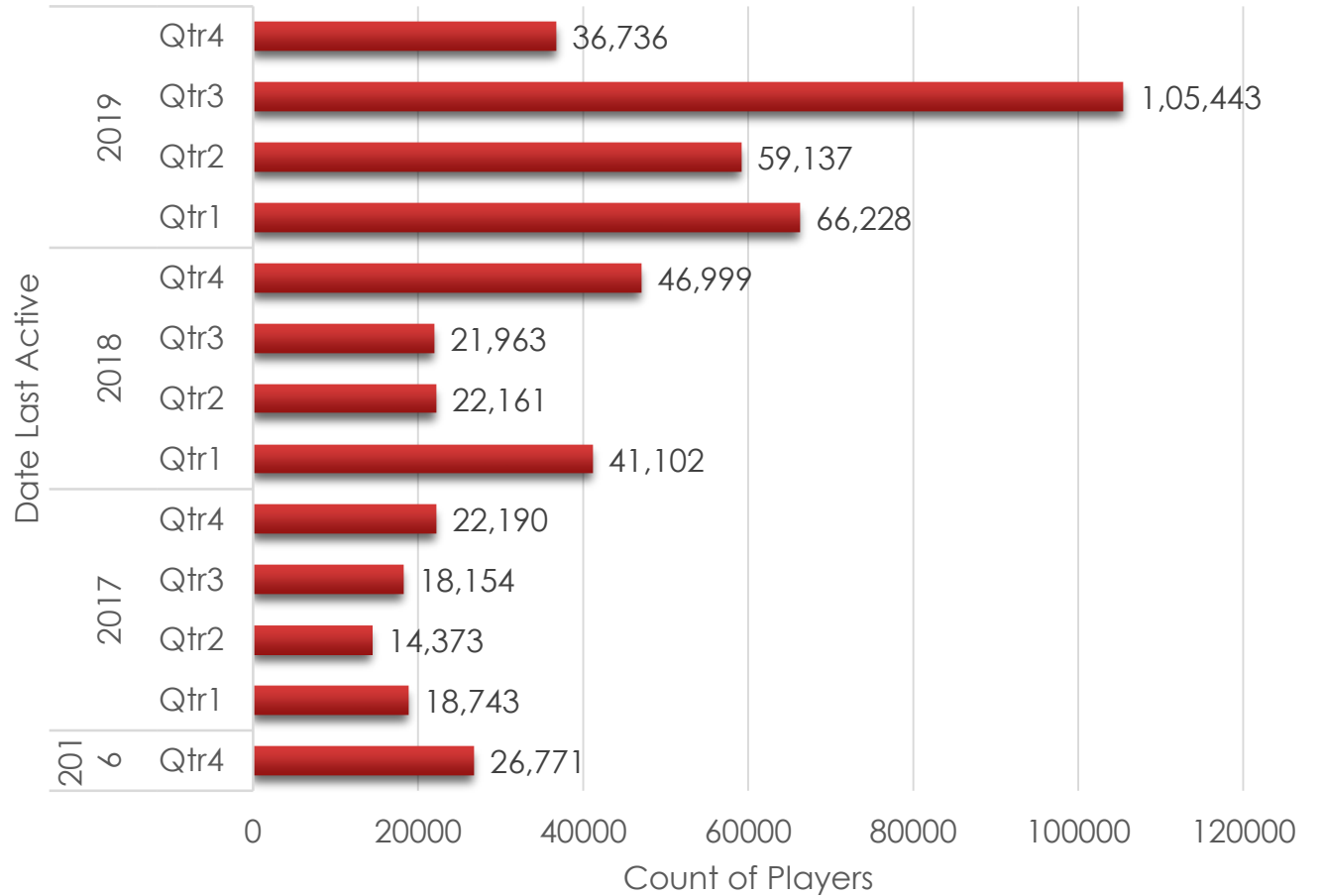
How many add-ons did the player buy previously?



