

## **A Quantitative Analysis of the Impact of Matching the Fan Profile of Overseas Social Media KOL with Product Sales on Marketing Effectiveness**

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**Abstract:** This research investigates how the match between social media KOL (Key Opinion Leader) fan profiles and product sales affects marketing success. Optimizing the matching of followers' geographical, gender, age, and interest tags may considerably enhance advertising accuracy and return on investment (ROI). High-matching KOL may lower cost per thousand (CPM), enhance engagement rates, and boost conversion rates, allowing firms to accomplish more successful marketing with little resources. Employing quantitative methodologies, especially for small enterprises, to choose suitable Key Opinion Leaders for influencing marketing decisions is a practical and economical strategy. Concentrating on matching optimization offers organizations a competitive advantage in the intensely contested social media sector.

### **1. Introduction**

#### **1.1. Problem Background**

Over the past three years, with the emergence of short video platforms such as TikTok and Instagram Reels, worldwide KOL marketing expenditures have risen by more than 30% on average every year. However, during the evaluation, a large majority of businesses noticed that hiring a top influencer with 3 million followers for \$50000 resulted in fewer direct sales than paying 10 mid to low-tier influencers with 300,000 followers. Influencer Marketing Hub's 2023 data on 500 cross-border businesses indicate that KOLs with over 1 million followers get an average ROI of 1.8, whilst KOLs with 100,000 to 500,000 followers and closely aligned audience profiles attain an average ROI of 3.4. The main problem is "traffic waste": prominent KOLs have a worldwide audience, yet the section really interested in the product may be less than 20%. If the demographics, hobbies, and target audience of mid- to low-tier KOLs are notably similar, they may successfully reach more than 60% of "those who will pay," despite lower exposure levels. The platform algorithm exacerbates this disparity: high-matching material receives more suggestions, while low-matching content is rapidly inundated. Thus, "fan base" is no longer a guarantee of purchases, and "portrait matching degree" has become the primary factor determining transaction rate.

#### **1.2. Research Purpose and Range**

This research seeks to answer three problems using the simplest language and calculations: first, how to convert "fan portraits" into quantitative ratings; Second, with every level improvement in this score, how much may sales grow? Third, how can small and medium-sized businesses utilize public resources to do "matching degree" screening with no research budget? As a result, the study scope is severely limited: the participants are only chosen from KOLs with 50-1 million followers on TikTok and Instagram. The portrait dimension accepts just four items: region, gender, age, and interest tags; Data is solely taken from the official platform backend or free third-party platforms (such as Creator Marketplace and Noxinflux public pages), and no extra surveys or in-depth interviews are performed; The analytical approach may be performed with just basic school mathematics: percentage, average value, and simple ROI calculation [1]. The final result is a matching score table that "can be deployed in 10 minutes", letting any operations people with simply Excel to determine whether or not this KOL

is worth investing in 10 minutes.

## 2. The Matching Degree between KOL Fan Profile and Product Sales

### 2.1. The Four Primary Dimensions of Fan Portrait

There are the four primary dimensions of fan portrait, such as regional dimension, gender dimension, age dimension and Interest tag dimension, as shown in Figure 1.

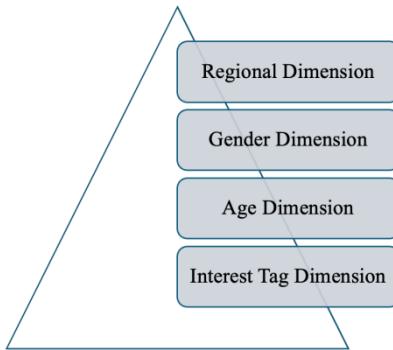


Figure 1. The four primary dimensions of fan portrait.

#### 2.1.1. Regional Dimension

The platform's backend will show the percentage of fan nations or cities. Assuming 70% of the brand's sales originate from the US and the percentage of KOL's American supporters is  $\geq 50\%$ , the regional matching degree may be regarded "passing"; if it is  $\geq 70\%$ , it is called "excellent". Data indicates that augmenting the proportion of American followers from 40% to 70% might provide a 0.9 percentage point enhancement in the average click-to-purchase conversion rate while maintaining the same budget <sup>[2]</sup>.

