

# From Hero to Superhero: Taking Successful Musical Artists to Greater Heights



**Metis Business Module Presentation**

**Andrei Levin • 7/23/21**

# Paul Zanzibar & Associates



## Our Mission

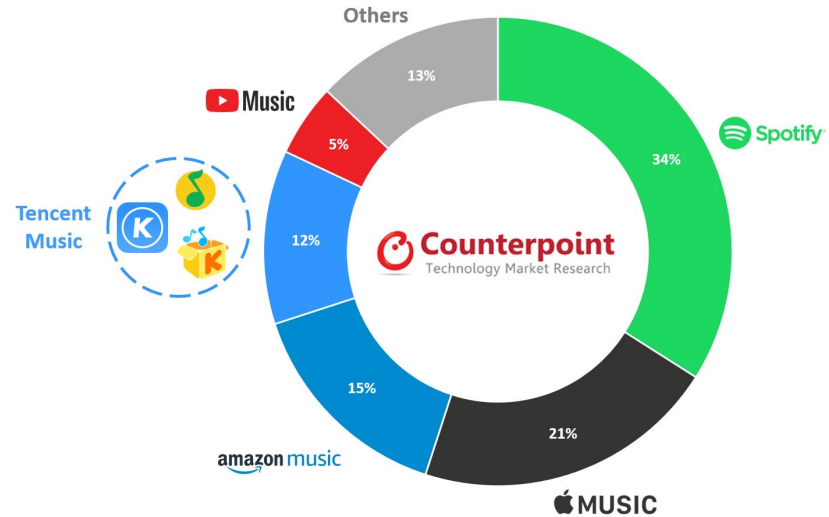
We provide data-driven insights to give **successful musical artists** the edge they need to get to the next level

# Proof of Concept: Use Spotify Streaming Data

## Why Spotify?

- Largest market share
- Readily accessible features and song popularity metrics

Global Music Streaming Paid Subscriptions by Brand Share (In %) – Q2 2020

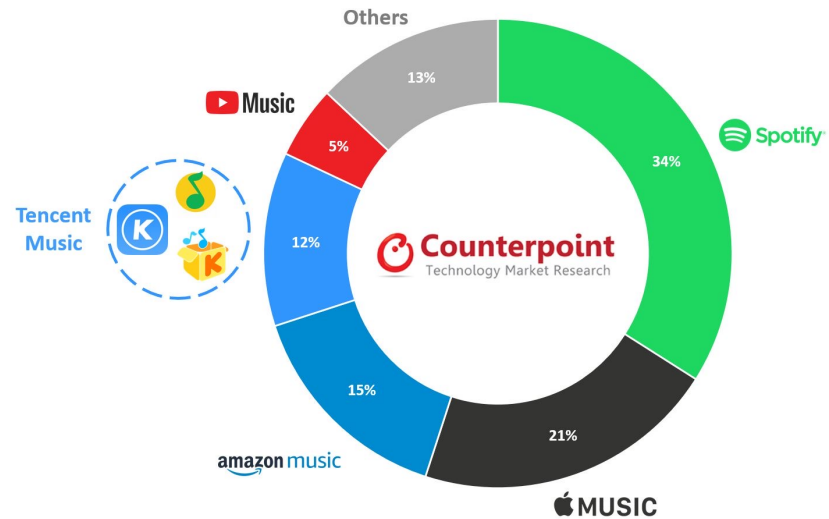



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 Spotify

Charts

 DOWNLOAD TO CSV

TOP 200

VIRAL 50

Filter by


GLOBAL

DAILY

07/14/2019


TRACK

STREAMS ?




1 – **Señorita** by Shawn Mendes

8,273,275




2 – **I Don't Care (with Justin Bieber)** by Ed Sheeran

4,936,961



3 – **Beautiful People (feat. Khalid)** by Ed Sheeran

4,605,437



4 – **Goodbyes (Feat. Young Thug)** by Post Malone

4,066,822

## Data Collected

- Daily USA Top 200
- Years: 2017-2020

# Aggregated: Four Years of Daily Data

1	Title	Artist	Genre	Duration	BPM	Explicit	Key	Danceability	Energy	Positivity	Speechiness	Release Date	Peak Position	Days Top 200	Days Top 10
2	Feel Me	Tyga - Kanye West	Pop	3.333	87.692	Explicit	Minor	0.442	0.636	0.251	0.262	2017-01-01	78	7	0
3	Dont Leave	Snakehips - Mr. Ozone	Dance/Elect	3.578	122.381	Explicit	Major	0.657	0.703	0.338	0.0753	2017-01-06	51	88	0
4	Move Your Bod	Sia	Dance/Elect	4.201	127.962	Clean	Minor	0.664	0.883	0.381	0.0353	2017-01-06	177	1	0
5	Drinkin Too Mu	Sam Hunt	Country	3.858	139.144	Explicit	Major	0.447	0.38	0.155	0.0495	2017-01-06	91	6	0
6	Drugs	August Alsina	Pop	3.230	118.435	Explicit	Minor	0.411	0.327	0.144	0.0827	2017-01-06	199	1	0
7	On My Way	Tiësto - Bright	House	3.062	123.972	Clean	Major	0.629	0.764	0.577	0.036	2017-01-13	164	1	0
8	Not Afraid Any	Halsey	Pop	3.780	131.973	Clean	Minor	0.548	0.731	0.477	0.0704	2017-01-13	70	6	0
9	On Hold	The xx	Dance/Elect	3.736	125.051	Clean	Major	0.723	0.669	0.35	0.0348	2017-01-13	129	6	0
10	Despacito	Luis Fonsi - Da	Latin	3.803	177.833	Clean	Major	0.66	0.786	0.846	0.17	2017-01-13	1	257	2
11	Dangerous	The xx	Dance/Elect	4.167	119.982	Clean	Major	0.774	0.709	0.565	0.0465	2017-01-13	109	2	0
12	I Dare You	The xx	Dance/Elect	3.888	126.001	Clean	Major	0.752	0.543	0.282	0.0398	2017-01-13	100	2	0
13	Selfish	PnB Rock	Rap	4.093	101.981	Explicit	Minor	0.638	0.6	0.0399	0.0438	2017-01-13	46	231	0
14	Issues	Julia Michaels	Pop	2.939	113.634	Clean	Major	0.683	0.427	0.426	0.0777	2017-01-13	11	164	0
15	Say Something	The xx	Dance/Elect	3.973	130.08	Clean	Minor	0.627	0.721	0.383	0.0304	2017-01-13	94	3	0
16	I Miss You	Grey - Bahari	Pop	3.205	102.01	Clean	Major	0.65	0.764	0.704	0.0939	2017-01-13	131	31	0
17	Lips	The xx	Dance/Elect	3.344	173.94	Clean	Major	0.523	0.591	0.195	0.0543	2017-01-13	168	1	0
18	A Violent Noise	The xx	Dance/Elect	3.791	119.345	Clean	Minor	0.549	0.423	0.144	0.0373	2017-01-13	174	1	0
19	Misunderstood	PnB Rock	Rap	4.149	141.903	Explicit	Major	0.724	0.452	0.139	0.0884	2017-01-13	140	7	0
20	Sex For Breakf	Life of Dillon	Pop	3.248	94.99	Explicit	Major	0.852	0.601	0.537	0.0299	2017-01-13	152	1	0
21	High For Hours	J. Cole	Hip Hop	4.188	95.518	Explicit	Major	0.87	0.446	0.684	0.424	2017-01-18	51	14	0
22	Weak	AJR	Rock	3.370	123.984	Clean	Major	0.672	0.642	0.656	0.0461	2017-01-20	140	32	0
23	El Amante	Nicky Jam	Latin	3.658	179.91	Clean	Major	0.683	0.691	0.732	0.0432	2017-01-20	183	9	0
24	Good Drank	2 Chainz - Gu	Hip Hop	3.754	130.074	Explicit	Minor	0.813	0.763	0.362	0.281	2017-01-20	196	2	0
25	Run Up	Major Lazer - F	Pop	3.386	108.005	Explicit	Minor	0.803	0.743	0.674	0.0681	2017-01-26	23	103	0
26	Culture	Migos - DJ Khe	Hip Hop	2.559	132.996	Explicit	Minor	0.825	0.7	0.317	0.243	2017-01-27	24	15	0
27	All Ass	Migos	Hip Hop	4.911	140.021	Explicit	Major	0.836	0.758	0.551	0.191	2017-01-27	65	9	0
28	Big On Big	Migos	Hip Hop	4.847	142.022	Explicit	Minor	0.723	0.768	0.526	0.0587	2017-01-27	59	7	0

