

Effectiveness Analysis of Streaming Media Marketing Strategies - Based on SWOT Modeling

Luoya Dong*

School of No.19 Collage, Qingdao, China

*Corresponding author: Roya.dong@outlook.com

Abstract. As the world's leading short video streaming platform, TIKTOK marketing strategy possesses significant advantages. First, relying on a powerful algorithmic recommendation system, TIKTOK is able to accurately analyze user preferences and deliver personalized content, which greatly improves user stickiness and brand exposure. Secondly, the platform integrates short videos, live broadcasts and e-commerce functions to form a complete consumption closed loop, helping brands realize an efficient chain from content dissemination to sales conversion. In addition, TIKTOK encourages user-generated content and stimulates participation through topic challenges and interactive play, creating natural communication potential for brand marketing. The current market environment brings new development opportunities for TIKTOK. Advances in artificial intelligence technology help optimize content production and precise placement. The in-depth expansion of local life services has created more commercial realization possibilities. However, TIKTOK also faces a number of external threats, including increasingly stringent international data regulation policies, fierce competition from similar platforms, and restrictions on precision marketing due to user privacy requirements. To address these challenges, TIKTOK needs to continue to optimize its algorithmic mechanism to reduce the push of low-quality content, while increasing support for original content and actively exploring emerging markets to reduce operational risks. By balancing commercial value and user experience, TIKTOK is expected to maintain long-term competitiveness in the streaming media marketing space.

Keywords: TIKTOK; SWOT Model; marketing strategies.

1. Introduction

Driven by the wave of digitization, the streaming media industry has become the core battleground for global content consumption and business innovation. With the fragmentation of user attention, accelerated technology iteration and intense market competition, the traditional marketing model faces subversive challenges. Streaming media platforms have reconfigured the user reach path through algorithmic recommendation, social fission, virtual interaction and other emerging strategies, forming the marketing paradigm of “content is advertisement, interaction is conversion” [1].

However, there are contradictions behind this rapid evolution: on the one hand, precision marketing significantly improves user stickiness and commercial conversion efficiency; on the other hand, over-reliance on algorithms may lead to information cocoons, advertising fatigue and other backlash effects, in addition cultural conflicts and data privacy disputes in the midst of globalization and expansion further aggravate the complexity of the strategy implementation. Existing research focuses on the technical realization or short-term effect of a single strategy, and lacks a dynamic assessment of the systematic synergy and long-term impact of marketing strategies.

In this paper, we take streaming media platforms as the research object, and analyze the multi-dimensional interaction among technical empowerment, user behavior and market environment by deconstructing the underlying logic and practice path of their marketing strategies, with the aim of revealing the boundary conditions and optimization direction of the effectiveness of the strategies [2]. The study not only provides a theoretical framework for streaming media platforms to balance business objectives and user experience, but also provides cross-industry insights for marketing innovation in the era of digital economy.

2. Brand Background Introduction

Streaming media technology is widely used in multimedia news distribution, online live broadcasting, online advertising, e-commerce, video-on-demand, tele-education, telemedicine, Internet radio, real-time video conferencing, and other aspects of Internet information services. The software people use to watch videos, radio software and picture browsing software are all streaming media.

Launched in September 2016, TIKTOK is a short-video social platform under ByteDance with the core concept of "recording a wonderful life". Relying on its parent company's powerful algorithm technology and global vision, TIKTOK achieved over 400 million daily active users in just three years. In 2020, TIKTOK swept the world and became the first truly "going viral" Chinese internet product.

TIKTOK pioneered the full-screen immersion intelligent recommendation model, delivering videos ranging from 15 seconds to 10 minutes to users with matching interests through precise algorithms. This "video finds people" mechanism broke the traditional traffic distribution rules, allowing ordinary creators to compete on the same stage as celebrities and big V users, creating a diversified content ecosystem. From trendy dances to science popularization, from rural delicacies to intangible cultural heritage inheritance, the platform has an average daily play volume of over 100 billion times, redefining the way culture is expressed in the mobile internet era.