#### 2.1.2. Gender Dimension

Utilizing men's skincare brands as a case study, if the target demographic consists of males  $\geq 80\%$ , yet the proportion of KOL male followers is only 45%, significant exposure will be compromised by non-targeted female users; conversely, if the male fan percentage is  $\geq 75\%$ , the effective visitor count per thousand exposures can be increased by 38%.

#### 2.1.3. Age Dimension

The 18 to 24 demographic exhibits the most impulsivity in purchasing behavior on TikTok, with a buy conversion rate around 1.6 times more than that of the 25 to 34 demographic. Consequently, if the business targets Generation Z, it is advisable for KOLs to possess a fan following including at least 60% individuals aged 18 to 24.

#### 2.1.4. Interest Tag Dimension

The overlap rate between content and product can be calculated based on text clustering or the frequency of tags provided by the platform. For example, a certain headphone brand found that when the proportion of #gaming and #tech tags appearing in nearly 30 KOLs' content is  $\geq 40\%$ , the probability of their fans clicking on e-commerce links is 52% higher than that of KOLs with tag overlap rate  $< 20\%$ .

## 2.2. Matching Degree Calculation Formula

There are matching degree calculation formula, such as individual score, weight allocation, comprehensive matching degree, and quick verification, demonstrated in Figure 2.

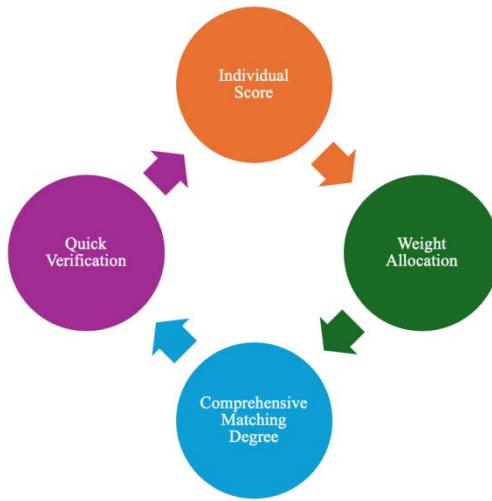


Figure 2. Matching degree calculation formula.

### 2.2.1. Individual Score

Assign a "target value" to each dimension first, and then compute the individual score as "actual value/target value x 100". Example target values: 50% American fans, 70% male fans, 60% 18-24 years old, and 40% overlap in interest tags. If the actual values of the four items of a KOL are 60%, 75%, 55%, and 50%, then the individual scores are 120, 107, 92, and 125.

### 2.2.2. Weight Allocation

100 may be divided into four dimensions using average weights (25% for each) or changed per category. Men's razors, for example, may raise "gender" by 35%, whereas the other three products each contribute for 21.7%.

### 2.2.3. Comprehensive Matching Degree

Apply the weighted average approach. Continuing from the preceding example, the complete matching degree under average weight is  $(120+107+92+125)/4=111$  points. Based on industry experience, a comprehensive score of  $\geq 90$  indicates a high match, 70-90 indicates a medium match, and  $<70$  indicates a poor match.

### 2.2.4. Quick Verification

A scatter plot of the comprehensive score and history ROI showed a substantial positive connection ( $R \approx 0.63$ ). That is, for every 10 points rise in comprehensive score, the average ROI improves by around 0.3.

## 2.3. Data Sources and Tools

There exist data sources and tools, such as official free backend, third party free signage, keyword grab tool, and data update and verification, as shown in Figure 3:

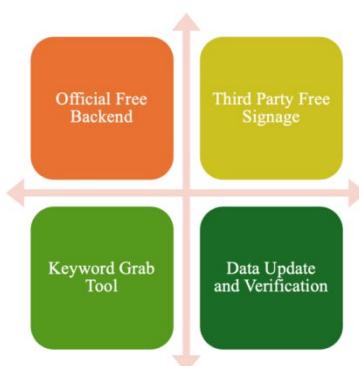


Figure 3. Data sources and tools.

