

## Idea Mapping of DS 350 Spring 2025

Coming out of Fall 2024, we shifted our focus away from TikTok's tradwife content and began exploring how mom influencers promote parenting or baby products in their videos. We tested models like CLIP AI and Vertex AI to see if machine learning tools could detect product placements and identify the items being marketed. However, we quickly realized that we lacked a foundational understanding of what constitutes a sponsored video or product placement, and that the topic required a more grounded and scalable approach.

To reorient, we broadened our scope from mom influencers to a more structured analysis of company brand pages and marketing tactics on TikTok. Our working hypothesis became: if a creator appears in multiple videos associated with the same brand, whether through direct hashtags or brand tags, we can reasonably assume the presence of a brand partnership or deal.

In shaping our methodology, we drew on previous work. In 2019, Barnes and Rutter explored how different influencer-product combinations impacted user engagement. Using Inception V3 CNN to classify top Instagram influencers in the UK, their findings emphasized the importance of brand-influencer fit. Influencers who naturally aligned with a product's image drove stronger engagement. In 2021, they returned with an improved framework that confirmed network size and content volume also increased engagement. Both studies support the idea that authenticity and fit drive value in influencer marketing.

More recently, Walsh (2024) proposed an inverse relationship between audience size and perceived authenticity: large creators may trigger more skepticism when promoting brands, while smaller or niche creators appear more credible. Although Walsh's study was survey-based, we aim to build on it by mass-collecting TikTok data and analyzing engagement patterns at scale in the beauty industry, one of the highest-performing sectors in social media marketing.

To capture a diverse landscape of marketing strategies, we selected 10 beauty brands across four market tiers:

- **Drugstore Brands:** Elf Cosmetics, NYX Cosmetics, Maybelline New York
- **Emerging Brands:** Topicals, Wonderskin
- **Well-Established Brands:** Rare Beauty, Milk Makeup, Saie Beauty
- **Luxury Brands:** Armani Beauty, Estee Lauder

We used Pyktok, an open-source TikTok scraping tool, to collect public video metadata between 2020 and 2024 (focusing on February, March, September, and October, the key months for international Fashion Weeks). This selection assumes that beauty brands increase content output and influencer collaborations during global fashion events.

We created two types of datasets:

1. Videos tagged with sponsorship-related hashtags (e.g., #elfpartner, #armanibeautypartner)

## 2. Videos posted directly by the brand's TikTok page, often featuring tagged creators

This dual-dataset approach allows us to compare brand-creator visibility from both the influencer and brand perspectives, helping us assess the consistency and strategy behind sponsored collaborations.

For brand-page videos, we used regex to extract creator usernames from video descriptions. The pattern performs well when handling spaced names (e.g., @Melis Ekrem) by checking if the second word is capitalized. However, we encountered edge cases where trailing metadata (e.g., @victoriamagrath\_Co) distorted the real usernames, requiring additional post-processing.

There are also occasional failures or request errors when pulling creator-level metadata, particularly when usernames include emojis or special characters, highlighting the need for more trials and testing in future iterations.

To start our analysis, we focused on the hashtag datasets, specifically looking at top 50 creators per brand based on average views, likes, and follower counts. The results gave us insight into brand-specific influencer strategies and audience engagement patterns:

### **Brand-Level Insights** (see figures below to reference) \*graphs are boxplots

- Armani Beauty featured creators with some of the highest follower counts (often exceeding 1M), but their video engagement was highly variable. This suggests a focus on prestige over consistency in viewer response.
- Elf maintained a strong balance between mid-tier creators (100K–500K) and high engagement, indicating a well-optimized creator selection strategy.
- Rare Beauty and Milk Makeup creators consistently achieved high average views and likes, despite having fewer followers than Armani creators. This reflects the power of authenticity and emotional resonance in product storytelling.
- Topicals and Wonderskin primarily partnered with micro- to mid-tier creators, yet their engagement metrics were often competitive with larger brands. This suggests that niche targeting and creator-brand fit may outweigh raw audience size.

### **Main Takeaways**

- Creator follower count is not a reliable predictor of engagement. In many cases, smaller creators outperformed their more famous peers in average views and likes.
- Brand strategies vary by market tier. Luxury brands prioritize scale and image, while emerging brands often find success with authentic, highly aligned partnerships.
- Engagement consistency is a better proxy for effective marketing than sheer reach.

### **Future Directions**

In the next phase of our work, we plan to:

- Conduct a deeper literature review around social marketing influence, algorithmic virality, and brand storytelling on TikTok
- Refine our data collection and regex techniques to improve the reliability of creator identification

- Perform qualitative video analysis on top-performing posts to uncover narrative strategies, aesthetic patterns, and product positioning tactics
- Cross-analyze brand pages and hashtag datasets to detect overlapping creators and long-term influencer partnerships

# Armani Beauty

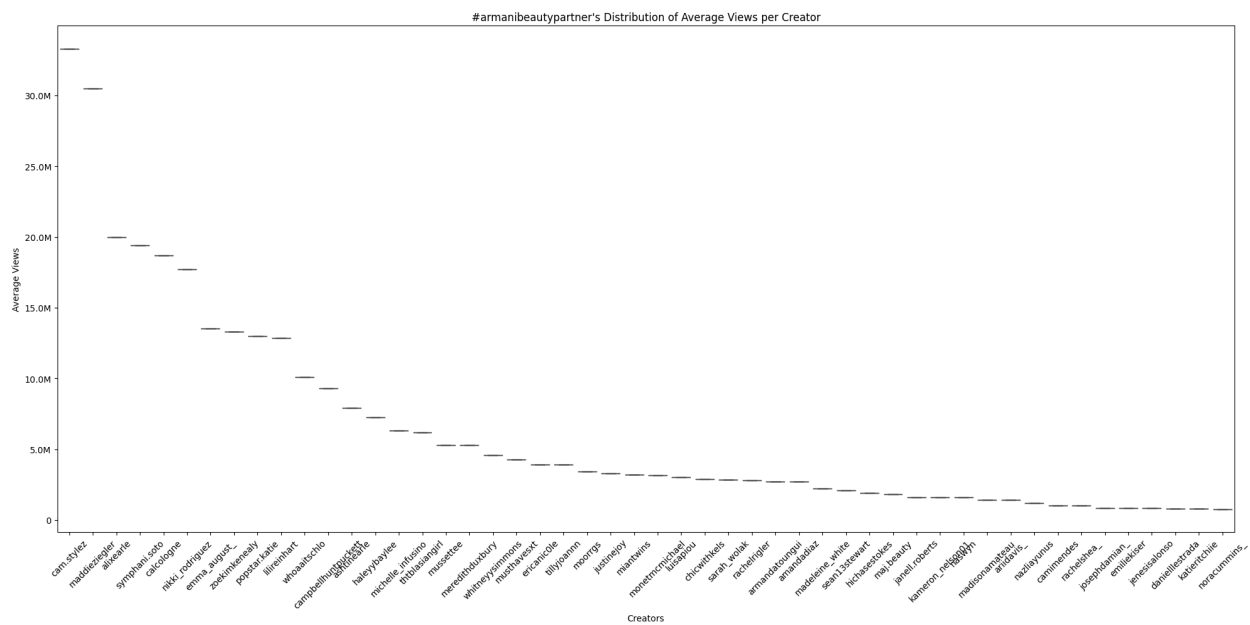


Figure 1.

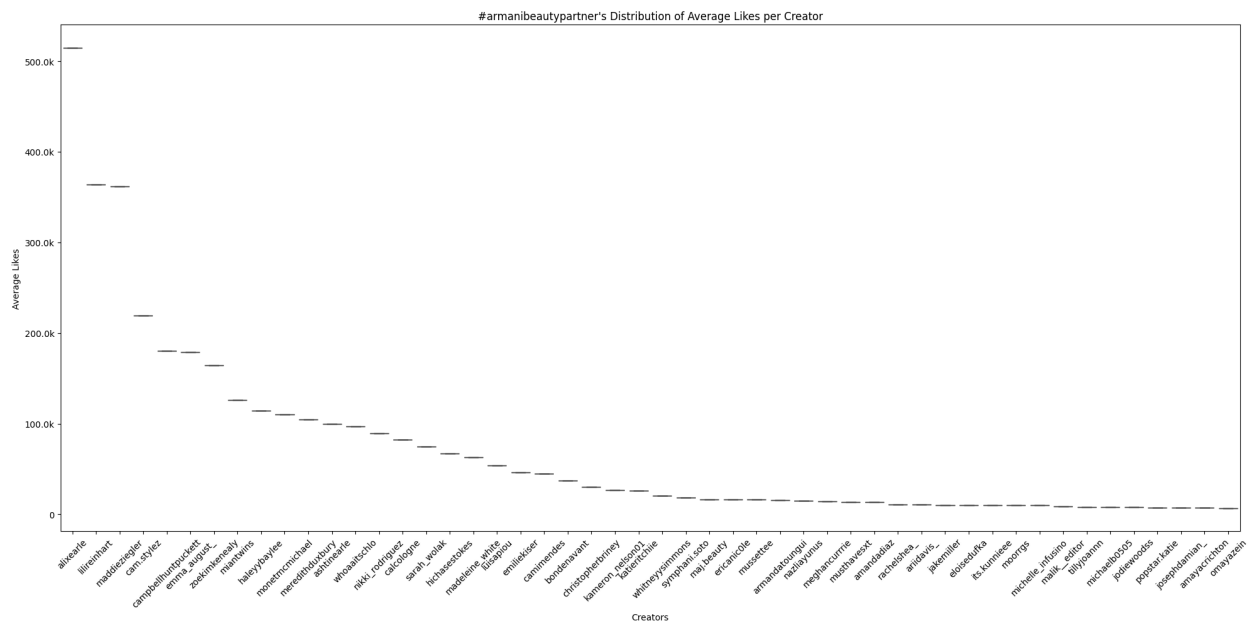


Figure 2.