KEY PERFORMANCE INDICATORS

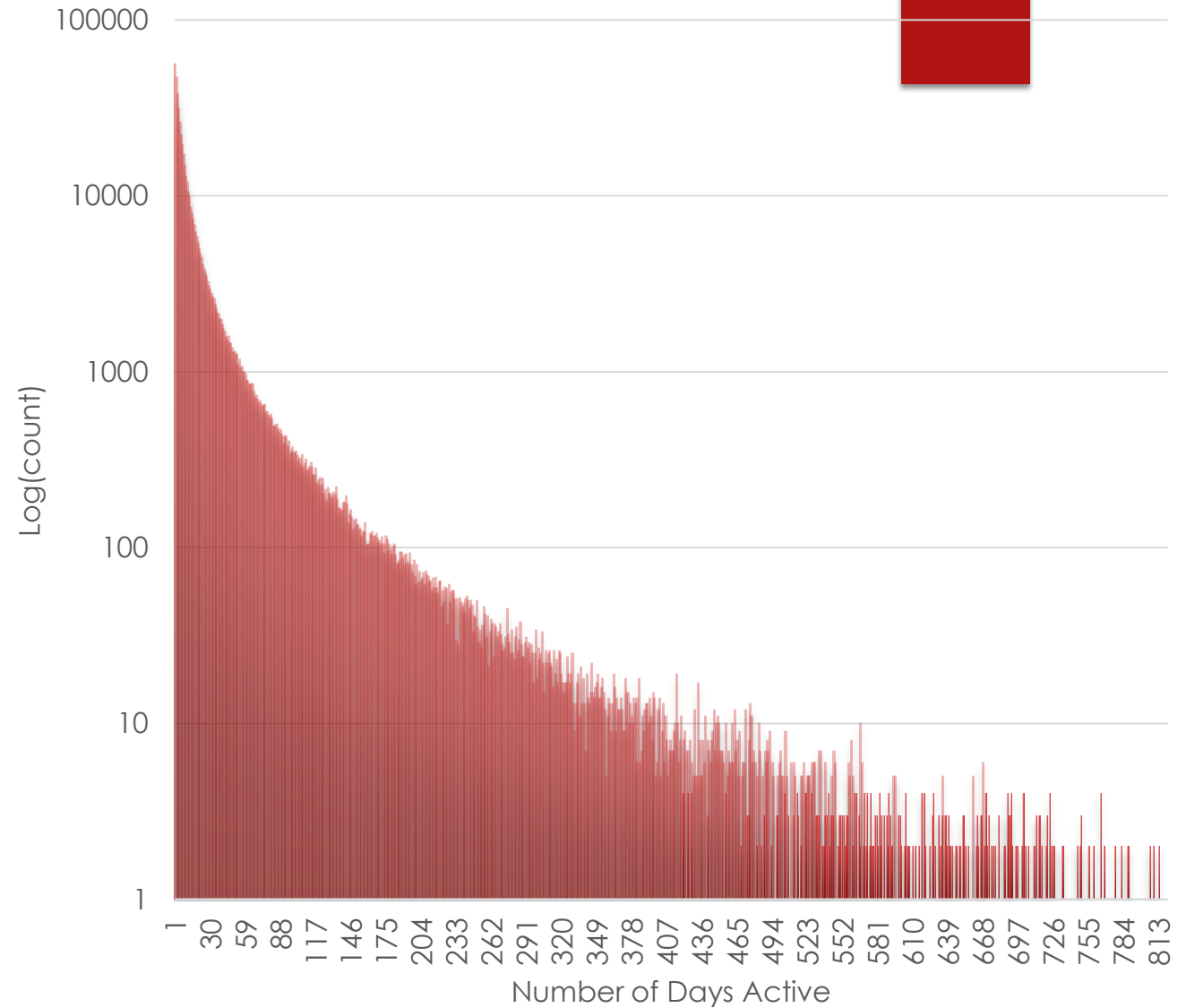
REGENCY

- ▶ Available in data as LASTACTIVEDAY
- ▶ Players concentrating towards the end of study period
- ▶ However, remember that more players would be installing the game with time
- ▶ **Capture the players with high recency**