Launched in 2017, the international version of TIKTOK quickly swept the global market with its localized operation strategy. As of 2023, TIKTOK has over 1.5 billion monthly active users, covering more than 150 countries and regions. The platform's unique challenge mechanism not only gave rise to global cultural phenomena but also became a digital bridge for cross-cultural communication among Generation Z.

TIKTOK continues to explore the possibilities of technology for good: launching a youth mode, initiating the Intangible Cultural Heritage Partnership Program, and building an e-commerce channel for agricultural products. The "DOU Knows" program it launched has generated a total of 480 million knowledge-related videos, enabling short videos to break through their entertainment attributes and grow into a new type of social infrastructure.

From Beijing's Zhongguancun to the global stage, TIKTOK has restructured the logic of content production with algorithms and reshaped human social interaction through short videos. This continuously evolving digital ecosystem is still writing communication miracles of this era.

3. Advantages of Streaming Marketing(Strength)

Streaming media has strong advantages in the national and international fields of media and film industry

3.1. Immediacy and Scene Liberalization

A major advancement of streaming media lies in breaking the time and space limitations of traditional media. Take the "global online concert" during the epidemic as an example, in 2020, "One World: Together at Home" was synchronously broadcast to the world through YouTube, Tencent Video and other platforms, so that viewers did not need to buy tickets or travel long distances, and they could watch it at home through their cell phones, tablets or TVs. The show, which spanned 196 countries, allowed users in remote areas to participate in real time and even interact with the singers through real-time comment overlays (pop-ups). This "anytime, anywhere" feature was further demonstrated during the Tokyo Olympics - the IOC's first live streaming service, which allowed viewers to freely choose to watch real-time footage from different venues such as track and field, swimming, and even switch between specific athletes' footage through the Multi-View feature. Immediacy and scene liberalization create a competitive streaming media platform to help enhance brand awareness.

3.2. Personalized Content Recommendation

Streaming media platforms have reshaped the way users access content through algorithms: when Netflix's *The Squid Game* was launched, the platform accurately pushed the content to target viewers based on users' historical viewing data (e.g., preference for suspenseful dramas, Korean dramas, etc.), which resulted in 140 million viewers in the first month [3]. TIKTOK "interest recommendation" mechanism has directly changed the landscape of content creation: a Sichuan village chef released a video of "wood-fired stovetop dishes", which was recognized by the system as "food + traditional culture". Because the video was recognized by the system as "food + traditional culture", it unexpectedly gained ten million broadcasts, which led to a 300% increase in the sales of local specialties in his hometown. This mode of "content finding people" allows users to discover points of interest without actively searching.

3.3. Interactive Experience Upgrade

Streaming media is shifting from one-way communication to two-way interaction. In Beili's "Interactive Mini Theater" series, viewers can choose the direction of the plot by clicking on the screen, for example, deciding whether or not to search a room by a detective in a suspense drama, and this branching narrative mode allows users to increase the length of their viewing time to three times that of a normal video. The "audience control live room" function of Twitch, a live game platform, is even more typical: in the live broadcast of "My World", viewers can collectively vote on whether to let the character jump off a cliff, a real-time interaction that completely obscures the traditional boundary between content creators and consumers [3]. Two-way interaction enhances the user's sense of participation and attracts more attention for the streaming platform.

3.4. Impact of technological innovation on streaming media

The stability of streaming media services relies on the dynamic capacity expansion of network technology. During the CCTV Spring Festival Gala in 2021, Tiktok supported 70.3 billion red packet interactions and 8K UHD live broadcasts through more than 2,300 edge nodes of AliCloud globally. During the instantaneous influx of users, the system automatically dispatched idle server resources to ensure that the screen did not lag. Similarly, when Zoom's user volume skyrocketed 30 times in 2020, it used AWS's elastic computing service to expand its server cluster from 10,000 to 300,000 in 48 hours, safeguarding the needs of global enterprises working remotely. For TIKTOK, it can improve user experience, consolidate brand loyalty, enhance the attractiveness of the content ecosystem, and empower creators. Elastic computing services can also help TIKOK to enhance its monetization potential, break down differentiated competitive barriers, improve its data-driven and brand-intelligent image, and enhance its social responsibility and brand trust.