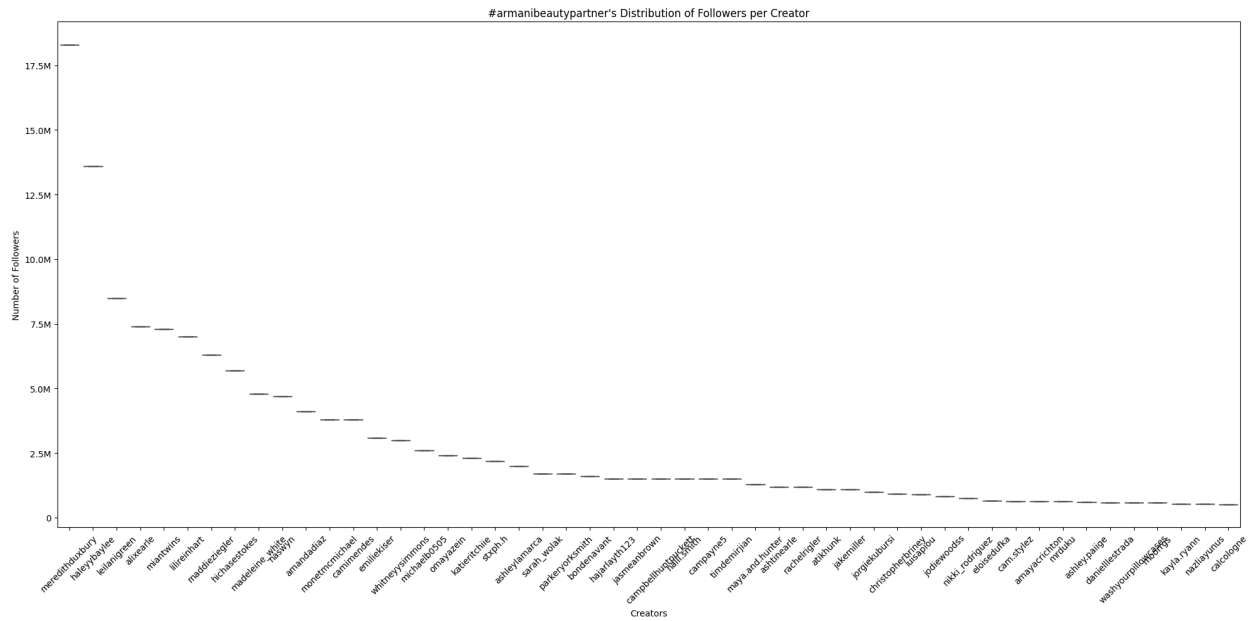


Figure 3.

### Elf Cosmetics

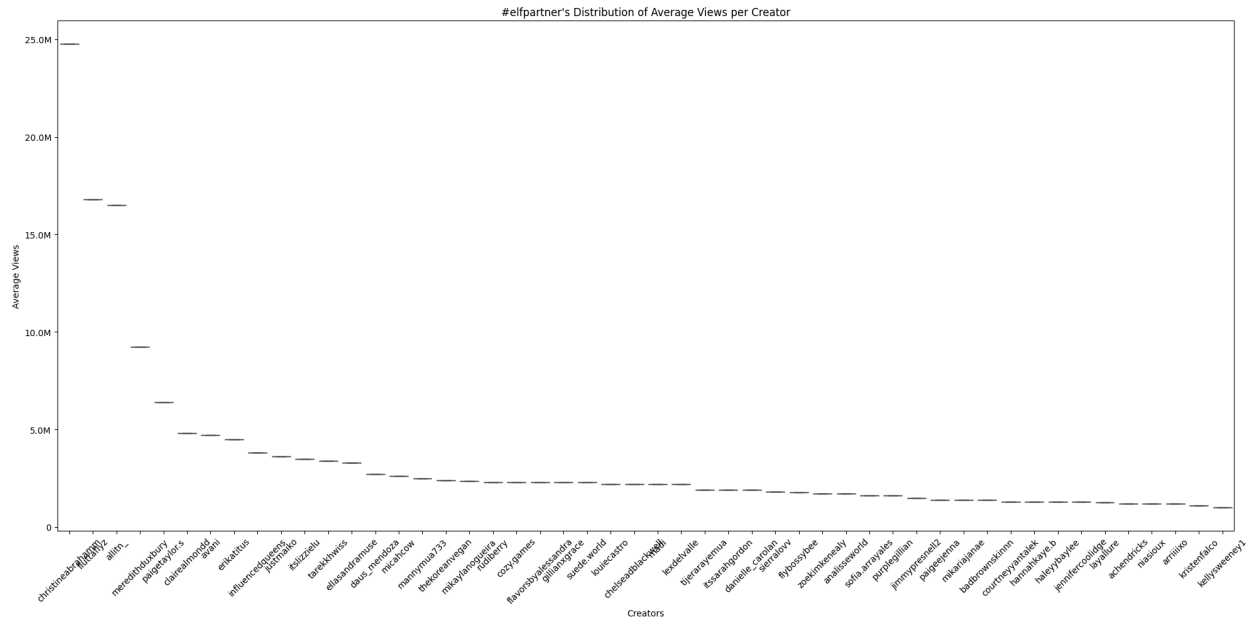


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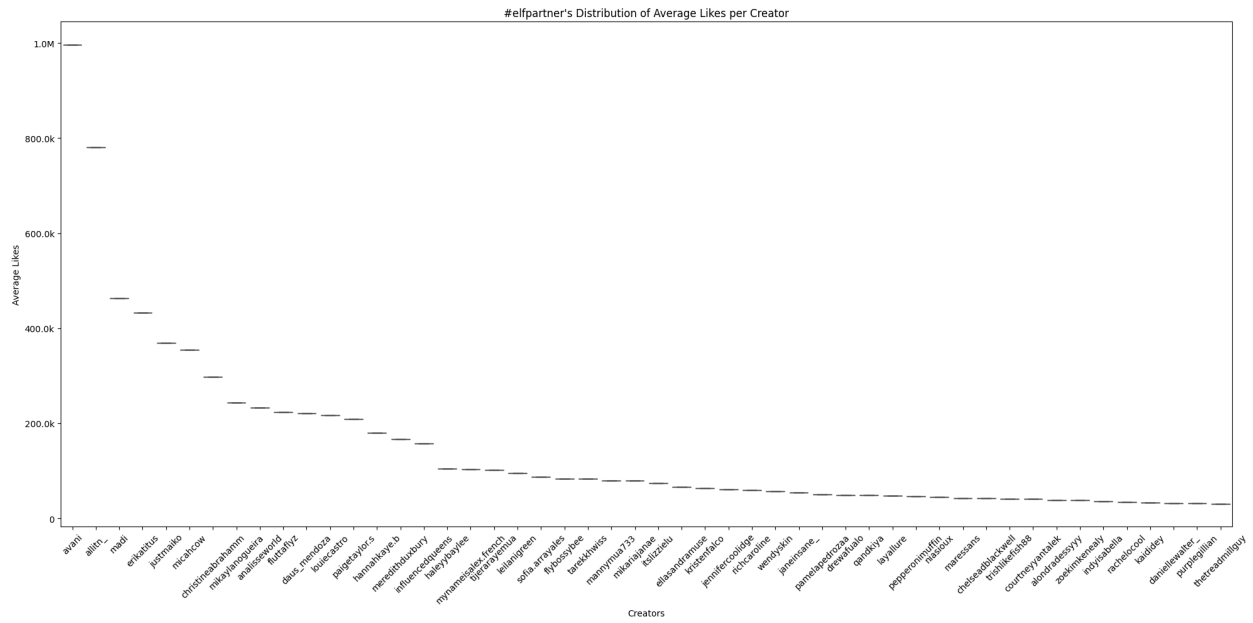


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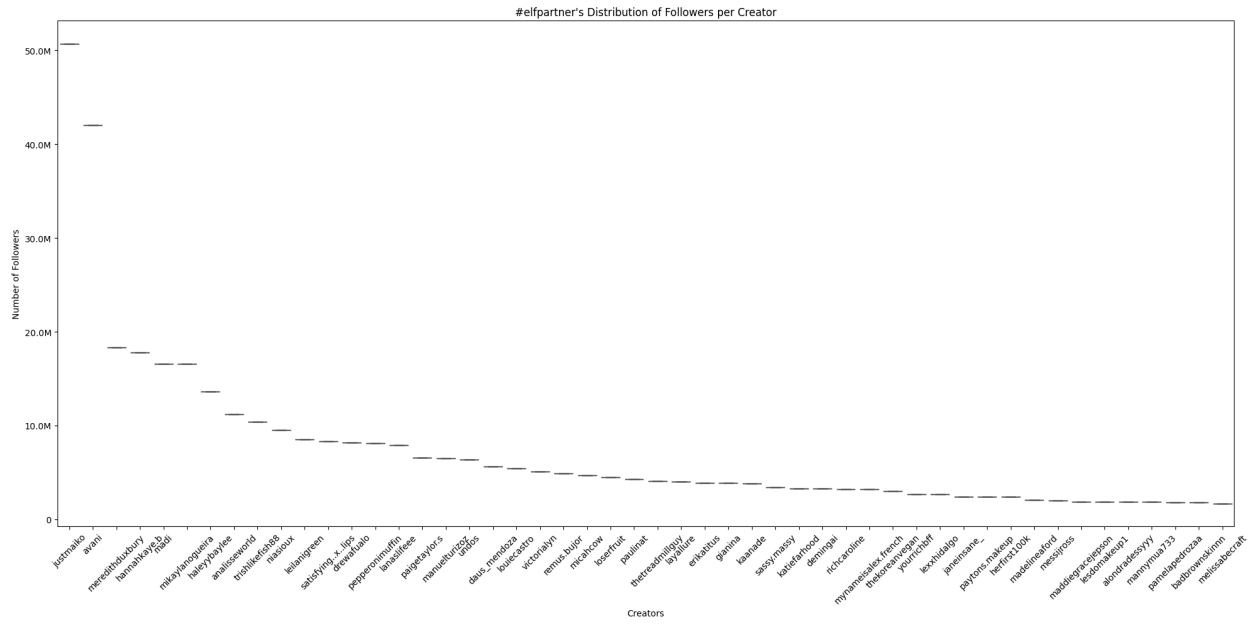


Figure 6.