5,314 unique songs

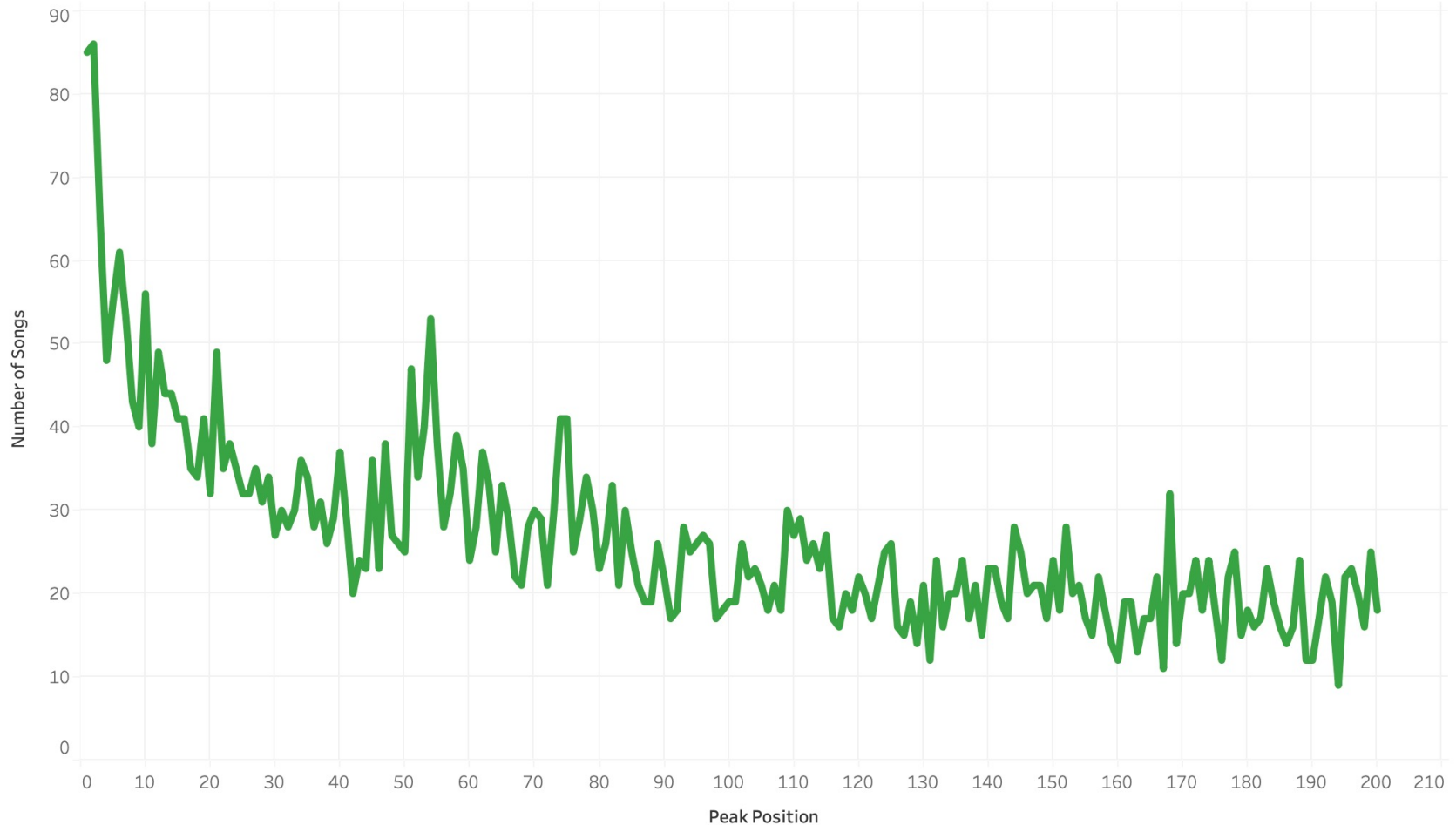


# Aggregated: Four Years of Daily Data

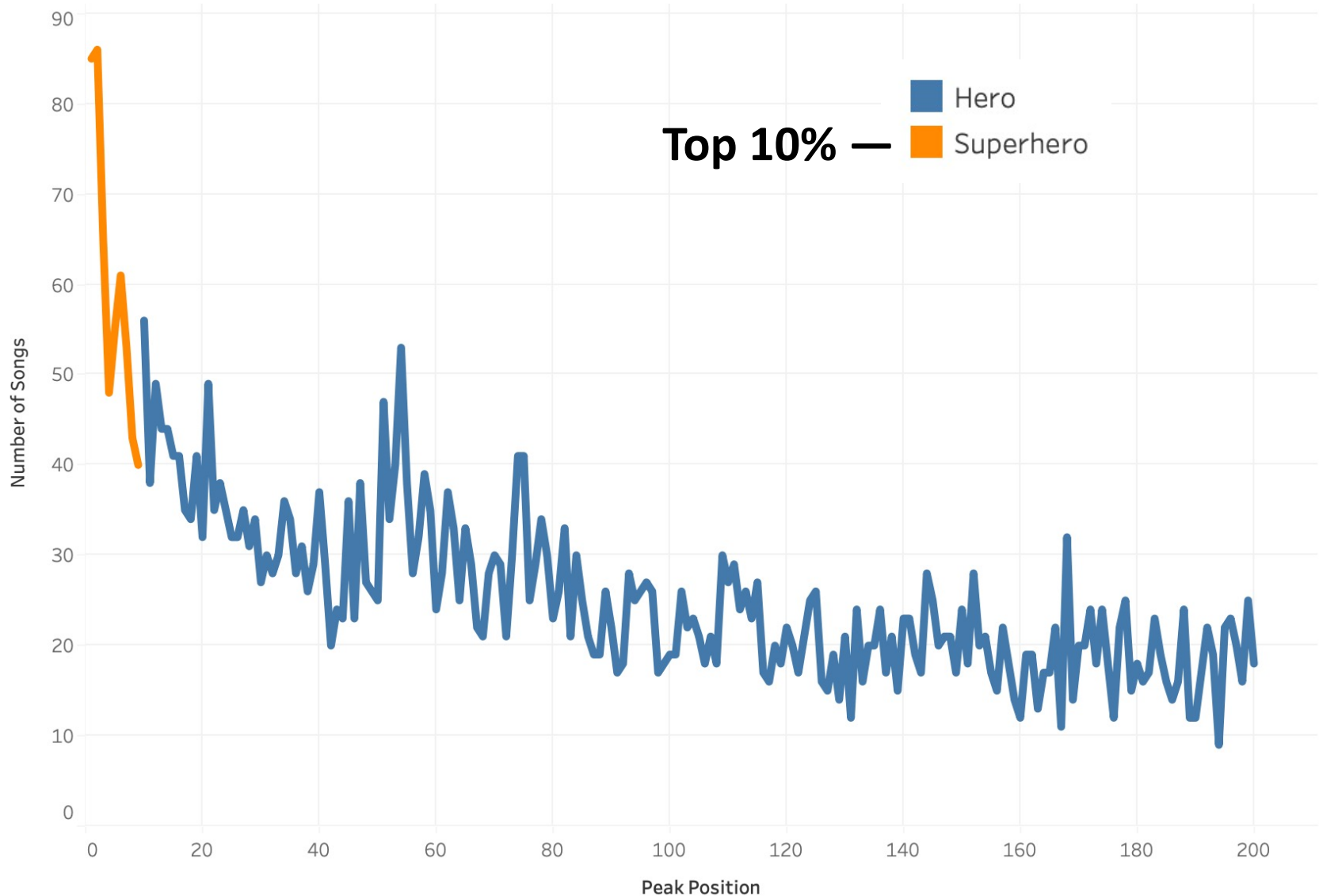
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# Success Metric: Peak Streaming Position Achieved