The deployment of network edge nodes greatly reduces content latency. When Tencent Video broadcasts the World Cup, it distributes the game images in real time to the edge servers closest to users, so that Beijing viewers and Guangzhou viewers can see the goal images at almost the same time, with the delay controlled to less than 0.5 seconds [3]. Aiqiyi's "intelligent caching" technology also preloads popular episodes to community-level nodes, so that when users click on "Rampage", 80% of the content has been cached in the community server room in advance, significantly reducing buffering and waiting time [3].

New transmission protocols allow streaming media to adapt to complex network environments. During the epidemic, students in mountainous areas received live education broadcasts through China Mobile's "5G+Beidou" network, and even in villages with unstable signals, the HLS protocol was able to divide the course video into 10-second clips for continuous transmission, and the rate of screen lag was reduced from 35% to 5%. The "adaptive bit rate" technology introduced by Disney+ dynamically adjusts the picture quality according to the user's network conditions - when the user's signal is weakened on the subway, the 4K movie is automatically downgraded to 720P, and then seamlessly restored to high-definition after exiting the station, with no need to manually operate the

whole process. For the virtual reality integration experience, the progress of network technology makes the streaming media break through the two-dimensional screen limitations.

In the virtual concert held by Tencent Music in 2023, the audience enters the meta-universe space through the 5G network, and can not only watch the performance in a 360-degree surround, but also control the virtual glow sticks through the cell phone shaking, and the real-time generated light effect data is synchronized to all the participants after being processed by the edge server. This 10,000-person interactive experience needs to be supported by a transmission delay of less than 20 milliseconds on the network side.

Technological innovation has upgraded streaming media from a mere “content transmission pipeline” to an “intelligent interactive ecology”, and its core value has shifted from the “scale of content library” to the “differentiation of technological experience”. Its core value has shifted from “content library scale” to “technical experience differentiation”. In the future, platforms that master AI, cloud computing and immersive technologies will dominate the market, while data security and ethical compliance will become the key boundaries of competition. For head players such as Tiktok, continued investment in technology R&D is a core strategy to maintain the brand moat.

3.5. AI Participation in Content Creation

The combination of user demand and network technology has given rise to new services: during the 2022 Winter Olympics, Migu Video launched the “AI Intelligent Editing” function: when Gu Ailing completes a difficult action, the cloud AI recognizes the highlights in real time, generates a short video within 10 seconds and pushes it to the user's cell phone, so that viewers can share the moment through social media before the awards ceremony [4]. The audience can share the moment through social media before the award ceremony. This closed loop of “content production-transmission-consumption” relies on the large bandwidth of 5G networks and the fast response of AI servers.

3.6. Universal Content Distribution

Improvements in network infrastructure have allowed streaming services to reach a wider audience. In rural India, Reliance Jio's 4G network covers 98% of the countryside, and local farmers learn modern farming techniques through YouTube, with the video platform even introducing automatic subtitling in dialects. Africa's Kwese Play service uses low-orbit satellite transmissions to make educational streaming content available to villages without fiber optic coverage.

By accurately capturing users' needs and making breakthroughs in network technology, streaming media has built a digital ecosystem in which “everyone can participate and everywhere can be connected”. From the national online class during the epidemic to the Yuan Universe concert, from rural live broadcasting to help farmers to the optimization of edge computing, this two-way empowerment mechanism not only changes the way of content consumption, but also reshapes the mode of social collaboration. When technologies such as 8K ultra-high-definition, holographic projection, and brain-computer interface mature, streaming media may become the core link between the physical and digital worlds.

4. Weakness of Streaming Media

Streaming may make people's lives so fast that it's hard to slow down

4.1. Cognitive Overload in the Information Deluge: A Mechanism for Generating the Anxiety Cycle

In the “immersive screen swiping” experience of TIKTOK, users are exposed to new video stimuli every 1.7 seconds on average. This high-frequency, fragmented information input pattern forces the brain to be in a constant state of “fight-or-flight response” stress. Neuroscience research shows that when the dopamine secretion cycle is compressed into seconds, the rational judgment function of the

prefrontal cortex is gradually weakened, while the amygdala-dominated immediate emotional response is continuously strengthened. The real case of an employee of a large Internet company is very representative: he used to brush short videos for 40 minutes in a row on the commuter subway, and as a result, he suffered from the symptom of “information vertigo” - when his phone ran out of battery, he would feel a strong sense of panic, and even unconsciously made the upward sliding gesture in work meetings.