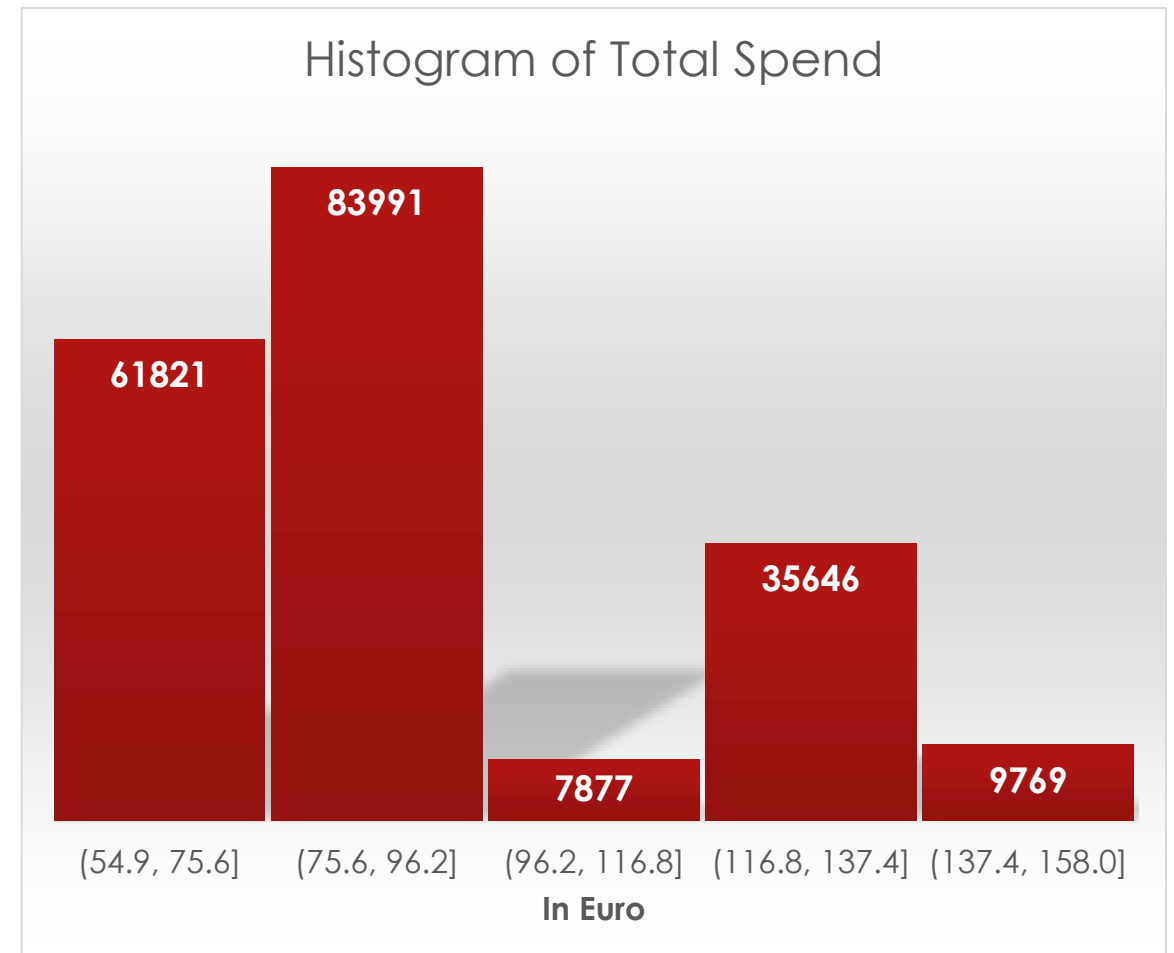
FREQUENCY

- ▶ Available in data as ACTIVEDAYS
- ▶ Many players are active only for a short duration
- ▶ Notice the log-scale of vertical axis
- ▶ Close to 1% population is active more than 336 days- CAPTURE THEM
- ▶ Who we want to target-
 - If new player, pick high frequency ones
 - For old players, pick all