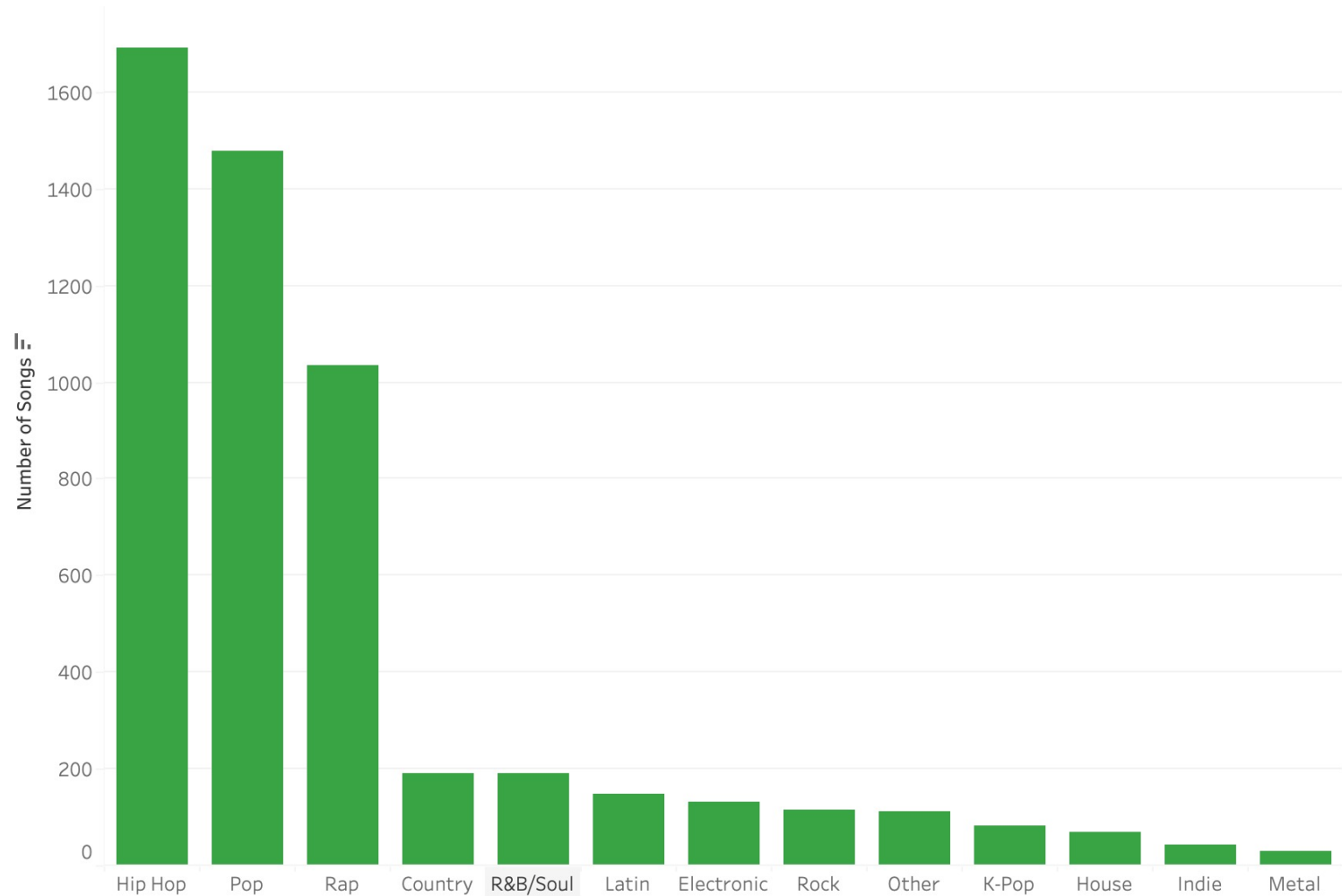


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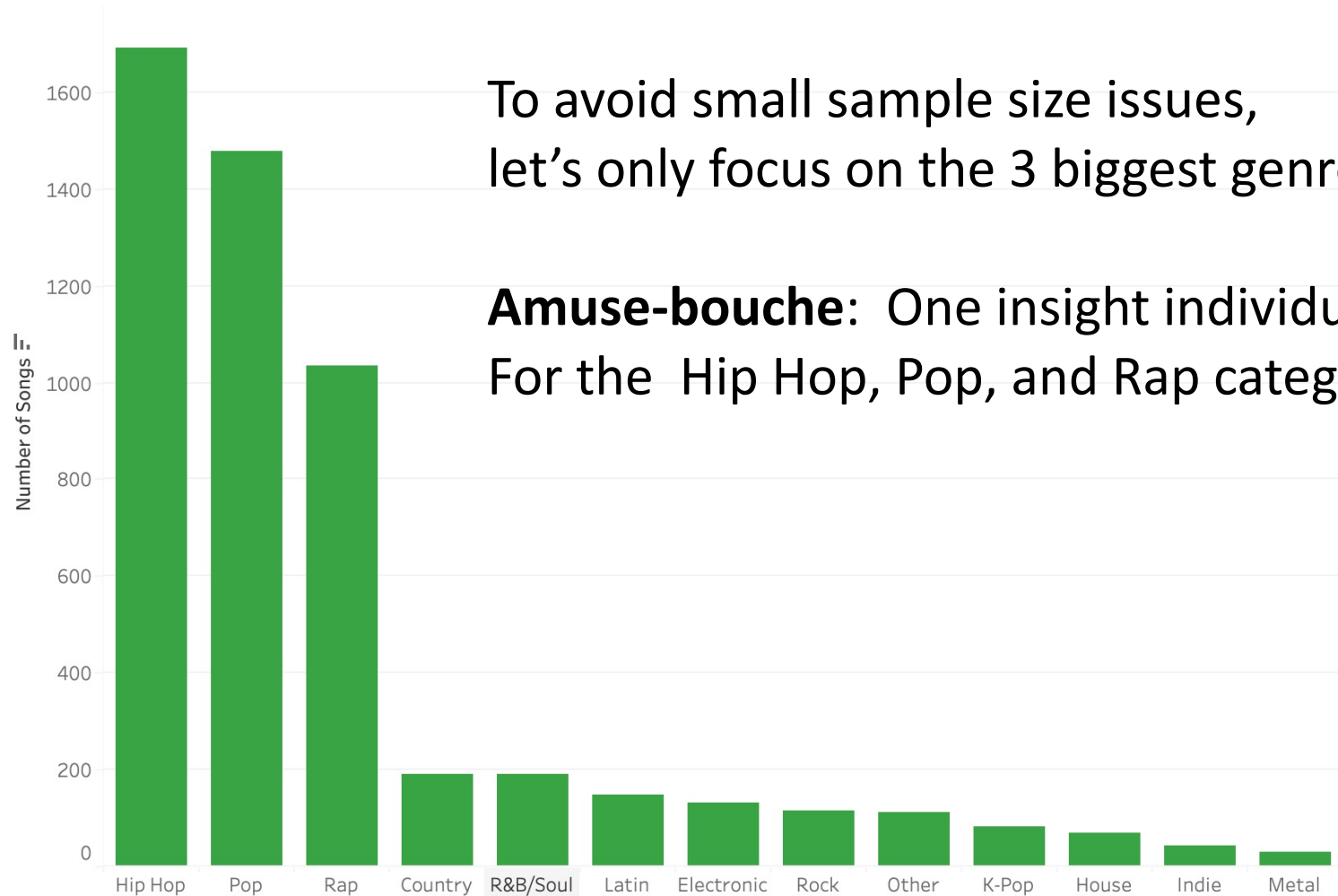