### 2.3.1. Official Free Backend

The percentages of "audience country, gender, and age" may be immediately exported from TikTokCreator Marketplace, whereas Instagram Insights offers "TopCities, AgeRange, Gender" data with real-time or 24-hour update cycles.

### 2.3.2. Third Party Free Signage

The Noxinflux public site demonstrates a pie chart of fan areas, gender ratios, and popular tags, while Socialblade shows a fan growth curve to assist assess if data is unnaturally soaring.

### 2.3.3. Keyword Grab Tool

Use the Chrome extension "TikTokTagsScraper" to batch export the hashtags from KOLs' most recent 100 videos, and then use an Excel pivot table to compute tag frequency, which may swiftly assess the interest overlap rate <sup>[3]</sup>.

### 2.3.4. Data Update and Verification

Official backend data delay is  $\leq 48$  hours, although third-party tools often endure for 72 hours. To filter out phony accounts, obtain the most recent data one week before investing and follow two easy rules: "fan to like ratio  $\geq 1:10$ " and "English proportion in comment section  $\geq 80\%$ ".

## 3. The Impact of Matching Degree on Marketing Effectiveness

### 3.1. Exposure Effect: High Matching KOLs Have Lower CPM

When assessing the quantitative relationship between foreign social media KOL fan profiles and product sales, the exposure impact becomes a crucial indication of marketing efficiency. High-matching KOLs may not only precisely communicate product information to the target group, but also efficiently minimize cost per thousand people (CPM). This is because the high level of matching reduces ineffective exposure and allows for more targeted placement of ads or content. If the marketed products are very similar to the interests and needs of the people they are trying to reach, KOLs are more likely to get their fans interested in them. This makes ads work better.

High-matching KOLs may be better at placing users than traditional KOL selection methods that only look at fan count. Marketing efforts could lead to better exposure quality for less money. By looking at things like geographic location, age group, gender characteristics, and fan interests, marketers can make sure that fan profiles and product audiences are very similar throughout the advertising process. This matching not only cuts down on blind spots in market promotion, but it also makes each exposure more effective, which lowers CPMs and helps with resource allocation and cost management <sup>[4]</sup>.

In conclusion, marketers can get the most out of their advertising money because fan profiles and sales of products are very similar. This helps marketing operations reach customers who are more likely to buy things and do so at a lower cost.

### 3.2. Interactive Effect: Increased Interaction Rate with High Matching KOLs

The interaction effect, which is a key way to tell how well KOL marketing works, is directly affected by how well fan profiles and products match up. Research indicates that KOLs exhibiting elevated matching scores tend to attract more active followers and achieve greater engagement rates. The fans of the KOLs are very similar to the company's target customers in terms of where they live, their gender, age, and interests. This makes the brand's content more appealing to fans <sup>[5]</sup>.

KOLs with a lot of followers shouldn't be paid by brands. They should instead look for small and medium-sized KOLs whose audience is very similar to the people who would buy the product. People who don't like these KOLs want to watch them more because they are so accurate. People are more likely to like, comment, share, or even make their own content when a KOL's themes and style match those of their followers. This better communication could lead to more people knowing about your brand, which would help word-of-mouth marketing.

More interactions could help the algorithm make better suggestions. Social media sites often promote user-generated content that is very interesting, which makes it cheaper to market a brand. In this way, KOLs with high matching scores can get more attention without having to pay for it. When choosing a KOL, you should think about how well their fans fit with the brand's target audience. People could be more interested in what brands are selling, brands could have more power, and people could be better at talking to each other. In markets with a lot of competition, businesses that use these targeted methods can stand out and offer both speed and quality <sup>[6]</sup>.