MONETARY VALUE

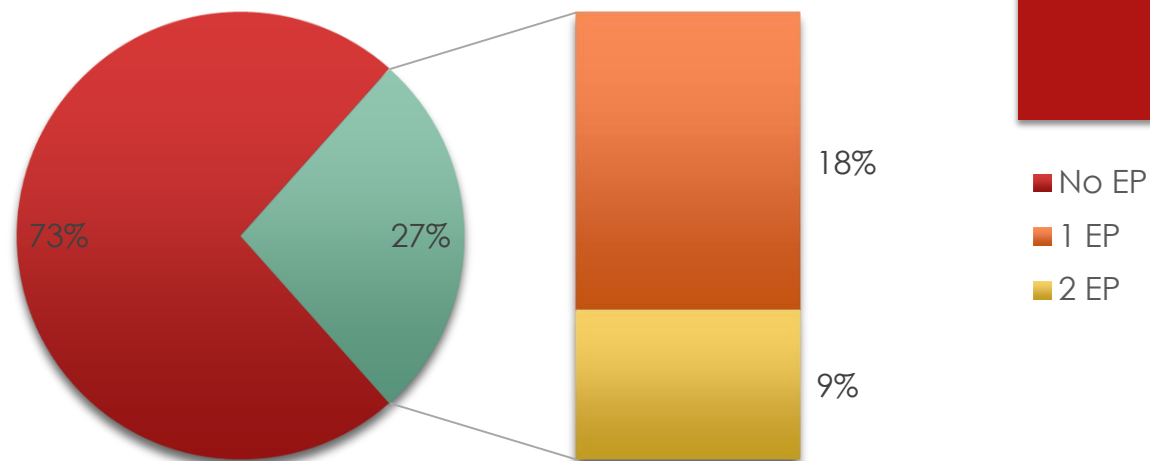
- ▶ NOT Available in data
- ▶ Obtained from 2k website
- ▶ Mapped to player using install dates
- ▶ For eg., if install dates of all DLCs and Base game is same, the player bought Digital Deluxe pack
- ▶ Concentration in €55-100 signifies popularity of cheaper DLCs, as compared to more expensive Eps
- ▶ **Target players who spend more!**



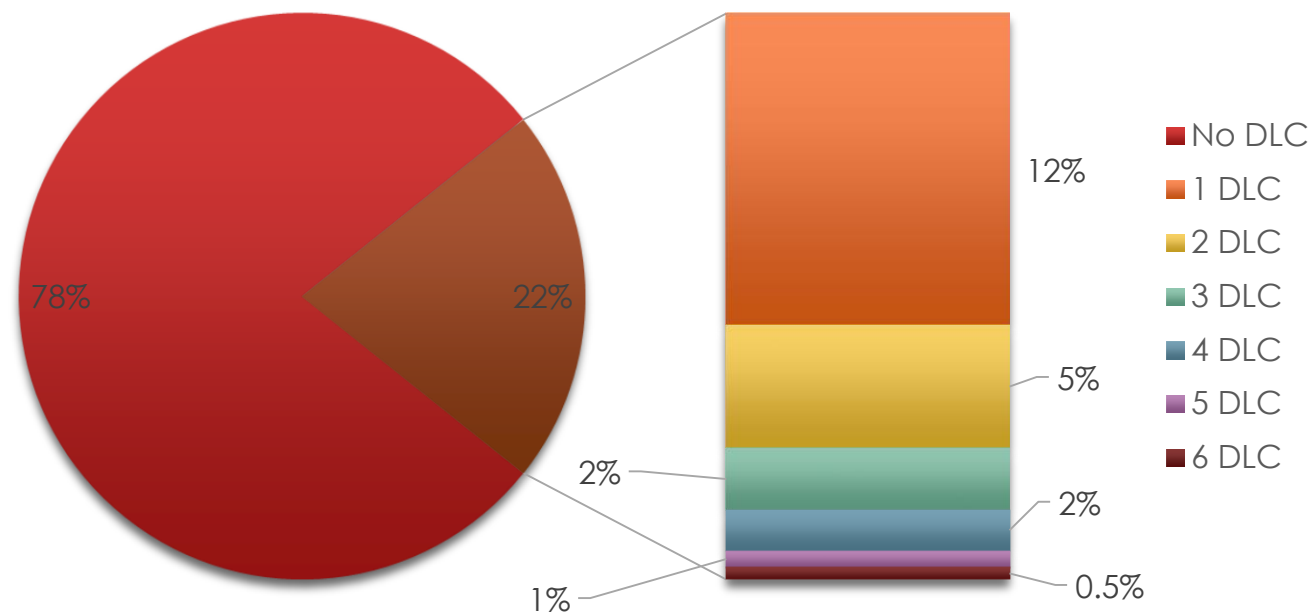
RESPONSE HISTORY

- ▶ Number of Expansion Packs or DLCs already installed
- ▶ There were less unique buyers for EP (134k) as opposed to DLC (107k)
- ▶ However, total DLC purchases were considerably higher (201k)
- ▶ **Drive everyone towards higher response rate**