Estee Lauder

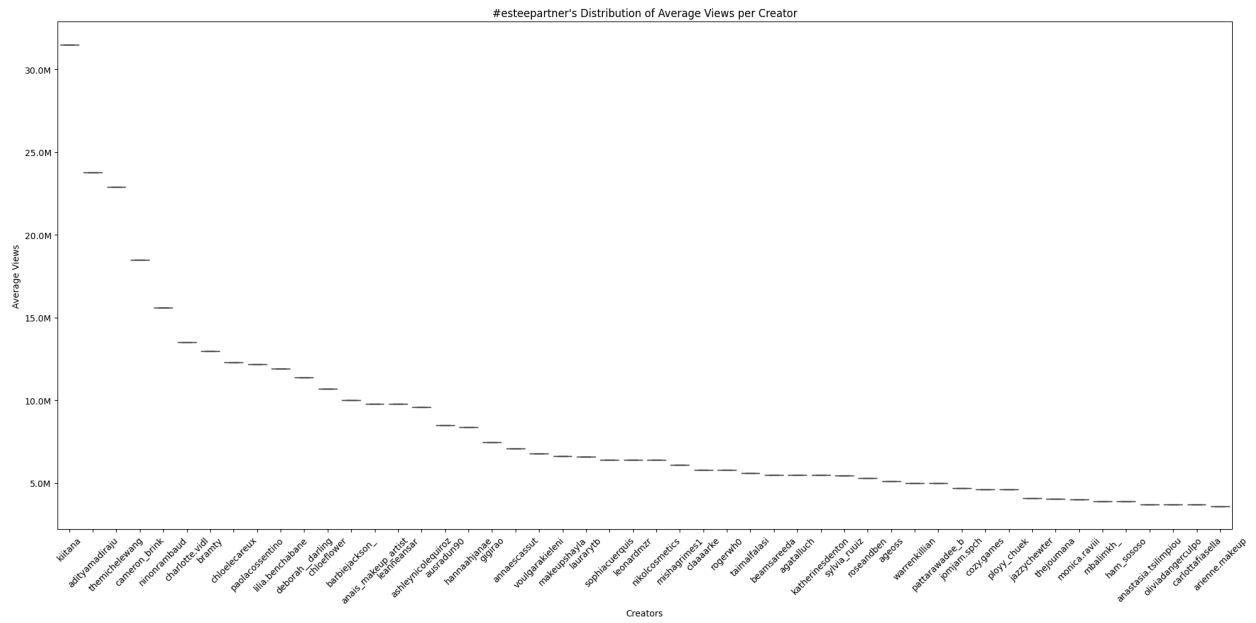


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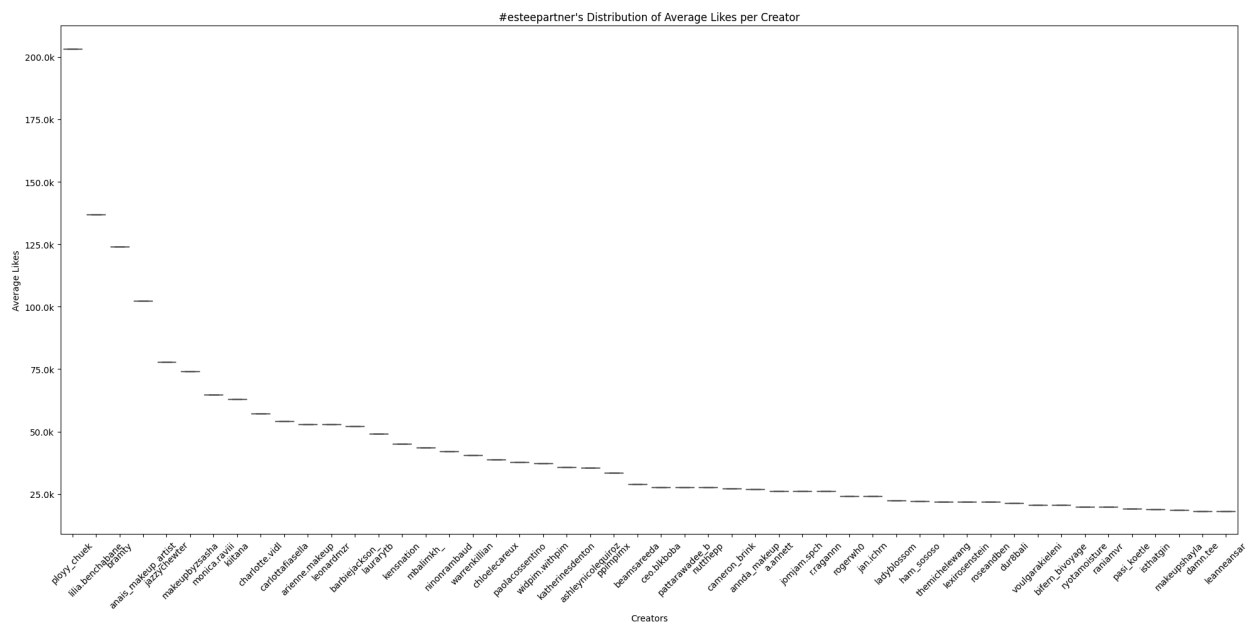


Figure 8.





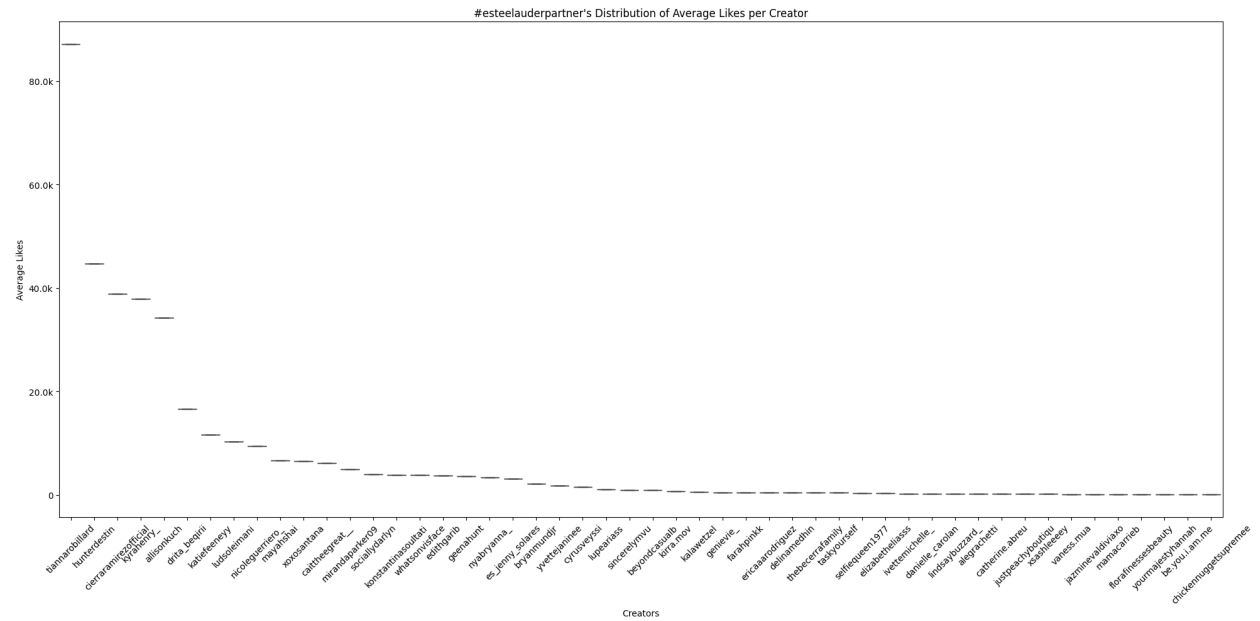


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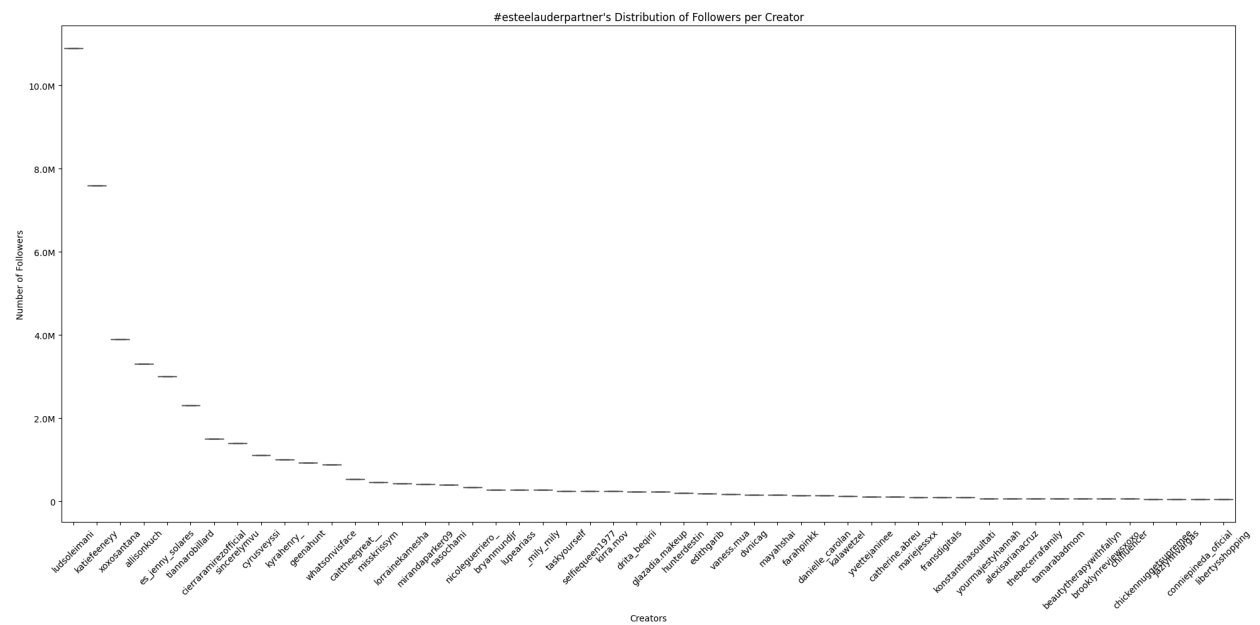


Figure 12.