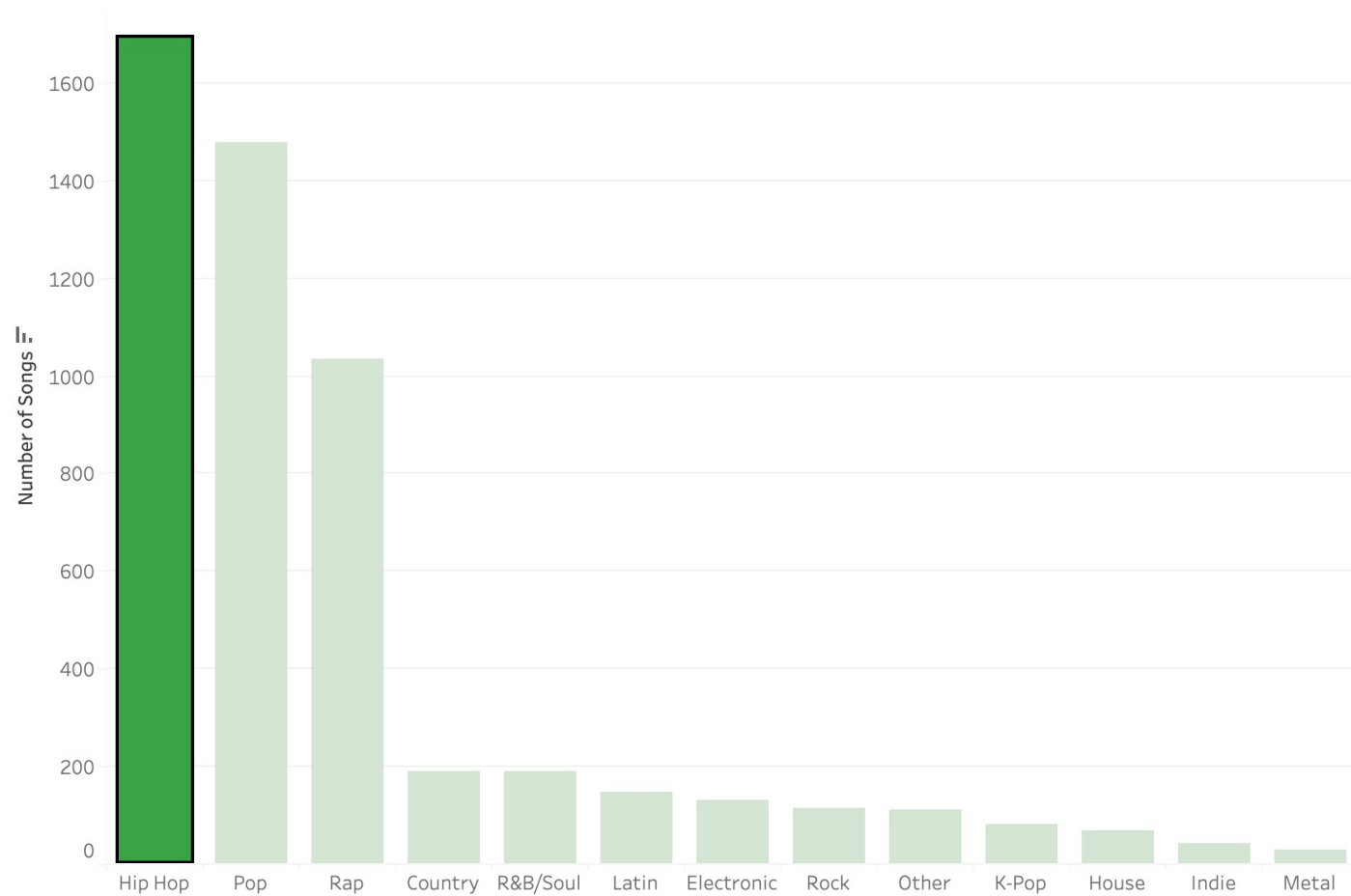
# Breakdown by Genre



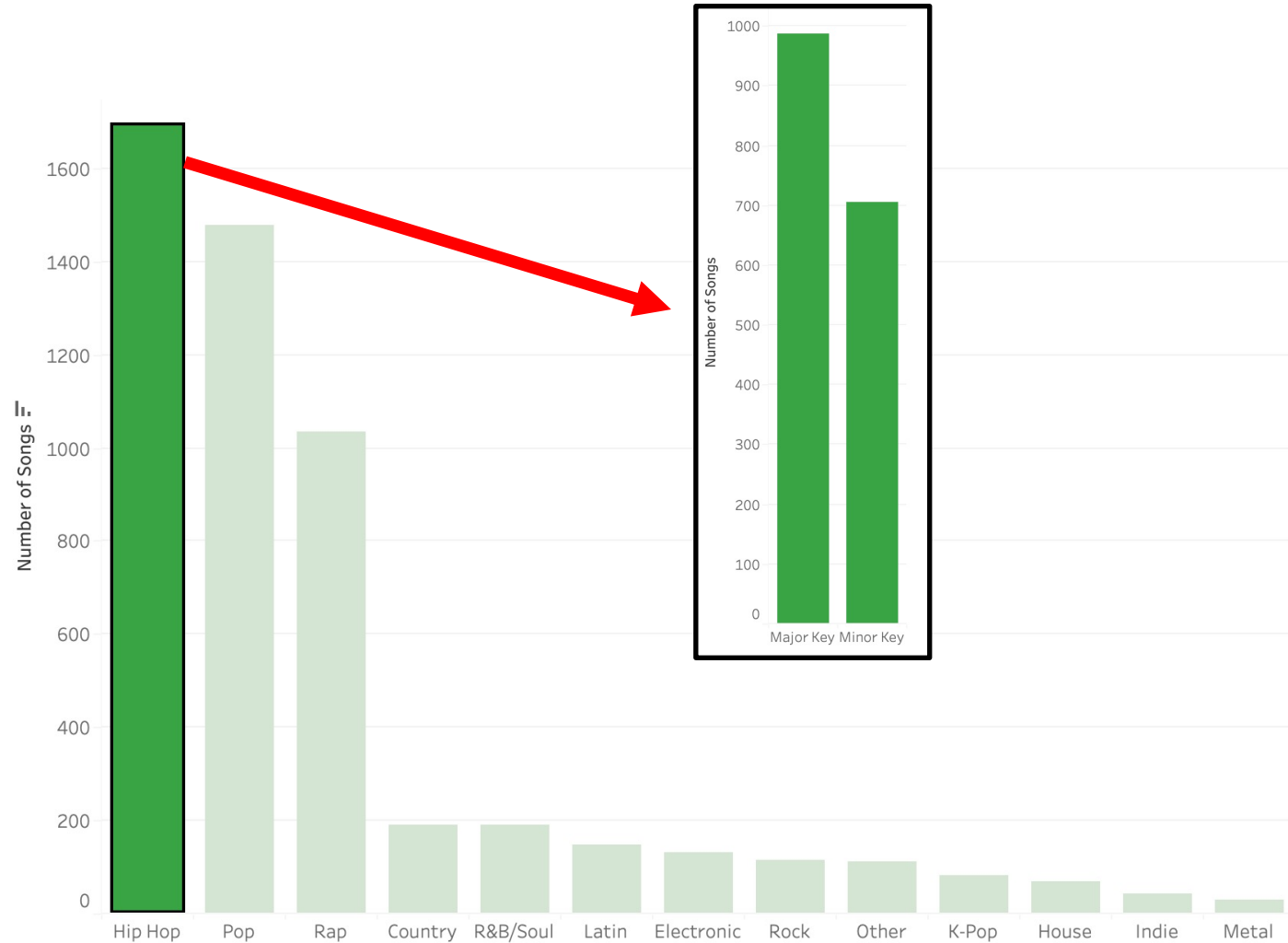