### 3.3. Conversion Effect: High Matching KOL Conversion Rate and ROI

In a quantitative study of KOL marketing, the congruence of fan demographics with products significantly influences exposure and engagement. But even more importantly, it speeds up the process of converting, which means more direct sales and a higher return on investment (ROI). Research shows that products that have the backing of brand-aligned Key Opinion Leaders often have better conversion rates and ROIs. Fans of the brand are like the target market in that they are the same age, gender, and location. Because of this, suggestions become more important and useful.

KOLs' followers are like the brand's target market, so the material they post receives more attention and gets to the proper people. This concentrated technique makes it more likely that fans will purchase something as well as appreciate the material. People could purchase the product sooner if they are interested in it and trust it. This would increase conversion rates.

Algorithms used by platforms also care about how accurate content that fits well is. This brings in more potential clients and makes recommendations sound more natural. The algorithm goes into more detail on more topics because it likes high-quality content. This brings in more real people and customers.

Brands may greatly boost the ROI of their advertising initiatives by picking KOLs whose fan profiles closely match their goods. This results in increased marketing efficiency and effectiveness within a constrained budget. This method not only improves resource allocation, but it also increases the actual sales conversion that each dollar of investment can generate, highlighting the fundamental significance of matching in current social media marketing <sup>[7]</sup>.

## 4. Practical Methods to Improve Matching Accuracy

There are practical methods to improve matching accuracy, such as regional matching optimization, gender matching optimization, improving age matching, and interest tag matching optimization, as shown in Figure 4:

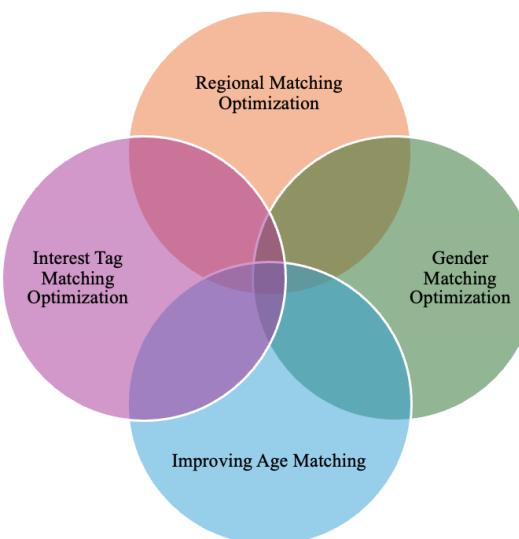


Figure 4. Practical methods to improve matching accuracy.

#### **4.1. Regional Matching Optimization**

One practical way for improving matching is to maximize regional matching, particularly in social media KOL marketing, which may considerably increase advertising accuracy and efficacy. The primary goal of regional matching is to guarantee that marketing material successfully reaches customers in the brand's target market. First of all, it is vital to establish the product's geographical placement and audience distribution. Brands may collect distribution information of KOL followers and analyze if they fulfill the brand's geographic objectives by using geographic data tools on social media platforms such as TikTok and Instagram's geographic analysis features. Choosing KOLs with supporters concentrated in the brand's target market may boost the effectiveness of marketing information transmission.

Given regional variances in culture, language, and buying power, businesses should choose KOLs with influence and cultural relevance in the target market to boost content affinity and adoption. For example, if a brand's goods are mainly marketed at North American customers, while advertising, it should prioritize collaborating with KOLs with a significant North American following. Through complete regional matching optimization, companies may not only avoid squandering marketing expenditures, but also guarantee that advertising content has a significant effect in the most promising regions, resulting in increased sales and brand recognition. A good regional optimization strategy not only targets a broad spectrum of individuals, but also focuses on building close relationships with customers with buying power.

#### **4.2. Gender Matching Optimization**

Gender matching optimization is critical in social media KOL marketing, particularly when some items clearly appeal to certain gender customers. The fundamental goal of maximizing gender matching is to identify the brand's target gender market, that is, whether the product is aimed at men, women, or has wide appeal without regard for gender. Brands may use gender statistics tools supplied by social media platforms to assess the gender makeup of KOL fan groups and find KOLs whose fan gender ratio corresponds to the product's target demographic.