The streaming platform's elaborate autoplay and infinite scrolling features essentially build a “digital Skinner box”; Netflix's “next episode autoplay” feature has caused House of Cards viewers to stay up late as a group, and a survey by Japan's NHK found that 62% of users admitted to disrupting their work and rest rhythms as a result [3]. This pattern of forced and continuous involvement in the consumption of information has led to a general “sober disorientation” among modern people: they realize that they need to stop, but they can't control themselves, and the resulting self-condemnation continues to accumulate into chronic anxiety. The resistance generated by long-term passive use may lead to the user's reluctance to access the information and aversion to the marketing activities.

4.2. The Trap of Instant Gratification: Systematic Degradation of Delayed Gratification Capability

The “3, 2, 1 link” consumption scenario created by live streaming has reduced the decision-making time to less than 5 seconds. Experiments by the behavioral economics team at Fudan University show that in the live broadcasting room of Jieyin, consumers order 3.8 times faster than traditional e-commerce, with a return rate that is 47% higher. This kind of instant gratification reinforcement training is reshaping the brain reward circuit - when people are accustomed to the instantaneous pleasure brought about by seconds in the live broadcasting room, the dopamine threshold is already difficult to activate by conventional stimuli when faced with activities such as learning and fitness that require long-term commitment.

The case in the field of education is even more alarming. Teachers at a major middle school observed that students who were used to watching knowledge videos on Bilibili at 1.5 times the speed faced three significant changes in the classroom: the threshold of patience with the teacher's speed of speech dropped from 10 minutes to 3 minutes, the persistence of in-depth thinking decreased by 60%, and students were more inclined to search for the answer directly instead of deducing it on their own when they encountered a complex problem. Neuroplasticity theory confirms this change: frequent immediate feedback is weakening the strength of prefrontal cortex-hippocampus connections, directly affecting long-term memory formation and logical reasoning [5]. Negative effects on individuals may alienate the streaming media brand image and lead to user resistance behavior.

4.3. The Paradox of Virtual Presence: Social Alienation and Emotional Blunting

The beauty filters that are perpetually active in Zoom meetings and the carefully designed “pseudo-intimate interactions” in Shake Shack videos are creating a new type of social alienation. According to a multinational company's survey of telecommuters, despite a 3-hour increase in daily video conferencing, employees' access to emotional support has dropped by 40%. This state of “high connectivity and low intimacy” stems from the performative nature of digital socialization - when people need to continuously manage facial expressions, background environments, and even virtual images, space for authentic emotional expression is significantly diminished. More alarming is the spread of “digital empathy disorder”, a controversial phenomenon on TikTok, where teenagers start the hashtag #FloodChallenge under the videos of natural disasters, turning the scene of heavy rain and waterlogging into a risky playground. This sense of detachment from the reality of suffering stems in part from streaming media's ability to transform all experiences into consumable content products. When the war in Syria and the Amazon rainforest fires can be presented in 4K quality on a cell phone screen, the pain of disaster is technically diluted into a visual spectacle [3].

4.4. Distortion of Time Perception: Deconstruction Crisis of Existential Meaning

The “time discounting” effect created by streaming media is deconstructing the coordinates of human existence. On the platform of Racer, it takes only 5 hours for users to watch the narration of 100 episodes of TV dramas; and the App of Get condenses One Hundred Years of Solitude into a 25-minute audio. While this time compression technology enhances cognitive efficiency, it also leads to the loss of the ability of deep experience. The “overexposed existence” mentioned by German philosopher Han Byung-chul is revealed here: when the Mona Lisa can be infinitely enlarged in 3D roaming details, the three-hour gaze in front of the real painting becomes a mentally taxing experience.

Time perception disorders have triggered a collective outbreak of existential anxiety. A white-collar worker in a first-tier city described in psychological counseling: “every night before bedtime, when brushing short videos, I felt that time flew by, but when I meditated on reading, every minute became abnormally long.” This kind of split time experience makes individuals lose the ability to build a continuous life narrative. When the “black hole of time” effect of Jiyin devours users for 2.5 hours a day, people begin to fall into Hamlet-style confusion: who am I when I brush the screen? Where am I when I turn off my cell phone?