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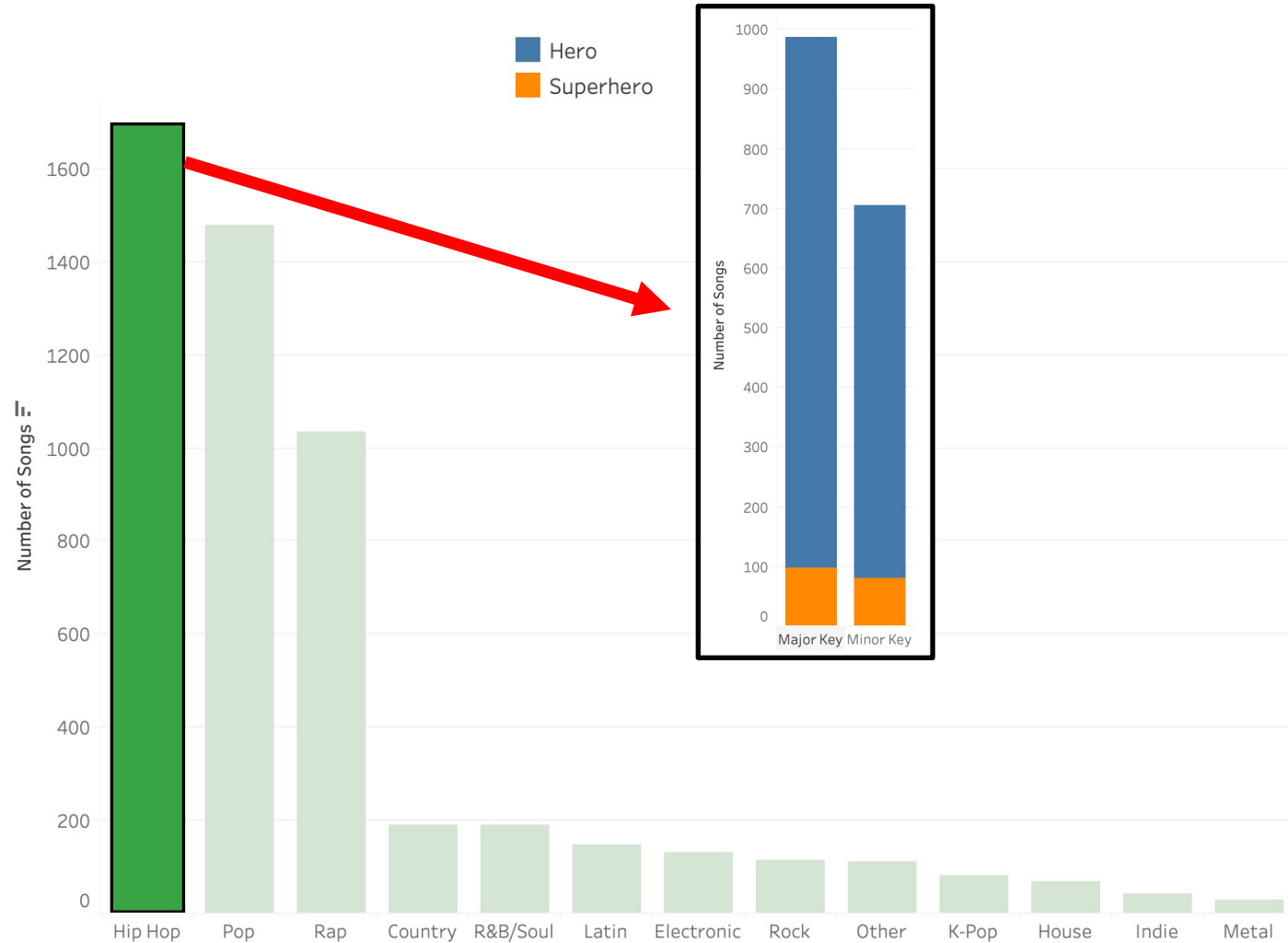
# Let's Focus on Hip Hop First