Expansion Packs

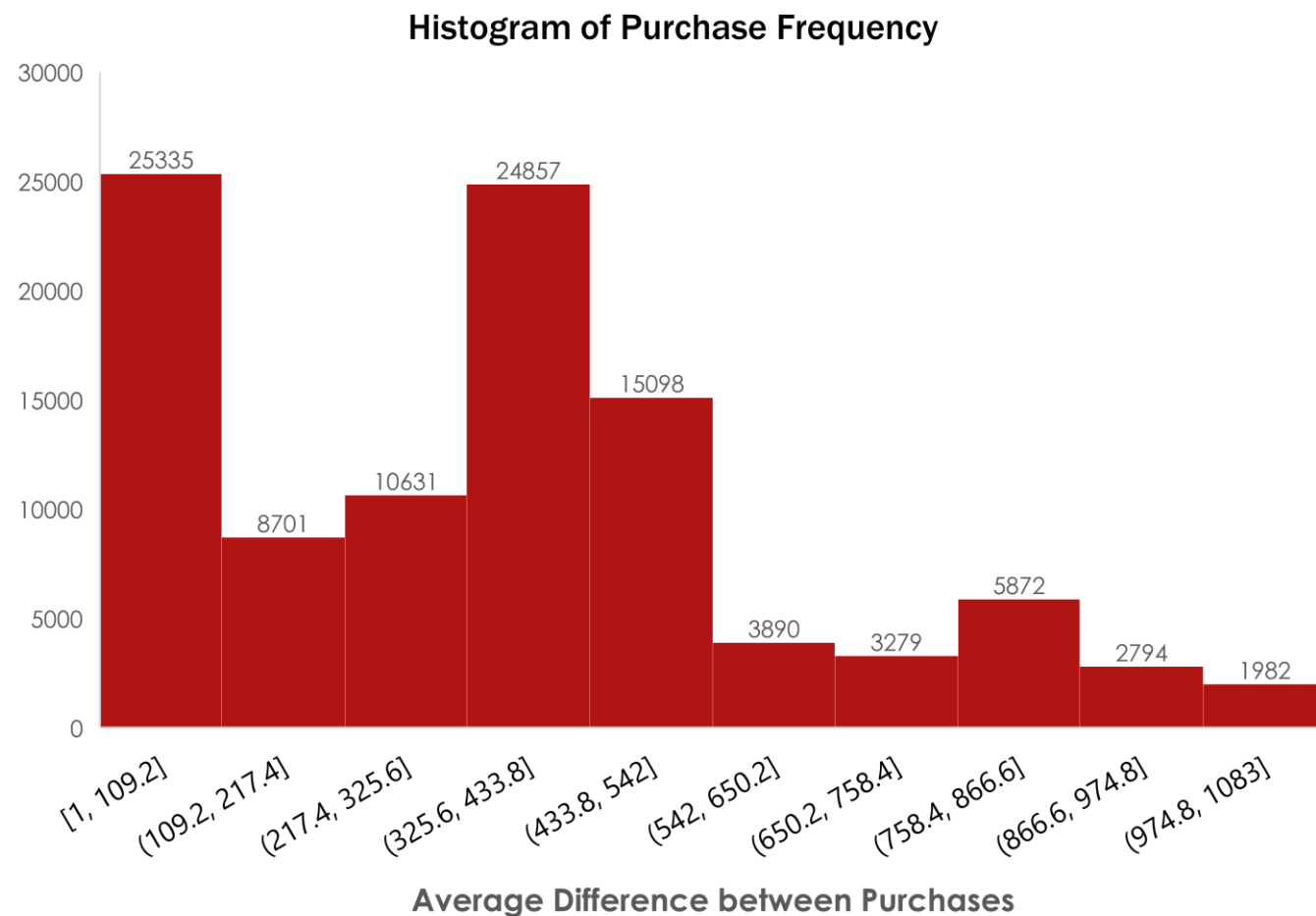


Downloadable Content



PURCHASE FREQUENCY

- ▶ Average number of days in which a player installs a new pack again
- ▶ Calculated for only 102k players, who installed content at least twice during the study period
- ▶ Higher concentration in 300-500 days can be attributed to yearly launch of Expansion Packs
- ▶ **Target those who have lower value of the metric, meaning speed buying!**