## Maybelline New York

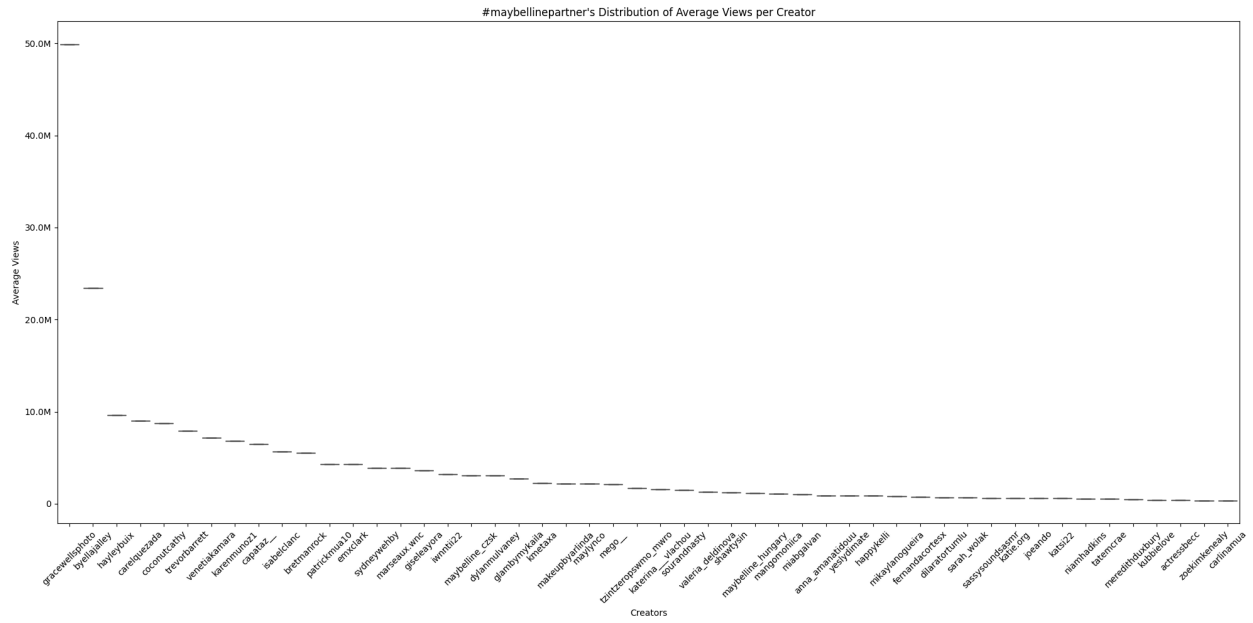


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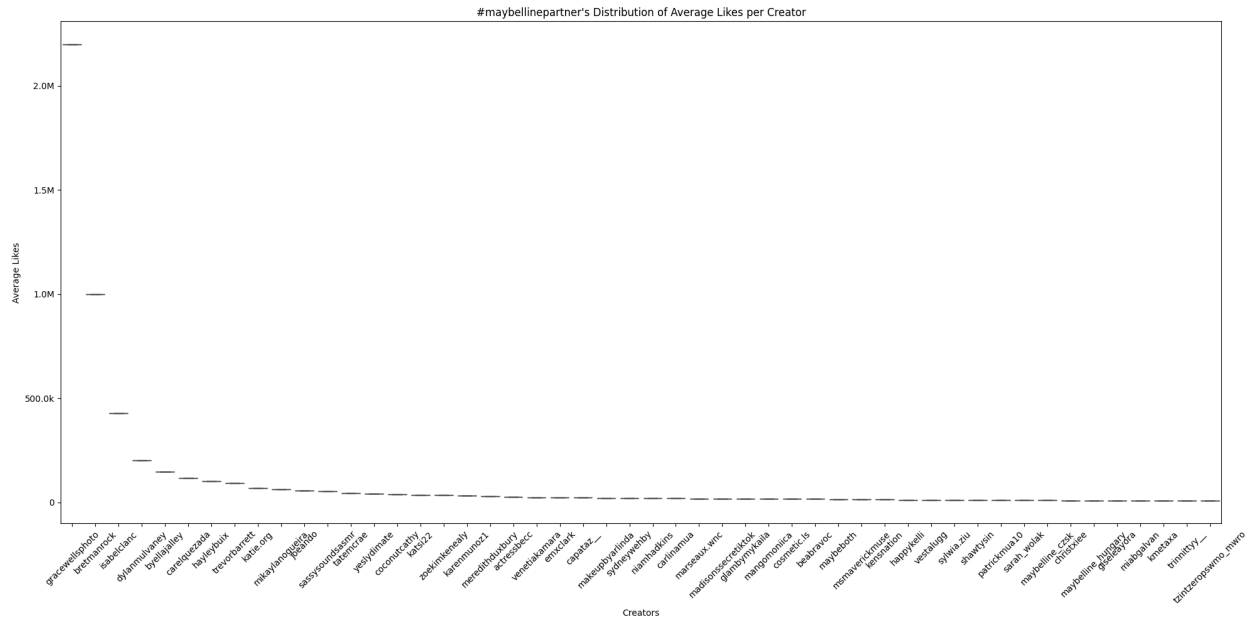


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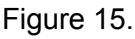


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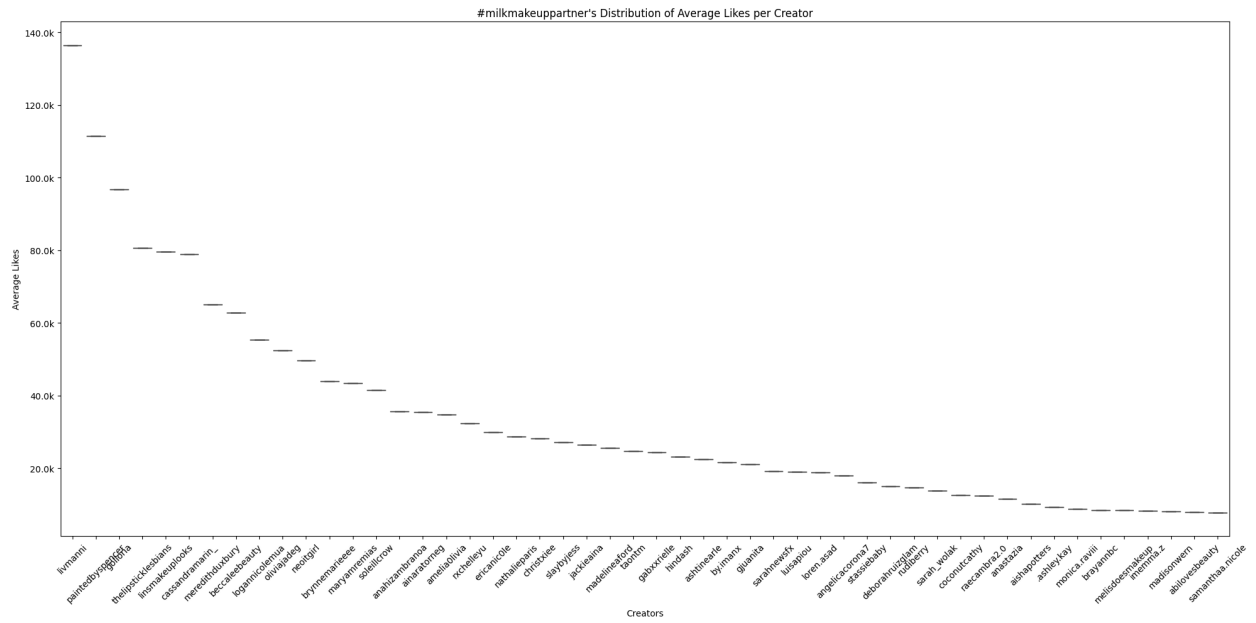


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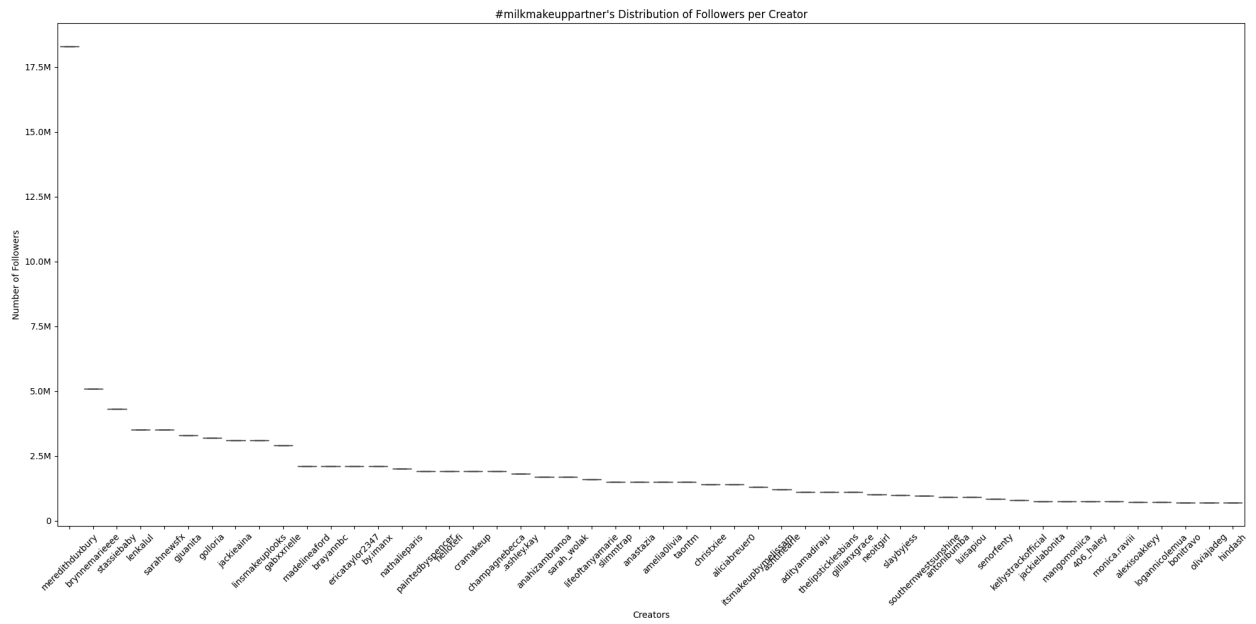


Figure 18.