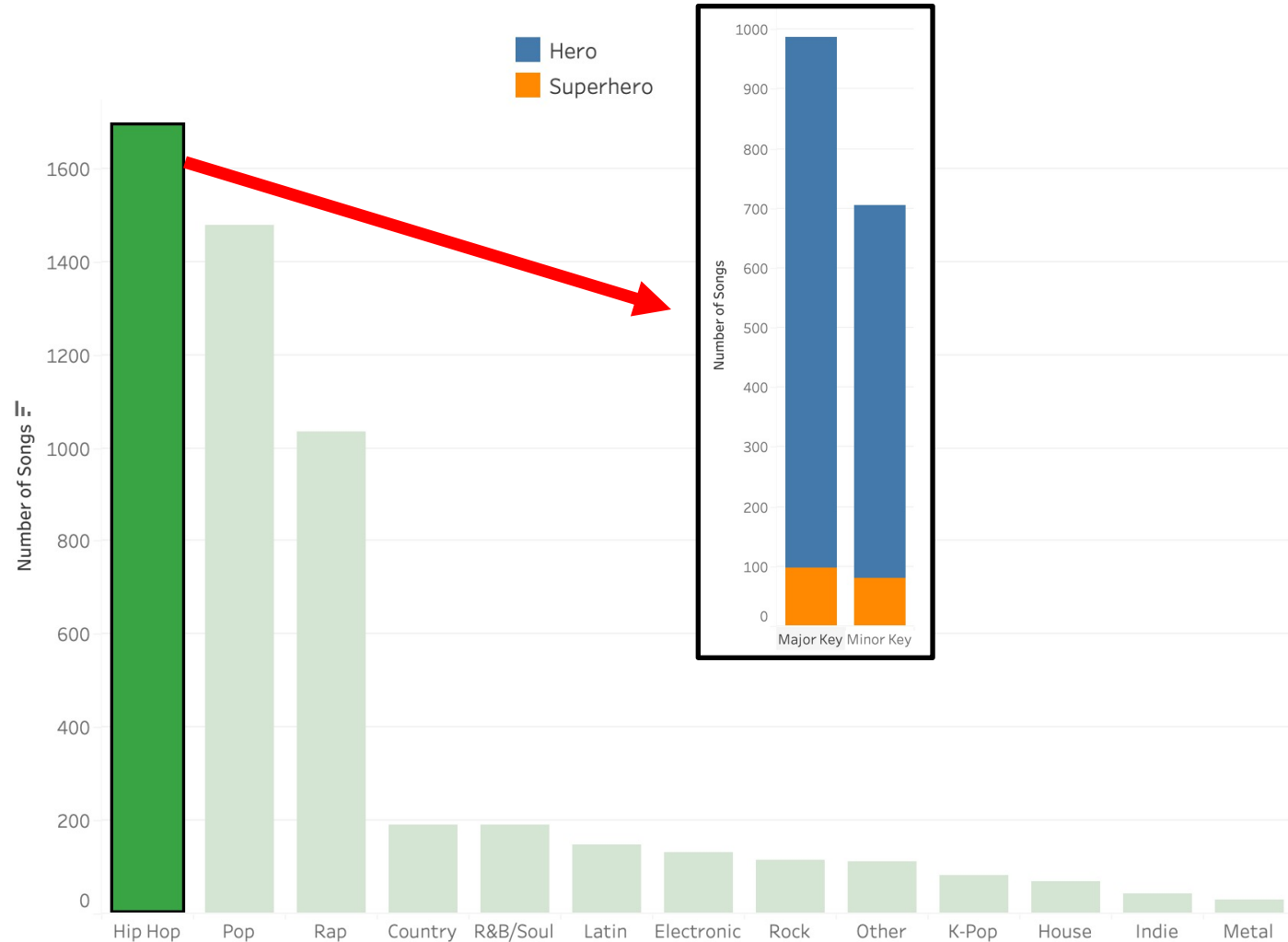
# Hip Hop Insight: Modality (Major vs Minor Key)



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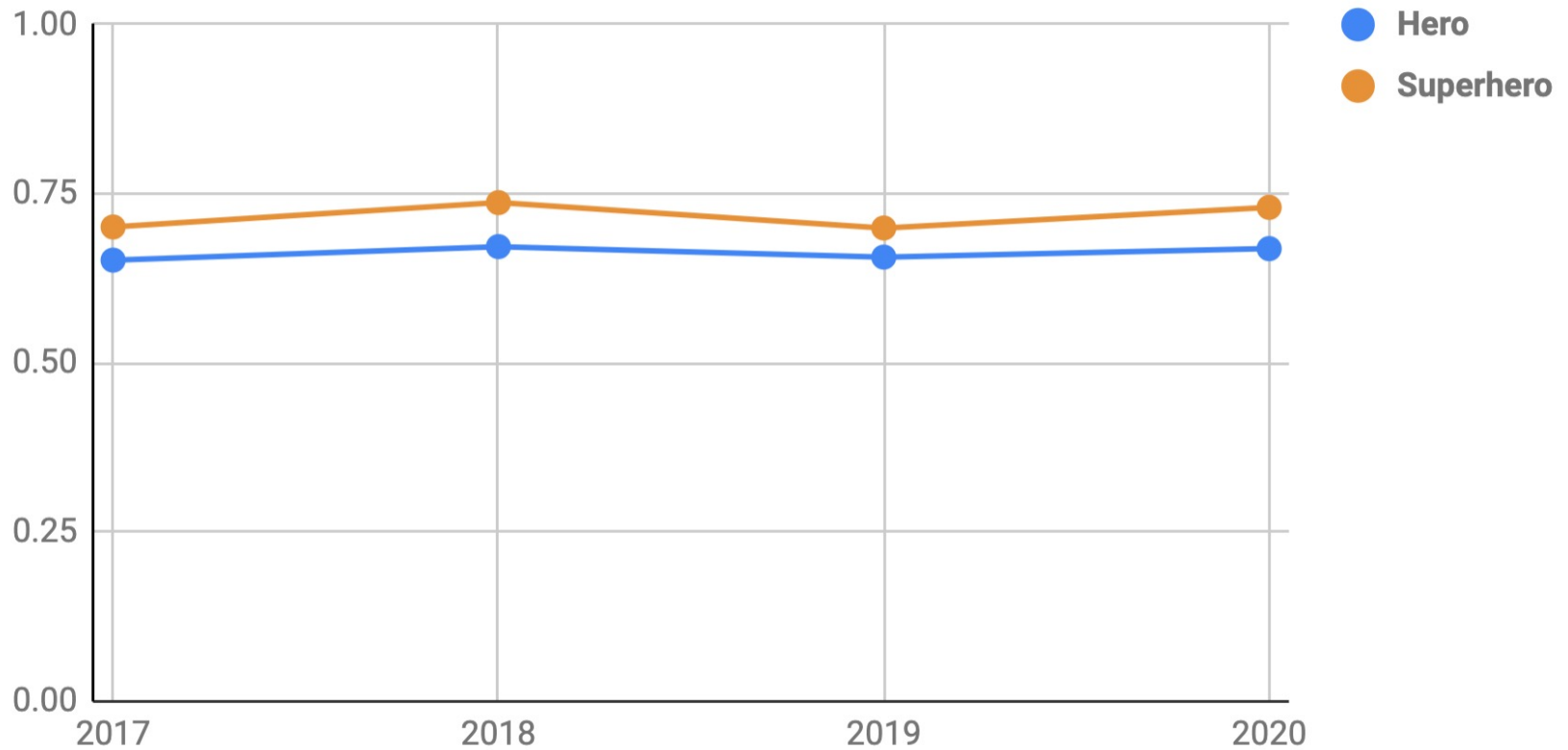