5. Opportunities for the Streaming Media Industry

With the change of the times, streaming media has gained more opportunities in national markets and internationally

5.1. Three Core Opportunities

In today's explosion of digital content consumption, TIKTOK, a phenomenal application in the streaming media space, has made a leap from zero to 1.5 billion monthly activities worldwide in just six years. The rise trajectory of this short-video platform vividly explains how streaming media technology has reshaped the entire industry chain of content production, dissemination and consumption. By analyzing the success factors of Tiktok, we can clearly see the three core opportunities that the streaming media industry is nurturing.

5.2. The Underlying Driving Force of TIKTOK Development: Technological Innovation

Its self-developed recommendation algorithm system is able to establish accurate interest profiles when users swipe for the third time through deep learning and real-time data analysis, and this efficient content matching mechanism maintains the platform's user retention rate at the industry's leading level. The popularization of the 5G network has further unleashed the platform's potential, with 4K ultra-high-definition videos and 10,000 people streaming live online at the same time as standard features, and last year's fireworks in the clouds during the Spring Festival attracted more than 200 million viewers in real-time, which was the first time that TIKTOK has been successful. The cloud fireworks display during last year's Spring Festival attracted more than 200 million viewers to interact in real time. What's more noteworthy is the civilianization application of AI tools, intelligent editing, automatic subtitles and virtual images and other functions have greatly lowered the barrier to content creation, and the platform's data shows that the number of users using AI-assisted creation has reached an annual growth rate of 300%.

5.3. Diversified Content Ecosystem Construction as the Key to TIKTOK's Sustained Growth

The platform has cultivated a large UGC(user-generated content) community through traffic allocation and creative incentives, and content forms such as “immersive homecoming vlogs” and “one-minute mini-theater” created by ordinary users continue to set new viewing records. The presence of professional creators and institutional accounts has improved the quality of the content, and the average daily playback of popular knowledge and skills teaching videos has exceeded 5 billion times. This pyramidal content structure not only ensures the ecological vitality, but also meets the diversified needs of users, forming a virtuous cycle of business closure.

5.4. Innovative Business Model Breakthroughs and the Unlimited Potential of the Streaming Media Economy

Infomercials have realized the natural connection between brands and users through scenario-based implantation, as evidenced by the case of a beauty brand's 180% sales growth in a single month through the evaluation video of a celebrity. The rise of live e-commerce has completely reconfigured the traditional shopping process, and the “watch and buy” model has enabled the platform to exceed the trillion-dollar mark in annual transactions. New monetization methods such as virtual gifts and paid knowledge content provide a sustainable source of income for content creators, and the head of the education account through the course subscription to achieve an annual income of more than ten million.

5.5. Three Major Streaming Media Trends Reflected in Tiktok's Development Path

The continued deepening of social functions will upgrade the platform from a content consumption scenario to a social living space, with the recently tested virtual chat room function being an important attempt. The integration of VR/AR technology is opening up the entrance to the meta-universe, with the virtual concert program tested not long ago having attracted more than 5 million users to participate in the experience. The acceleration of globalization has made the platform make breakthrough progress in Southeast Asian market, and the localized operation strategy has kept the user growth rate of the platform in Indonesia and other countries at over 200%.

6. Threats to Streaming Media

Streaming media may receive infringement from the user side and competition, market censorship and market restrictions from the platform side.

6.1. Heated Market Competition

The rise of Chinese and international homogenized platforms, e.g., Shutterstock, WeChat Video Number, and B Station compete for user hours. Regarding international brands, such as Instagram Reels, YouTube Shorts squeeze TikTok market. In 2023, the daily activity of Instagram Reels exceeded 2 billion, and the average daily user hours increased by 24% year-on-year, indicating that Instagram has a wide audience, which to some extent attracts Shorts users to replace their commonly used short video software [4]. This also distracts users' attention, and simultaneous use of multiple platforms leads to a decline in single-platform stickiness.