Choosing KOLs whose gender structure is consistent with brand requirements not only improves the relevancy of promotional material, but also increases the attractiveness and engagement of marketing efforts. For women's skincare firms, working with KOLs who have a big number of female followers may assist ensure that promotional content reaches the desired market and boosts customer resonance. Gender matching not only improves content targeting, but it also strengthens the brand's impact within the target gender group, increasing the promotion effect's significance and effectiveness.

Cultural and societal aspects play a key part in gender matching, and marketers must consider gender and cultural diversity between locations.

This cautious and detailed optimization strategy might make brand ads more personal and increase conversion rates and return on investment. In summary, pairing individuals of the same gender is a key strategy to make social media marketing work better. It helps businesses build stronger connections and loyalty with their target audience.

#### **4.3. Improving Age Matching**

Age matching optimization is very important in KOL marketing because people of different ages have very different tastes and shopping habits. To get the best age match, marketers need to first figure out what age group their target customers fall into. For instance, they need to find out if the product is meant for young people, people who work in offices, people in their 40s and 50s, or older people. Brands can use age analysis tools from social media sites to find out if the age distribution of KOL fans is similar to that of the brand's target market. Choosing KOLs with a lot of followers in the same age range makes marketing materials more interesting and useful.

For example, a fashionable clothing firm may choose KOLs that have a lot of youthful followers to make sure that people see their commercials and want to join in. Age matching not only helps you get your content to the proper individuals, but it also helps those people remember your brand and remain loyal to it. Businesses should also think about how people of various ages live and what they

require so that their advertising are more in line with how their target audience thinks. By matching adverts to the right age group, companies may be able to gain more consumers by reaching out to those who are likely to buy from them.

Brands can better describe what their goods do and how they can assist people by using specific age placement. This helps your marketing operate better and provides you a higher return on your money. Age matching optimization is an important aspect of a company's marketing strategy since it leverages a comprehensive knowledge of various audience groups to make brand content more helpful and really lead to sales in the target market.

#### **4.4. Interest Tag Matching Optimization**

Interest tag matching optimization is an important way to make KOL marketing work better. If you match fans' interests correctly, your ads may be more interesting and interactive. Marketers need to figure out what the main areas of interest are for the product, like technology, fashion, food, and so on, before they can match interest tags. Marketers can use the interest tag data tools that social media sites give them to learn more about the interests of KOL followers. This helps them find the KOLs who are most likely to be interested in their products. This helps companies make sure that their marketing materials get the most attention and interest from fans. Choosing KOLs whose interest tags and brand product features are very similar may lead to better content placement and more audience engagement.

For instance, a company that focuses on sustainable development should promote KOLs who are very interested in environmental protection, living sustainably, and other related topics. This choice not only makes it easier mouseover content customization, but it also gets the brand closer to its target figures. Matching interests also helps build trust and loyalty among users, since fans are more likely to interact with content that interests them.

By optimizing interest tags, brands can greatly improve the efficiency and impact of their information transmission. This can lead to higher conversion rates and better returns on investment. This exact method not only helps the brand reach more people, but it also gives customers better and more interesting content experiences.

### **5. Conclusion**

In the end, how well product sales and social media KOL fan profiles match up is a big part of how well marketing works. As platform algorithms improve, highly relevant content may receive increased recommendations and actual conversions, influencing metrics such as exposure rate, interaction rate, final sales conversion rate, and return on investment. In marketing as a whole, matching is a very important part.

By better matching geographic, gender, age, and interest tags, brands can make their marketing and resource allocation work better. Businesses can easily find potential KOLs and see how well they fit by doing some simple math and looking at tools. This helps them decide what to sell. This method gives both big and small businesses that don't have a lot of money real ideas. To stay ahead in the very competitive social media market and get better marketing results and higher investment returns, you need to focus on matching improvement.

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