**NYX Cosmetics**

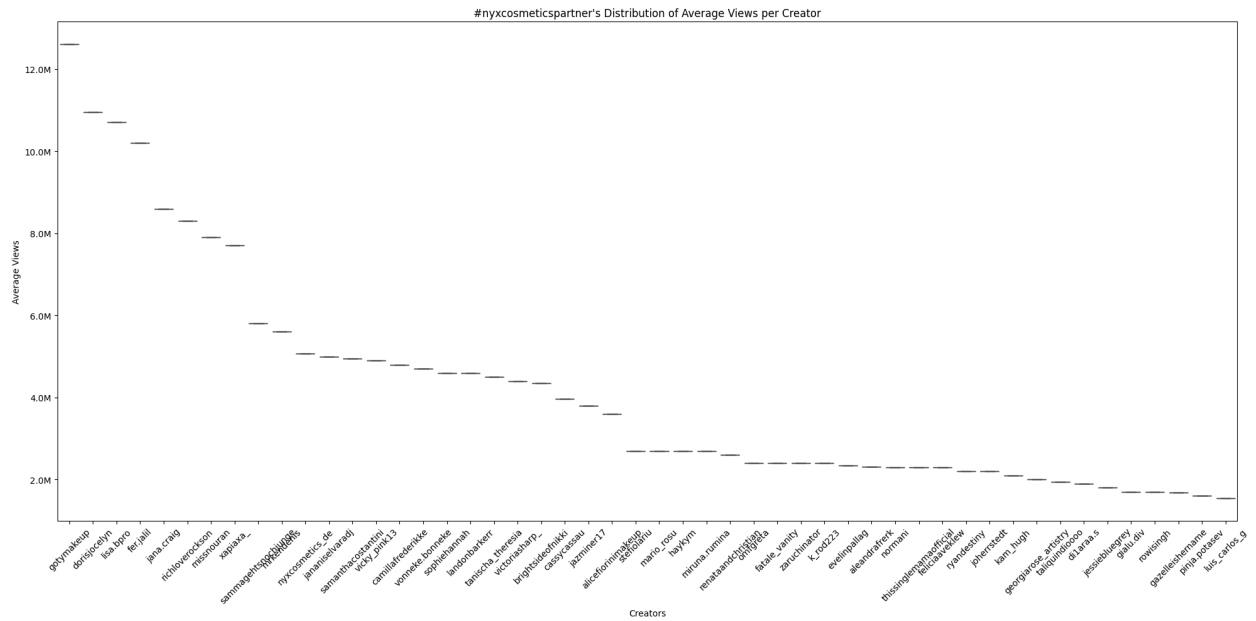


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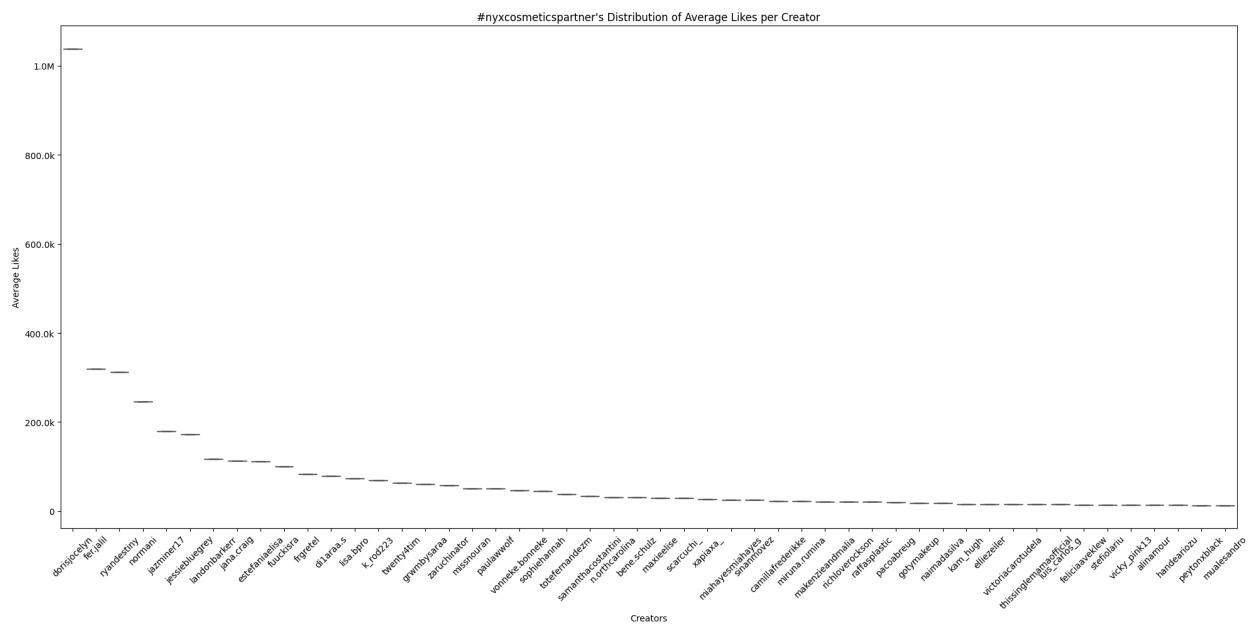


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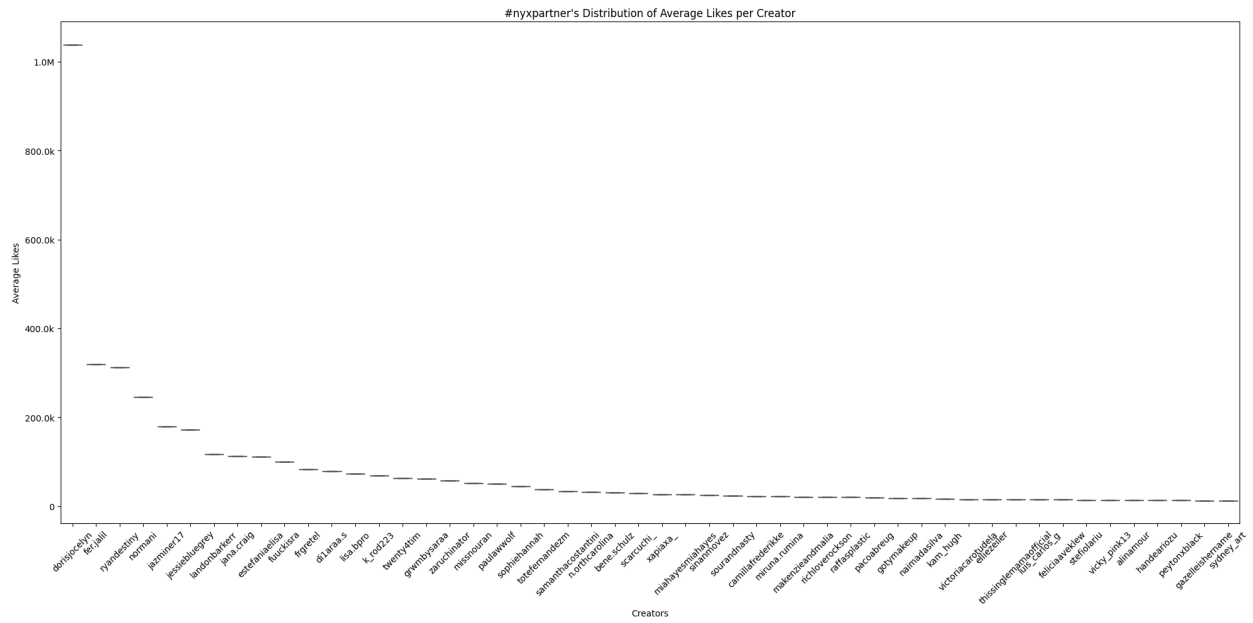


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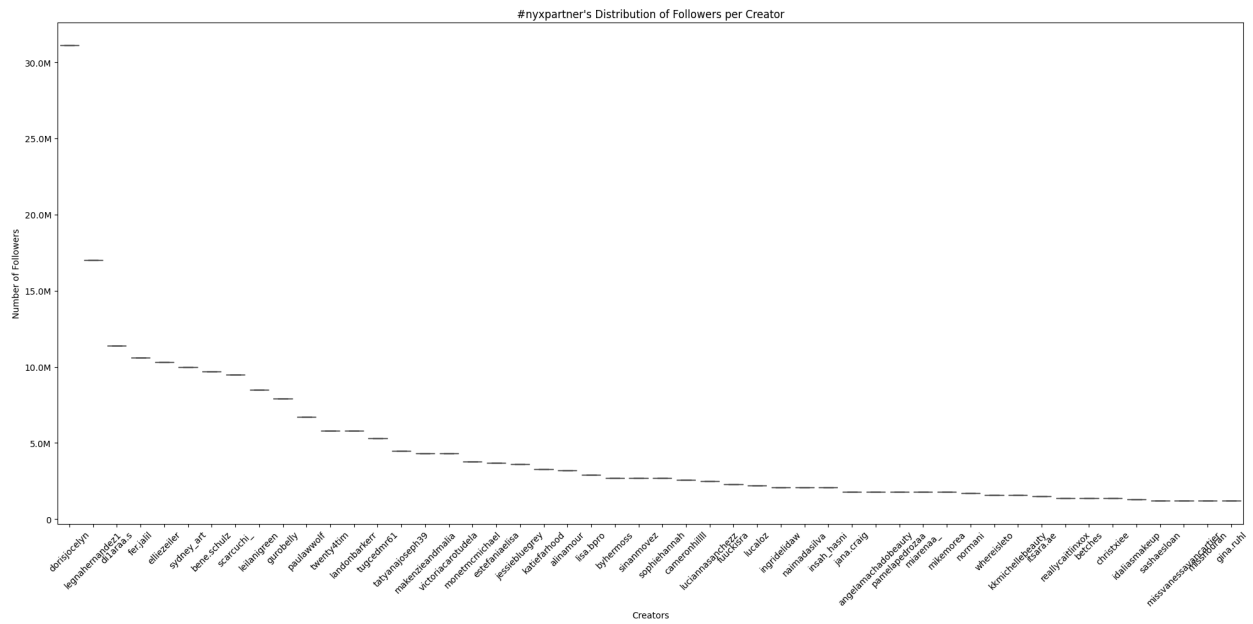


Figure 24.