**Hip Hop Takeaway:** Slightly more major key superheroes  
BUT higher superhero/hero ratio for songs in minor key



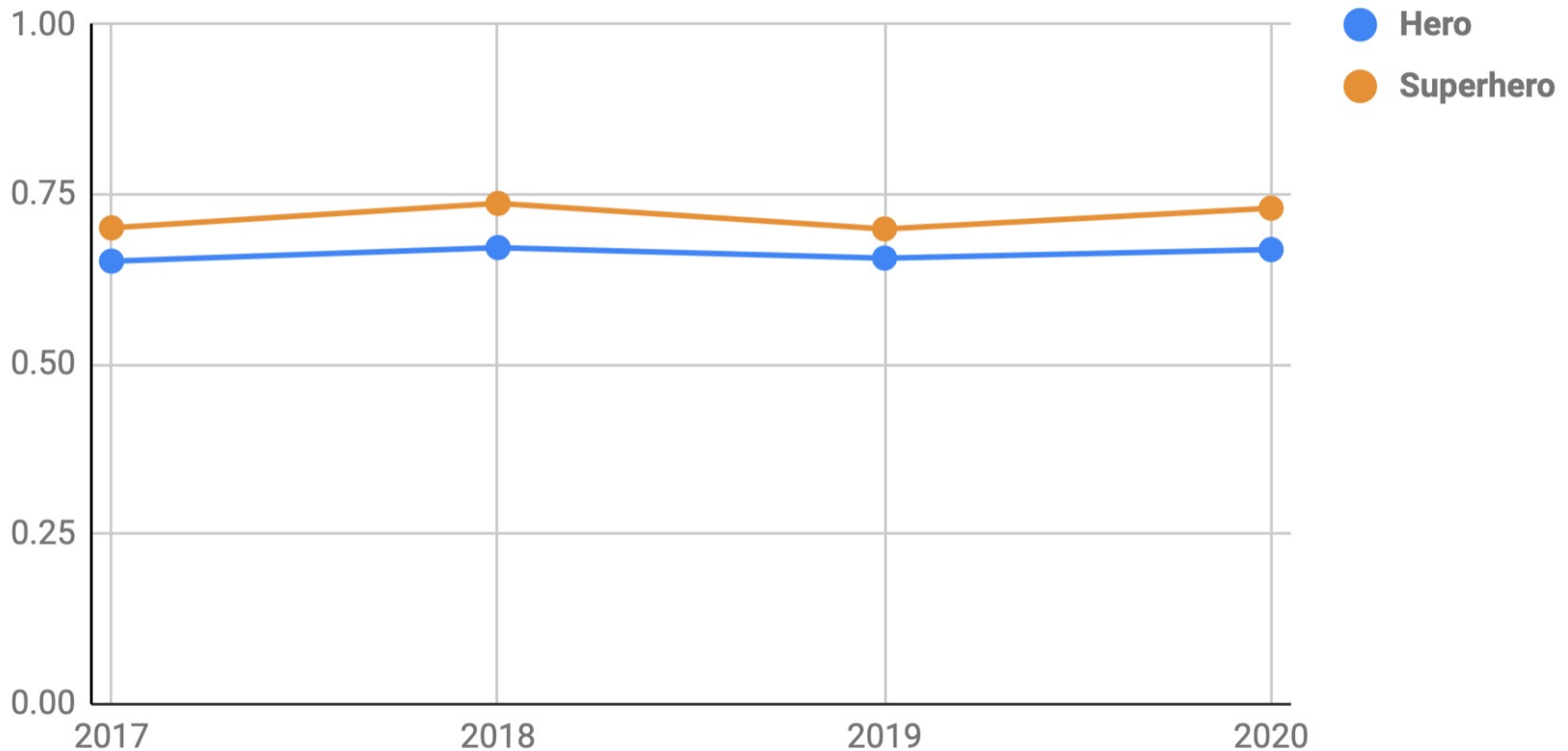
# Pop Insight: Danceability & Year

## Median Danceability of Pop Songs by Year



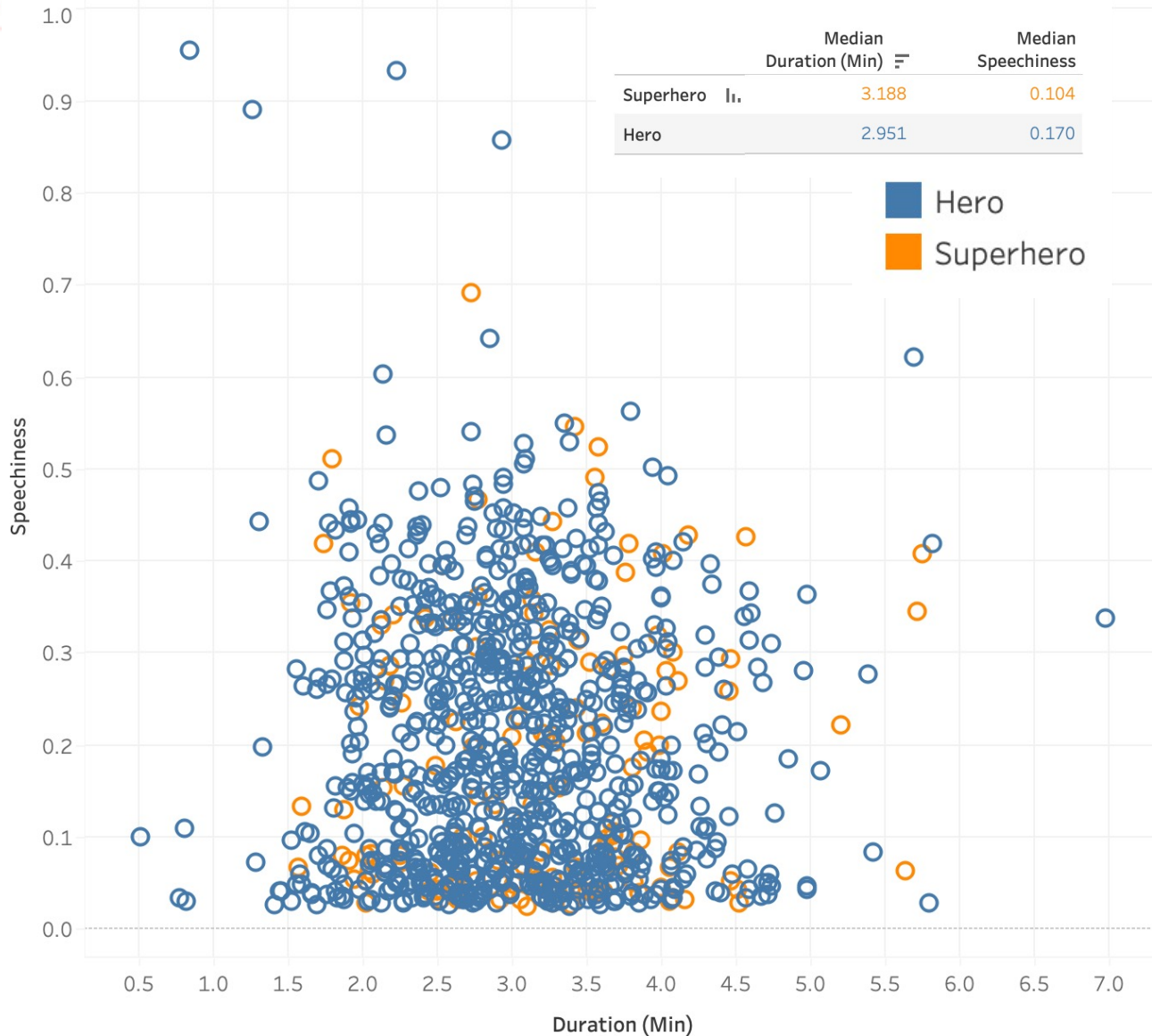
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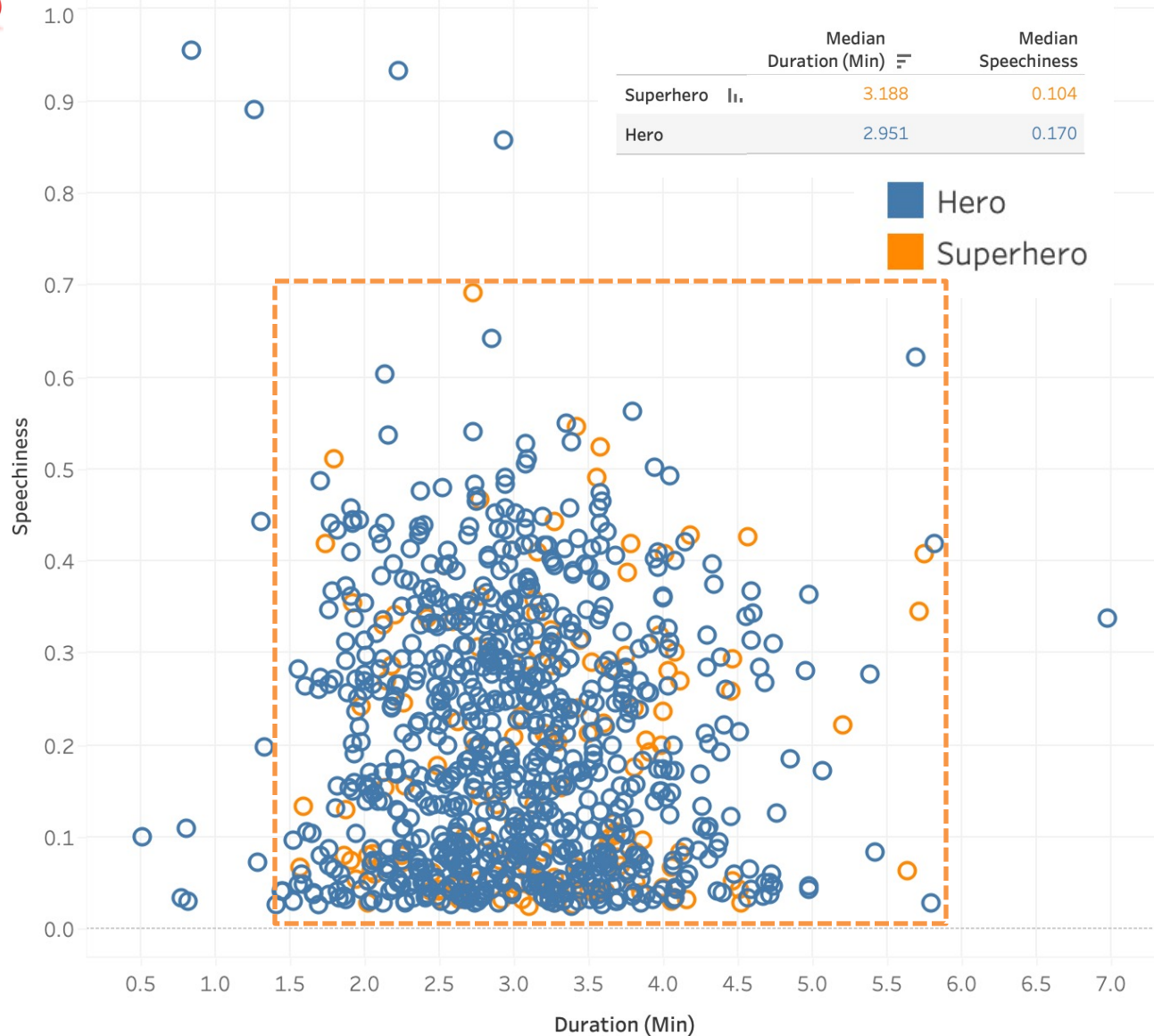


**Pop Takeaway:** Superheroes have higher median danceability than heroes in all four years

# Rap Insight: Song Duration & Speechiness



# Rap Insight: Song Duration & Speechiness



# Three Free Takeaways



**Hip Hop Takeaway:** Slightly more major key Superheroes, BUT higher superhero/hero ratio for songs in minor key



**Pop Takeaway:** Superheroes have higher median danceability than heroes in all four years



**Rap Takeaway:** Superheroes have longer duration and lower speechiness than heroes, but stay within tighter bounds on both axes!



# Future Work

- More sophisticated genre classification
- More features (e.g. NLP lyrics analysis)
- Different superhero metrics (e.g. longevity)
- Machine Learning models for prediction and interpretation (Regression, Classification, Time Series Analysis)
- New Frontiers: Radio and DJ playlist recommendations, Grammy award candidacy



**Thank You!**





# Spotify API Feature Descriptions

## danceability

Danceability describes how suitable a track is for dancing based on a combination of musical elements including tempo, rhythm stability, beat strength, and overall regularity. A value of 0.0 is least danceable and 1.0 is most danceable.