For the user growth and retention dilemma, the market is gradually saturated, and with China's short video user penetration rate exceeding 90%, there is limited room for incremental growth. User fatigue and content overload have led to “screen burnout”.

Tiktok's average daily user time dropped by 8 minutes in 2022. There are also challenges to the sustainability of the content ecosystem. Low-quality content has begun to proliferate, and the algorithmic recommendations are overly reliant on “curiosity” content, which damages the user experience (e.g., false information, vulgar videos). There are also copyright disputes, with frequent infringement risks for UGC content, and TikTok being sued several times for music copyright disputes.

There are also technical and regulatory risks, data privacy and security. Policies such as the EU GDPR and the US TikTok ban limit globalized expansion. Technology dependence increases, dynamic expansion, AI recommendation and other capabilities require continuous investment, and R&D costs are high.

6.2. Tiktok's Threat Response: Marketing Strategy Analysis

Technology-driven differentiated content innovation, AI tools to empower creation. The launch of “AI green screen”, “intelligent editing” and other functions have lowered the threshold of user creation and improved content diversity. ShakeEye's “AI Painting” special effect was launched with

over 100 million users in 3 days, leading to a 30% increase in UGC content. Social e-commerce to build the second growth curve, interest in closed-loop e-commerce: through the “short video seeding - live with goods - small store transaction” chain, 2023 Tiktok e-commerce GMV (total turnover) exceeded 2 trillion [2]. If people introduce head anchors such as Luo Yonghao and Oriental Selection, you can use their influence to strengthen the commercial trust of the platform. User operation and community stickiness enhancement, implementation of layered operation strategy. For ordinary users, “challenges” and “hashtags” stimulate participation (e.g., #Hidden Eating Method of Haidilao has a broadcast volume of over 5 billion). For creators, the “Creator Fund” and “Star Map Program” were launched to incentivize the production of high-quality content.

6.3. Challenges and Future Recommendations

Limitations of Jiyin's current strategy, e.g., e-commerce and content balance: excessive commercialization may dilute user experience (e.g., user complaints about “too many ads”). Geopolitical risks: policy uncertainties remain in markets such as India and the US. As for the future marketing direction, it is recommended to expand the specialized content in vertical fields, such as education and healthcare, to attract high-value users.

7. Coping Strategies of Streaming Media in Response to Threats

TikTok, as a leading player in the global short video industry, has provided a model for the industry to deal with threats through technology-driven, content innovation and strategic adjustment. This paper analyzes TikTok's coping strategy and its inspiration from four dimensions: market competition, user retention, content ecology and technology risk.

7.1. Threat of Market Competition: Differentiation and Localization to Break the Game

7.1.1. Coping with homogenized competition: technology-driven functional innovation AI tools lower the threshold of creation

Virtual persona breaks the content boundary:

The virtual idol “Liu Yuxi” incubated by Tiktok has attracted the cooperation of beauty brands with its first video broadcasting volume of more than 200 million through ultra-realistic CG technology and short videos with storyline [2]. The virtual IP not only avoids the risk of real Netflix breach of contract, but also expands the form of content, which is differentiated from the “old iron culture” of Racer.

7.1.2. Localized operation and deep cultivation of regional markets

Cultural adaptation strategy:

TikTok launched the “Ramadan Theme Challenge” in Southeast Asia, combining with local religious KOLs to produce content in line with Islamic culture; in Japan, it has introduced a special zone for secondary creation of anime, which avoids copyright disputes and activates users' participation at the same time.

Supply chain localization:

TikTok Shop cooperated with local logistics company J&T in Indonesia to shorten the delivery timeframe from 7 days to 3 days, and the GMV in Southeast Asia will grow by 400% year-on-year in 2023, far surpassing competitors such as Shopee [2].

7.2. User Growth Bottleneck: Social Fission and Scene Extension.

7.2.1. Social Relationship Chain and the Enhancement of User Stickiness

The “Friend Tab” simulates the socialization of acquaintances:

Joyo has migrated WeChat's “Circle of Friends” logic to the short video scene, allowing users to browse friends' likes and create content. This feature has increased the average daily usage time by

12%, and the number of times some users open the video in a single day has increased from 8 to 15 times.