# Rare Beauty

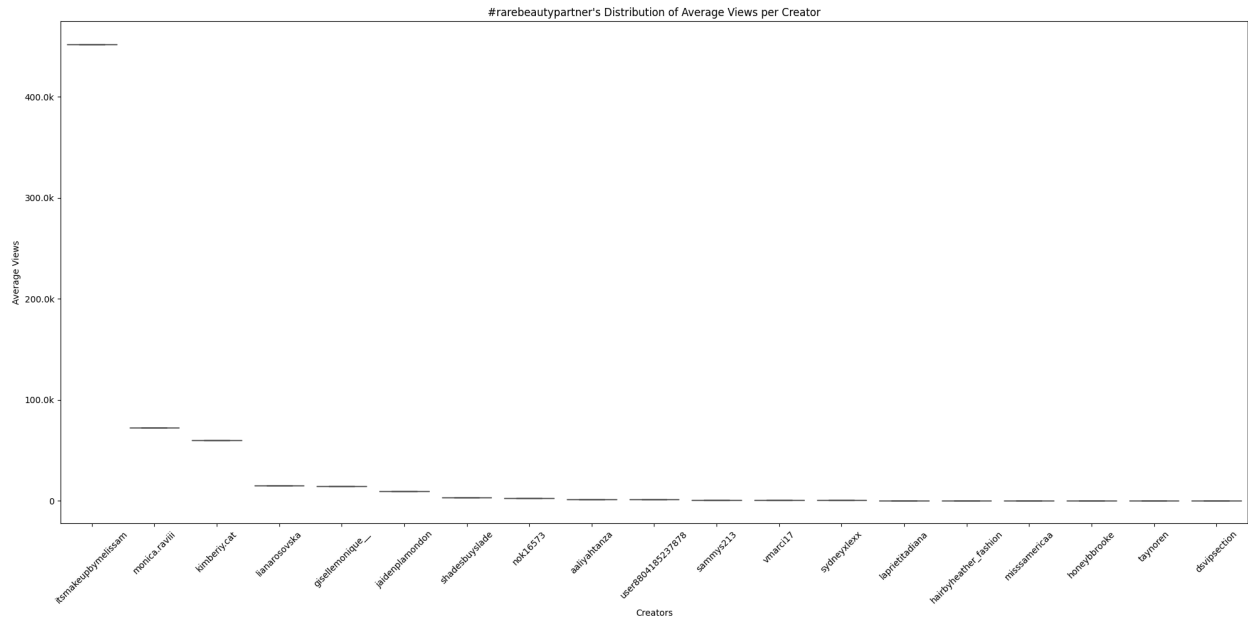


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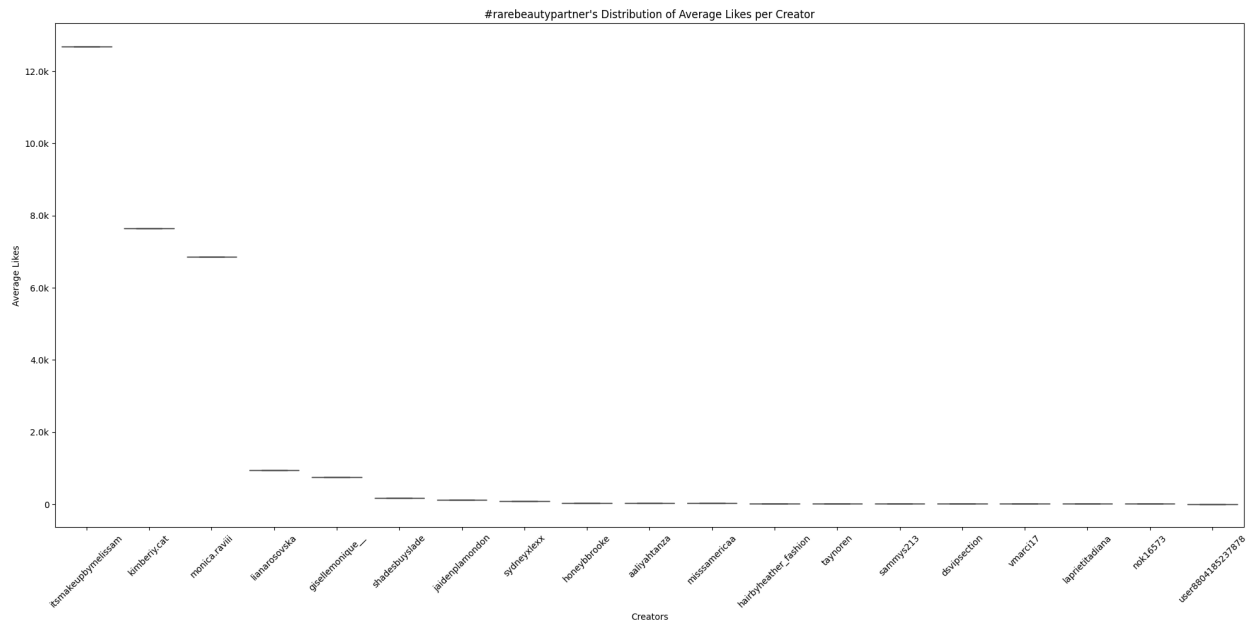


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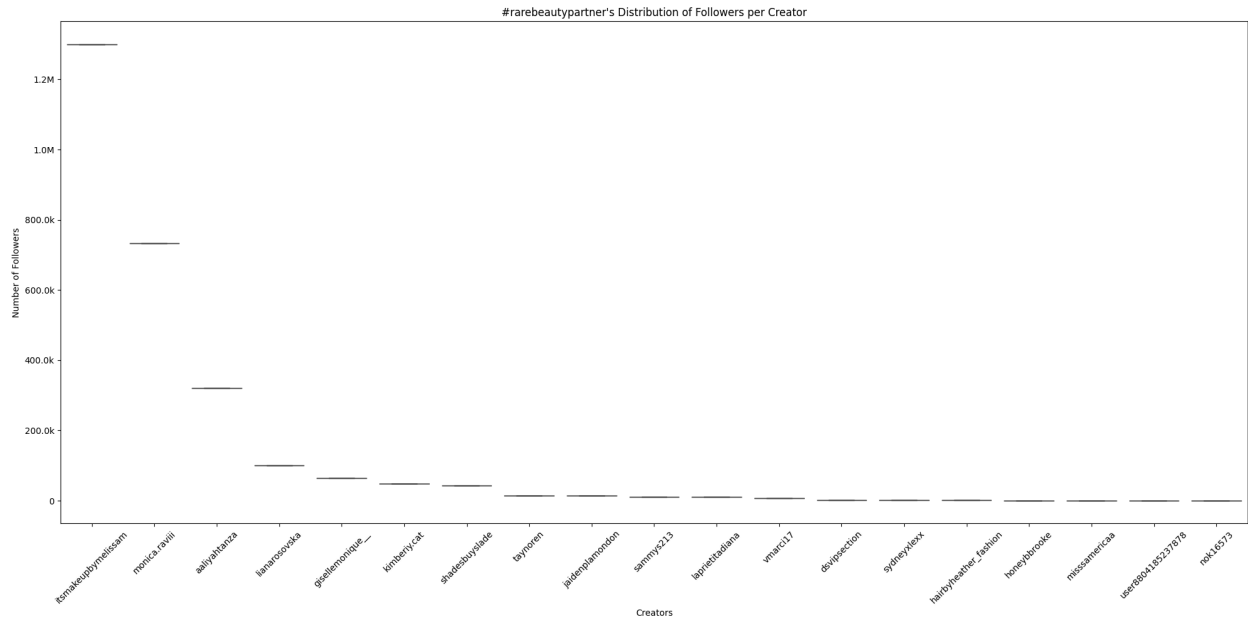


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## Saie Beauty

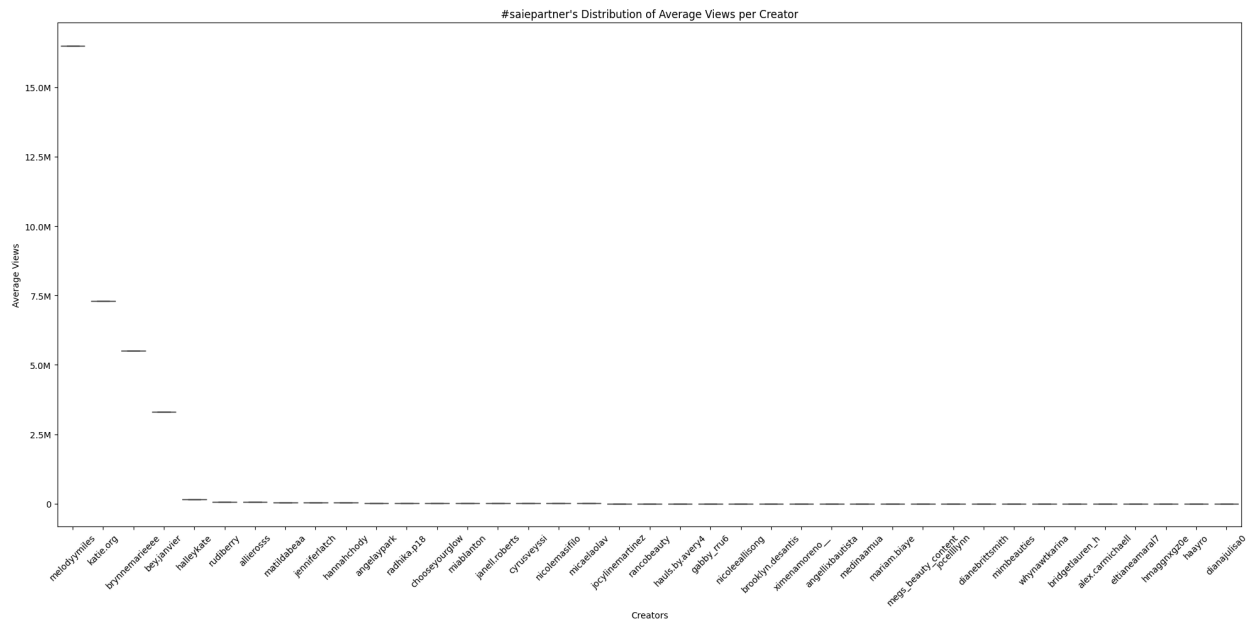


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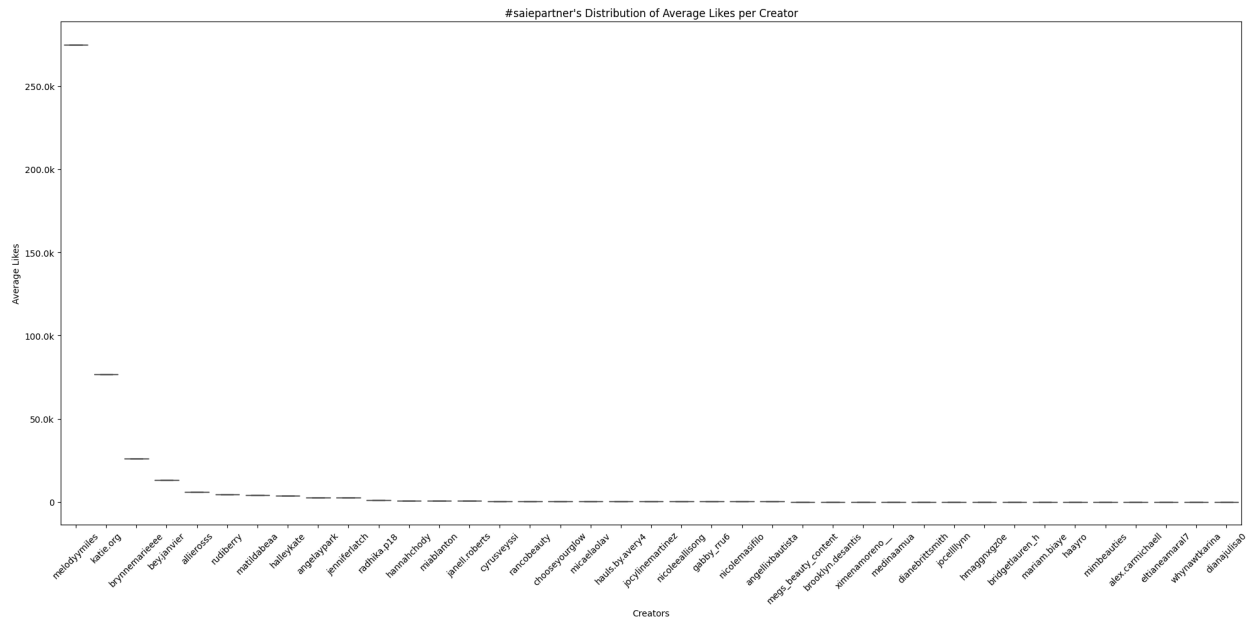