## valence

A measure from 0.0 to 1.0 describing the musical positiveness conveyed by a track. Tracks with high valence sound more positive (e.g. happy, cheerful, euphoric), while tracks with low valence sound more negative (e.g. sad, depressed, angry).



## energy

Energy is a measure from 0.0 to 1.0 and represents a perceptual measure of intensity and activity. Typically, energetic tracks feel fast, loud, and noisy. For example, death metal has high energy, while a Bach prelude scores low on the scale. Perceptual features contributing to this attribute include dynamic range, perceived loudness, timbre, onset rate, and general entropy.

## speechiness

Speechiness detects the presence of spoken words in a track. The more exclusively speech-like the recording (e.g. talk show, audio book, poetry), the closer to 1.0 the attribute value. Values above 0.66 describe tracks that are probably made entirely of spoken words. Values between 0.33 and 0.66 describe tracks that may contain both music and speech, either in sections or layered, including such cases as rap music. Values below 0.33 most likely represent music and other non-speech-like tracks.

# Kaggle Genres

<i>Genre New</i>	COUNT of Duration (
Boy Band	78
Country	190
Dance/Electronic	133
Funk	1
Hip Hop	1692
House	70
Indie	44
Jazz	1
K-Pop	82
Latin	141
Metal	28
Other	109
Pop	1400
R&B/Soul	189
Rap	1008
Reggaeton	7
Rock	114
Trap	27
<b>Grand Total</b>	<b>5314</b>