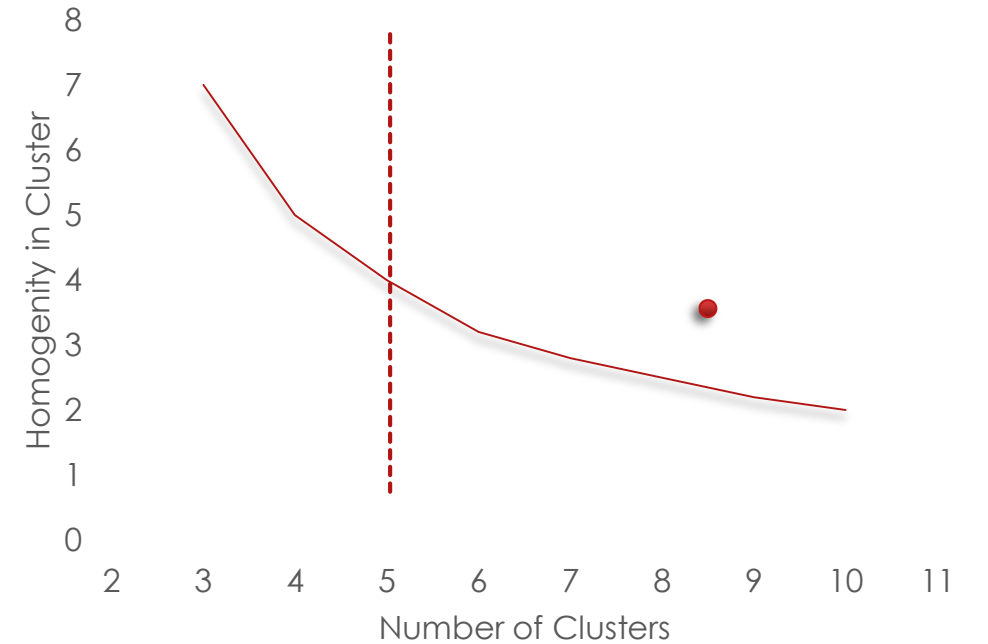




CLUSTERING

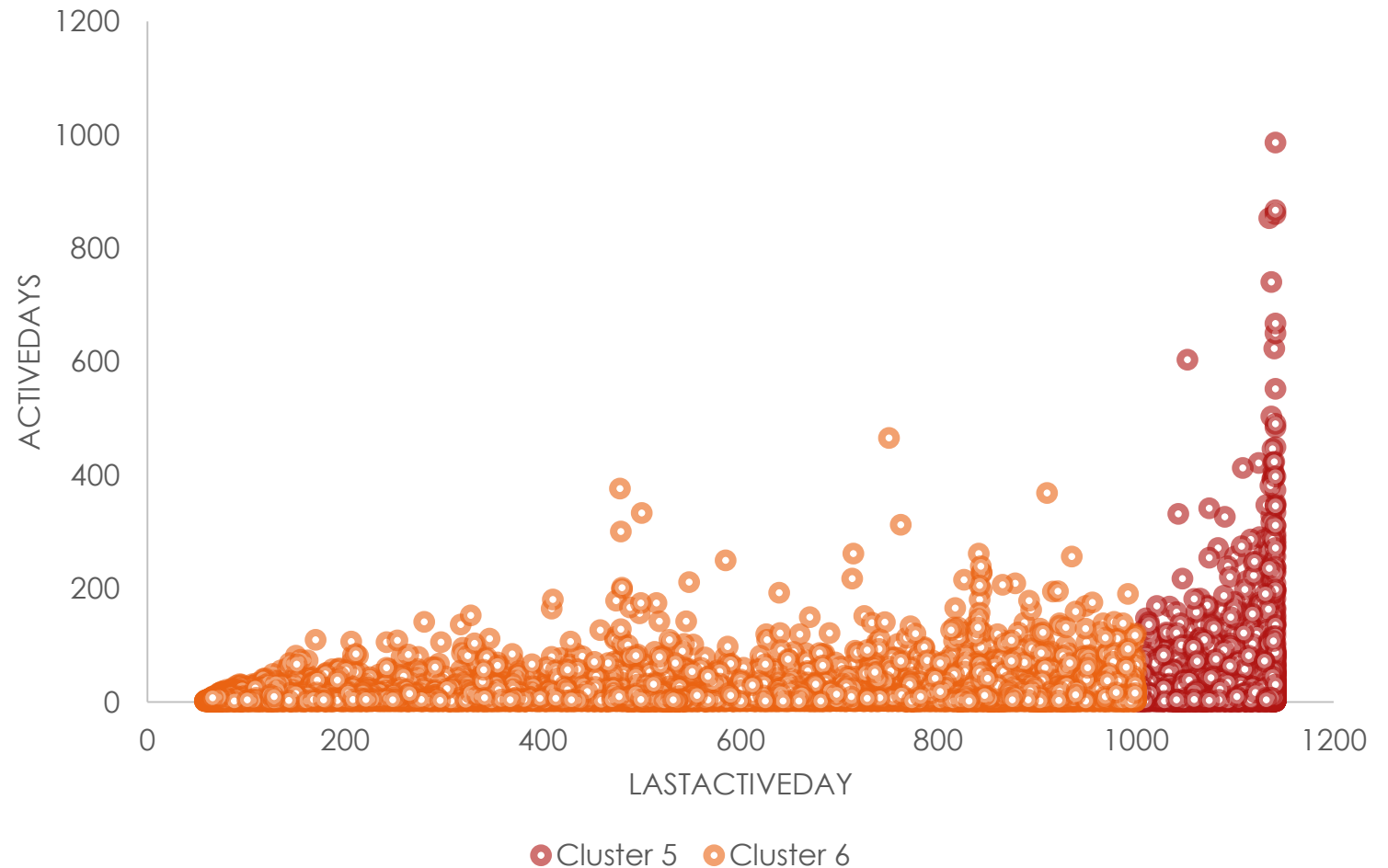
K-means for Responders

- ▶ Applying K-means algorithm to our 5 KPIs yields clusters.
- ▶ But how many to chose?
- ▶ Elbow-method suggests 5 clusters
- ▶ This gives a balance of homogeneity and number of clusters



Analytically for Non-Responders

- ▶ Only two of the five metrics are available for Non-Responders
- ▶ A threshold at Recency of 1000 days seems reasonable
- ▶ LASTACTIVEDAY measured from the beginning of time period- **higher means more recent**
- ▶ Cluster 6 can be considered attrited



Segments At A Glance

Cluster	Player Type	Player Count	Active Days	No of Responses	Last Day Active	Total Spent	Purchase Frequency
0	Responders	31,222	14.8	1.5	476.9	65.0	33.0
1	Responders	49,626	92.7	2.9	1034.1	115.1	411.4
2	Responders	58,760	29.7	1.7	1081.0	85.8	27.8
3	Responders	15,273	49.7	1.6	1010.2	89.5	823.1
4	Responders	44,223	14.7	1.5	861.5	72.5	13.5
5	Non-Responders	73,898	19.6	0.0	1085.5	0.0	0.0
6	Non-Responders	226,998	9.4	0.0	569.2	0.0	0.0



STRATEGY

- Less active
- Last played long back
- Has forgotten the game
- **In-game marketing won't work!**

Segment 0

- Highly Active in playing and spending
- Installs new content regularly
- Can't Lose Him!
- **Target with all you can!**

Segment 1

- Less active in general, but has been active recently
- Won't shy away from spending
- **Aggressive Marketing needed!**

Segment 2

- Moderately active in gaming
- Doesn't mind spending
- But purchases new packs once in eons!
- **Stable Cohort, marketing probably won't work!**

Segment 3

- Relatively low Activity
- But Moderate Spending
- Seen fairly recently
- Could attrite soon, need to re-engage
- **Pitch in new features!**

Segment 4

- Non-Responder
- Less Active
- But seen recently
- May become a responder soon
- **Target Aggressively!**

Segment 5

- Long time Non-Responder
- Very low activity
- Have been attrited for sure ☹️
- **Marketing will be money drain!**

Segment 6

GOING FORWARD



Analysis within clusters for personalized marketing



Exploring player specific data to study individual behaviour and preferences



Using geographic data to understand market needs and localized DLCs



FIN.