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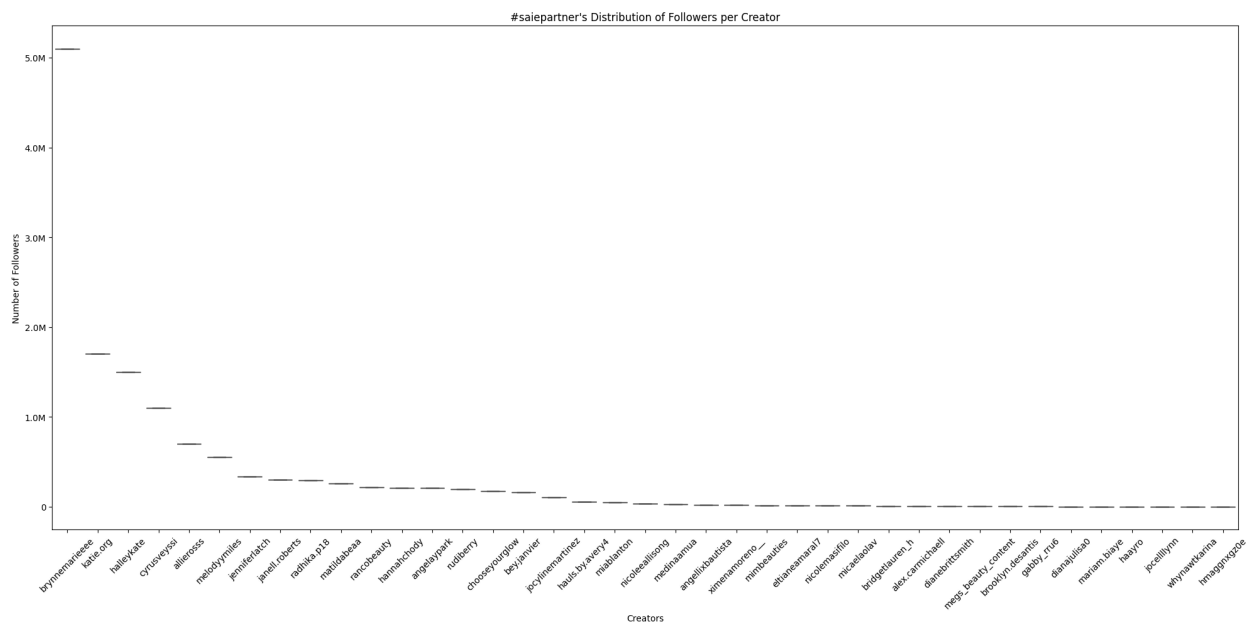


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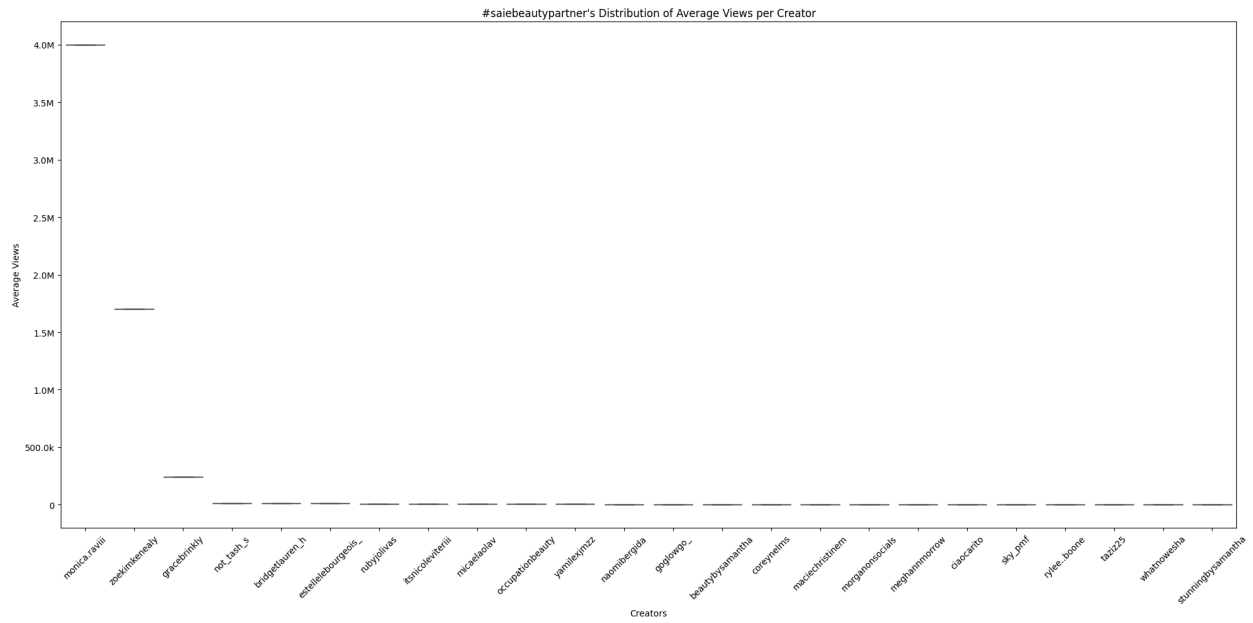


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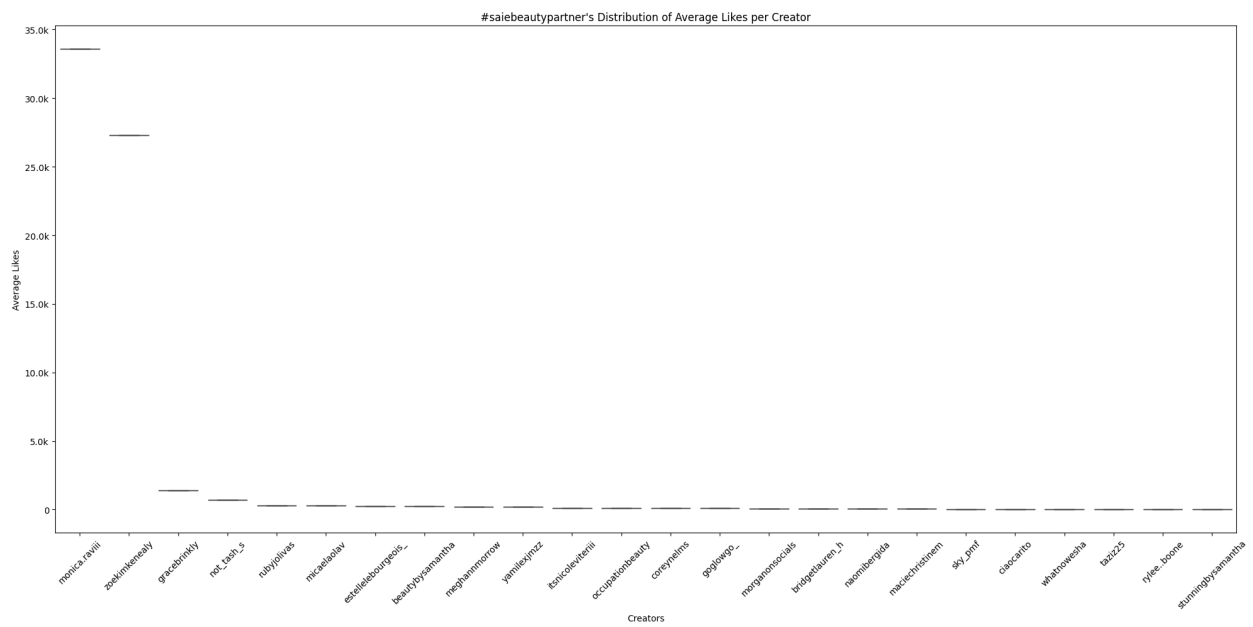


Figure 32.



Figure 34.