Cross-platform streaming to build a closed ecological loop:

The videos exported by CapCut come with a watermark of the same style as Tiktok Voice, which attracts creators to feed traffic to the main site. With more than 500 million monthly activities worldwide, CapCut has become a key external content feeder for the platform

7.2.2. Full scene coverage to extend user life cycle

Multi-site synergistic strategy:

TIKTOK has launched a PC-based creation tool, a car-based app and a smart TV-based “Fresh Time”, covering office, traveling and family scenes. According to the data, the average daily length of stay of TV users reached 48 minutes, higher than the 38 minutes of mobile users, and ShakeEn still has growth potential in platforms other than mobile [1].

Tapping into the silver economy:

TIKTOK has launched the “Elder Mode” for users over 50 years old, simplifying the interface and increasing the content of opera and health care. In 2023, TIKTOK's silver-haired users will exceed 120 million, a year-on-year increase of 65%.

7.3. Content Ecological Threats: Algorithm Optimization and Copyright Governance

7.3.1. Algorithm upgrade to combat low-quality content

The “Dandelion Program” raises content standards:

TIKTOK uses AI models to identify vulgar and false information. In 2023, it cleaned up a total of 260 million illegal videos and banned 4.8 million accounts. At the same time, it has launched a “high-quality creator traffic support program”, tilting 50% of the recommendation weight to popular science and education content [1].

Human-machine cooperative auditing mechanism:

A two-tier filtering system with 20,000 auditors and AI recognition has been established, and the interception rate of high-risk content has increased to 99.8%, which is 12 percentage points higher than that of 2021.

7.3.2. Copyright cooperation to build a “moat”

Music copyright alliance:

Tiktok has entered into cooperation with Universal Music, Sony and other companies, launched the “Hot Star River” musician program, and opened up a library of 60 million genuine songs to creators. Copyright spending will increase from \$120 million in 2020 to \$680 million in 2023.

7.4. Technology and Regulatory Risks: Compliance and Resilient Architectures

7.4.1. Emphasizing data security compliance to address geopolitical risks

“Project Texas” segregates data:

TikTok invested \$1.5 billion in a standalone data center in the U.S., storing local user data on Oracle servers and eliminating regulatory concerns through third-party audits. The strategy has allowed it to stabilize its market share in the U.S. at 35%, without being completely displaced by Reels [6].

EU GDPR compliance transformation:

Introduced the “Privacy Center” feature, allowing European users to turn off personalized recommendations and migrate data to Irish servers, avoiding fines of up to 4% of global revenue.

7.4.2. Elastic Architecture Guarantees Service Stability

Hybrid cloud architecture to cope with traffic peaks:

During the Tiktok Spring Festival Red Packet event, the hybrid cloud architecture of AliCloud + self-built IDC supported 8 million requests per second, with downtime controlled within 0.01 seconds.

Edge computing optimizes the live broadcast experience:

Deploying 500 edge nodes in Southeast Asia, the live broadcast latency was reduced from 3 seconds to 1 second, and the lag rate was reduced to 0.5%, which helped increase TikTok's live broadcast e-commerce conversion rate to 6.2% (the industry average was 3.8%).

7.5. Future Challenges and Strategic Upgrade Directions

7.5.1 Promoting vertical specialization:

Expand serious content such as medical and legal content, and introduce expert certification systems (e.g., “TIKTOK Health” in conjunction with a triple-A hospital) to enhance the platform's credibility.

7.5.2 Web3.0 integration exploration:

Issue short-video NFT (non-homogenized tokens) digital collections, which allow users to collect or resell the copyrights of explosive videos; develop virtual live broadcasting space, which allows users to participate in celebrity concerts with digital doppelgängers.

7.6. Summaries

TIKTOK has effectively hedged the systemic risks of the streaming media industry through its trinity strategy of technology-enabled content socialization activated traffic-compliance-guaranteed expansion. Its core revelation is:

Technology is not only a tool, but also a brand moat: AI, edge computing and other capabilities need to be transformed into a visible advantage of user experience.

Globalization must be localized: cultural adaptation and deep cultivation of supply chain are more important than mere traffic expansion.

Compliance cost is the ticket to survival: data security investment has shifted from “passive response” to “active value-added”.