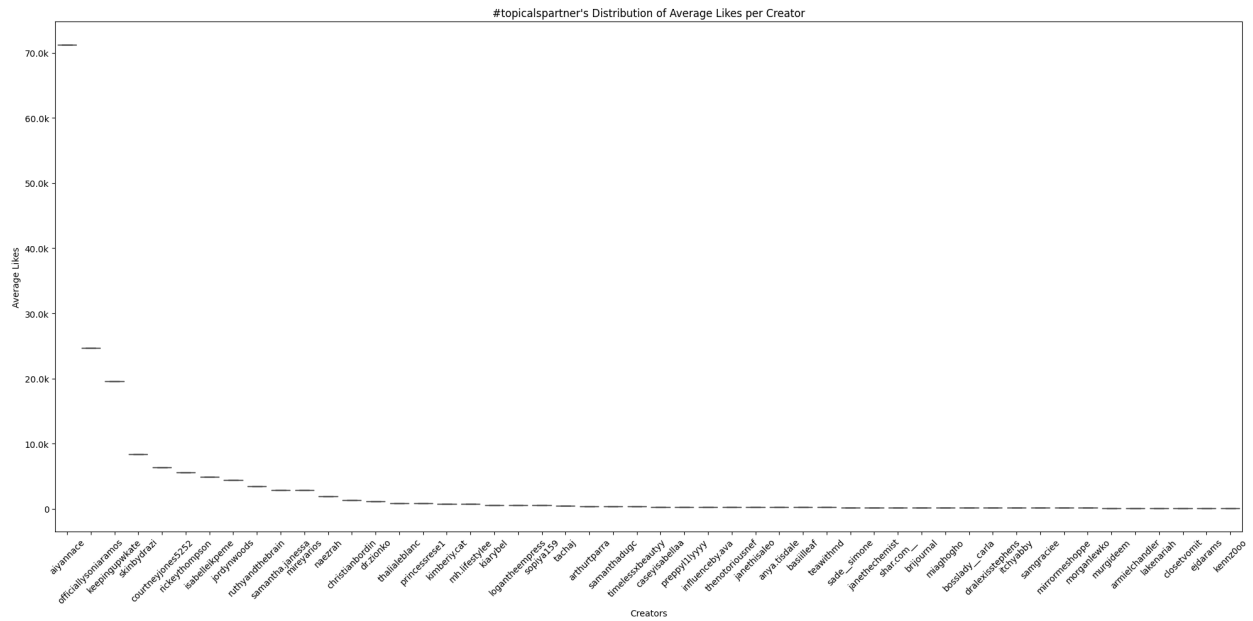


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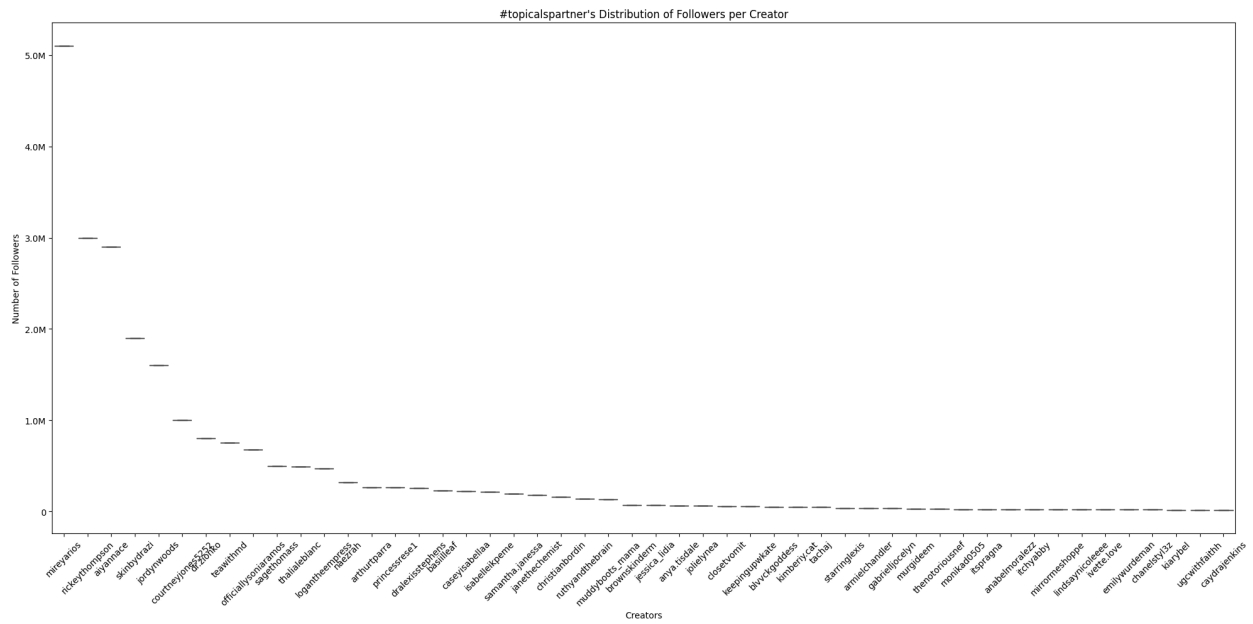


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Wonderskin

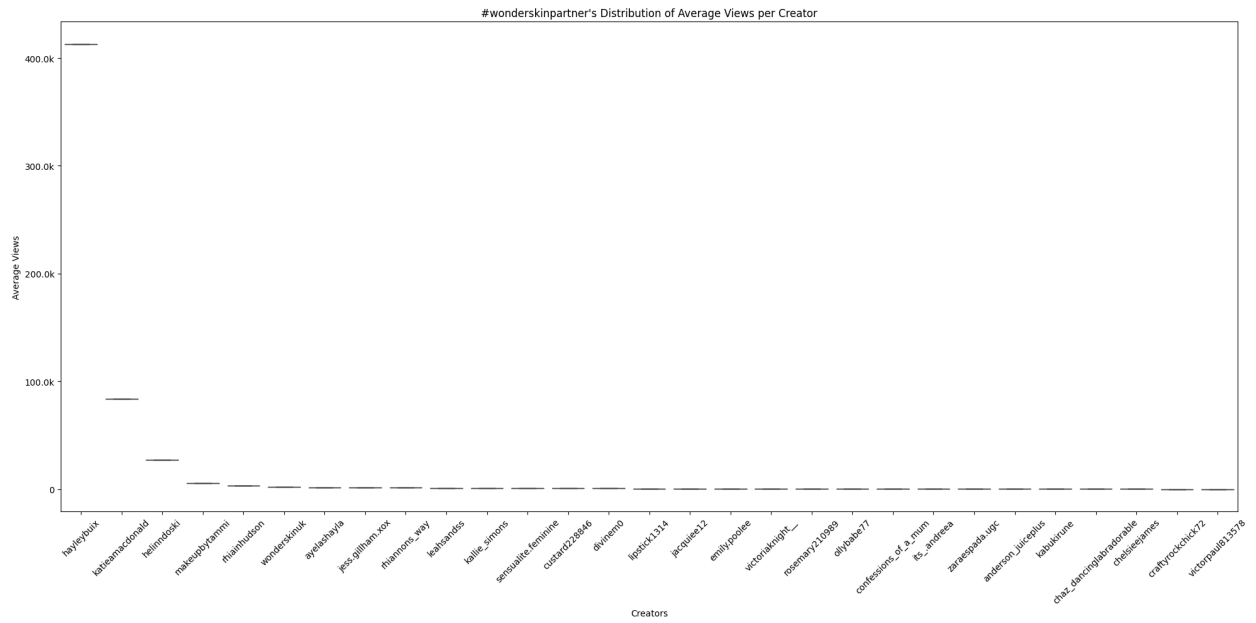


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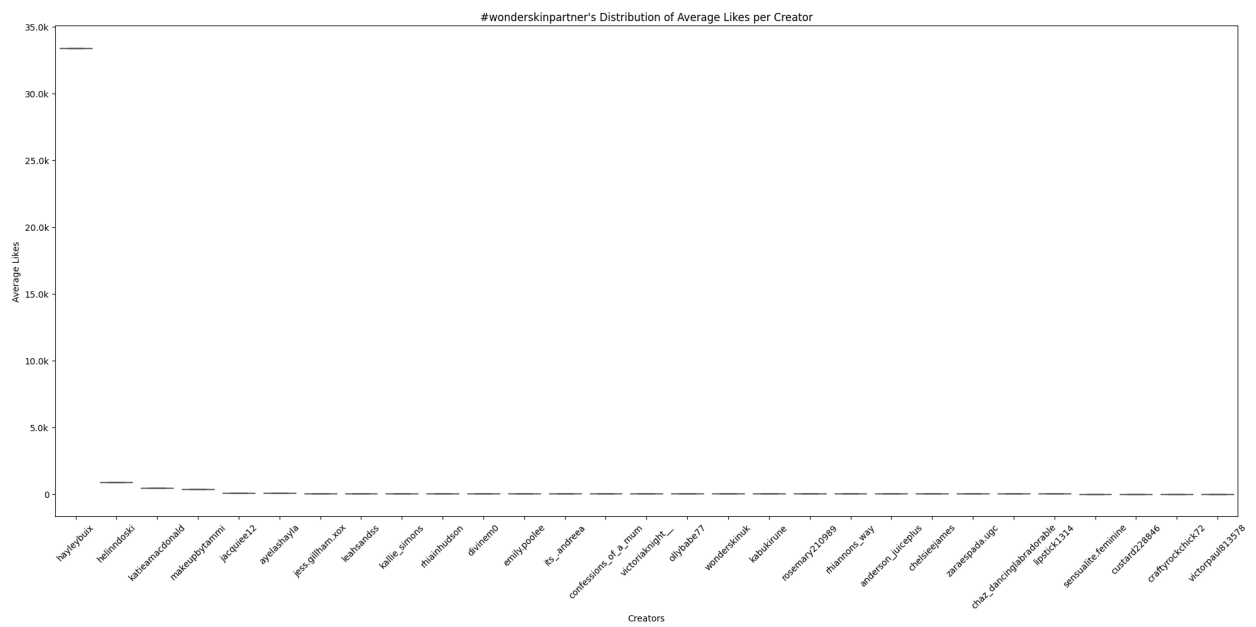


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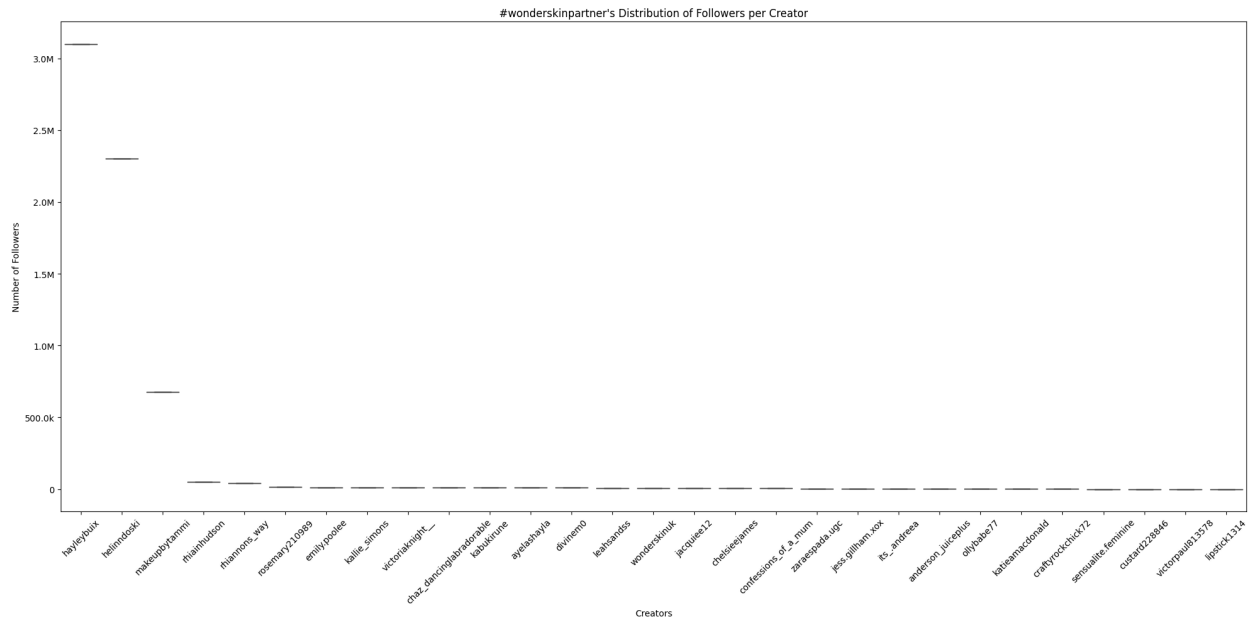


Figure 39.