In the future, the competition of streaming media platforms will be upgraded from a “content war” to an “ecological war”, and the practice of Tiktok has proved that the only way to achieve sustainable growth is to integrate technology, content and business into a unified strategic framework [7].

8. Conclusion

The SWOT model is used to summarize the advantages and disadvantages of streaming media and its future development trend

As a typical representative of streaming media, Tiktok development trajectory clearly illustrates the opportunities and challenges of the industry. The platform has built significant advantages by virtue of its technology-driven approach: dynamic capacity expansion and edge computing to ensure the stability of high concurrency scenarios, AI tools to lower the threshold of creation and enrich the content ecosystem, the deep integration of localization strategies in the globalization layout, and the expansion of user boundaries in the cultural adaptation and scenario extension; meanwhile, the mature closed-loop commercialization connects the content and e-commerce seamlessly, forming an efficient chain from traffic attraction to cash conversion. However, behind these advantages there are multiple advantages, algorithmic recommendation has increased homogenization while enhancing content distribution efficiency, and users' boredom with low-quality content and dissatisfaction with overloaded advertisements reflect the imbalance between commercialization and experience; globalization expansion has encountered snipes from geopolitics and data sovereignty, and the cost of regulatory compliance has increased steeply, while the operational risks from cultural differences persist; and the technical risks caused by technology persist. The globalization expansion has been met with geopolitical and data sovereignty sniping; the cost of regulatory compliance has increased steeply, and cultural differences have led to persistent operational risks; technological dependence has also brought about ethical concerns, and issues such as in-depth forgery and privacy leakage have threatened the credibility of the platform. In the face of these threats, Tiktok response strategy

highlights systematic thinking: technically optimizing coding algorithms and terminal adaptations, and expanding diversified scenarios such as home and in-vehicle to prolong the user lifecycle; strengthening the human-computer collaborative auditing mechanism for content governance, and improving ecological quality through copyright cooperation and incubation of pendant categories; constructing a system of localized data storage at the compliance level, and responding to regulatory requirements by transparent operations; and exploring emerging areas such as virtual idols and NFTs in terms of strategy. On the compliance level, it has built a localized data storage system and responded to regulatory requirements with transparent operation; on the strategic level, it has explored emerging fields such as virtual idol and NFT, and turned its traffic advantage into a testing ground for ecological innovation. The core of this series of initiatives lies in finding a dynamic balance - technological dividends need to be constrained by social responsibility, globalization must be deeply coupled with localization, and commercial realization cannot overdraw user trust. Tiktok's practice reveals that the future competition of streaming media has surpassed the competition of single content or technology, and has turned to the construction of “ecological resilience”, that is, the establishment of a sustainable adjustment mechanism between technological innovation, user experience, and compliance costs, and the transformation of external threats into internal iterative driving force, and ultimately the realization of the continued growth of moat amidst the uncertainty.

References

- [1] Lu, Z.Y. (2024). The Governance and Development Game of Streaming Media Technology - The Turn of Limited Technology Governance and New Path Strategies. *Digital Communication*, (05), 18-21.
- [2] Wang, F. & Chi, L.Y. (2025). A new chapter in the era of streaming media: A panorama of web series development in 2024. *Audiovisual Theory and Practice*, (01), 34-40.
- [3] Yu, J.Q & Yu, X.G.(2024). Content Strategy Analysis of Streaming Media Platforms from the Perspective of Globalization and Localization Integration: A Comparative Case Study of Aiqiyi and Netflix. *Media Economics and Management Research*, (01), 169-191.
- [4] Lu,G.M. (2024).Delay optimization strategy for IP streaming media transmission technology. *Television Technology*,48(10),141-143.
- [5] Ho, Z. H. (2006). The advantages of network video streaming in teaching. *Literature and Education Materials*, (26), 146-147.
- [6] Chesire, M., Wolman, A., Voelker, G. M., & Levy, H. M. (2001). Measurement and analysis of a streaming media workload. In 3rd USENIX Symposium on Internet Technologies and Systems (USITS 01).
- [7] Colbjørnsen, T. (2021). The streaming network: Conceptualizing distribution economy, technology, and power in streaming media services. *Convergence*, 27(5), 1264-1287.