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TikTok's AI Strategy:

ByteDance's Global Ambitions

The Case Centre award winner 2021
in the category "Entrepreneurship"

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This revised version replaces the case "*ByteDance Beyond China: Leveraging Consumer Artificial Intelligence (AI) from Toutiao to Musical.ly and TikTok*".

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"AI technology touches more aspects of our lives than we are even aware of, from the networked systems that control the flow of traffic through our cities and the algorithms that create our music playlists, to the systems in healthcare and education that run automated diagnostics and recommend online courses to expand our knowledge base. As AI becomes an increasingly integral part of our society, ByteDance believes that we – and our industry peers – have a duty to ensure that we understand and can anticipate the social impact of these new technologies, and manage this impact responsibly."

Zhang Yiming, Founder and CEO, ByteDance[1] (December 1, 2017)

1. Introduction

ByteDance, the new media firm behind TikTok, a short-form video-sharing app, hit the headlines in 2018 when its valuation jumped to US$ 75 billion, surpassing Uber's US$ 72 billion to become the world's most valuable start-up. Along the way it acquired several international services including Musical.ly and News Republic, with an ambitious plan to expand beyond China. However, its rise to fame was not without missteps. It fell afoul of China's internet censors in April, resulting in its new aggregation unit shutting down for 24 hours and founder Zhang Yiming having to issue a 'self-reflective' public apology. He also pledged to expand its vetting team from 6,000 to 10,000 and to ban creators whose content was "against community values".

Launched by ByteDance in September 2016, TikTok – known as Douyin in China – is a social media app for creating and sharing videos as well as live broadcasting. Within two years it had become a leading short video platform in Asia. Its acquisition of Musical.ly in August 2018 cemented its growing dominance in the US and around the world. In a span of less than three years, its 40,000 global headcount have also grown to surpass Facebook's 35,600 staff, showing the world yet again, the speed and advantages of scaling in China[2]. However, TikTok hit a roadblock in March 2019 when it was fined a record US$ 5.7 million by the US Federal Trade Commission for collecting the personal data of children under 13. Its troubles escalated with the US government banning the app and forcing its sale. This led to TikTok suing the Trump administration in August 2020 even as it negotiated with potential US buyers.

Barriers to its global expansion include fierce local competition, government regulations and US-China trade tensions. Yet it established itself as a strong competitor to China's tech giants and was building to take on US tech giants. ByteDance reportedly made profits of US$ 3 billion on US$ 17 billion in revenue in 2019 with its private valuation around US$ 110 billion by June 2020. ByteDance was laying the groundwork for an even more ambitious project – a productivity app, Lark, to take on Slack, Microsoft and Google[3] while TikTok also planned to further expand globally with music streaming and digital financial services. This case study presents a brief history of AI (Section 2), categorization of AI applications (Section 3), and a comparison of AI in China and the US (Section 4), before the ByteDance and TikTok stories resume from Section 5.

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1   https://en.prnasia.com/releases/apac/ByteDance_Hosts_First_Global_Festival_for_AI_Ideas_to_Drive
     _Global_Dialogue_on_the_Power_of_AI_Technology_for_Social_Good-196079.shtml
2   https://www.theinformation.com/articles/the-people-behind-bytedances-app-factory
3   https://technode.com/2019/03/07/briefing-ByteDance-planning-a-slack-rival-for-international-markets/

2. A History of Artificial Intelligence (AI)

The term 'artificial intelligence' was coined in 1956 at a historic conference at Dartmouth College, by John McCarthy, professor of Mathematics. It is "artificial" in that tasks that usually involve human cognition are performed by computer systems, such as recognizing patterns, predicting outcomes clouded by uncertainty, making complex decisions. AI algorithms are able to perceive and interpret the world around us—and, it is claimed, may eventually be capable of emotion, compassion, and creativity.[4] In basic terms, AI can be broadly defined as a field of computer science whereby machines take on human intelligence or capabilities that exceed the cognitive performance of humans.

From 2011, with the advent of new algorithms, big data and artificial general intelligence, scientists such as Geoffrey Hinton[5] leveraged access to so-called 'big data', faster computers, and advanced machine-learning techniques to apply statistical AI approaches to various problems. Analysing large quantities of information from a variety of sources using data mining, statistics, and modelling, they could predict future outcomes. An entire AI subfield focused on prediction, seeking to fill in missing information by using data that did exist to generate new information based on underlying patterns. As the effectiveness and cost of making predictions fell thanks to better algorithms and processing power, their use expanded across a wide range of human activities and business applications such as fraud detection, and machine-learning applications such as for credit-worthiness (likelihood of loan repayment), health insurance (spending on medical treatments) and inventory management (daily warehouse stock levels).[6] New classes of prediction problems emerged thanks to advances in machine intelligence technology, including object identification, language translation and drug discovery.

However, even the best AI algorithm could not succeed unless it had practical application to the real world. Efforts focused on improving input data so that predictions could be calibrated. In 2006, Fei Fei Li, a computer science professor at the University of Illinois Urbana-Champaign, built a dataset called 'ImageNet' which subsequently evolved into an annual competition to develop algorithms to identify objects in it with the lowest error rate. From the first year of the competition in 2010, predictions improved from an error rate of 28% to better-than-human benchmarks by 2015 (see Figure 1). In less than 70 years, many milestones were achieved (see Figure 2).

Figure 1: Image Classification Error over Time

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4   http://fortune.com/2018/10/22/artificial-intelligence-ai-deep-learning-kai-fu-lee/
5   Geoffrey Everest Hinton, CC FRS FRSC, is an English Canadian cognitive psychologist and computer scientist, most noted for his work on artificial neural networks. With David E. Rumelhart and Ronald J. Williams, Hinton was co-author of a highly cited paper that applied the backpropagation algorithm (developed by Seppo Linnainmaa, 1970) to multi-layer neural networks.
6   Prediction Machines: The Simple Economics of Artificial Intelligence Hardcover – April 17, 2018, by Ajay Agrawal (Author), Joshua Gans (Author), Avi Goldfarb
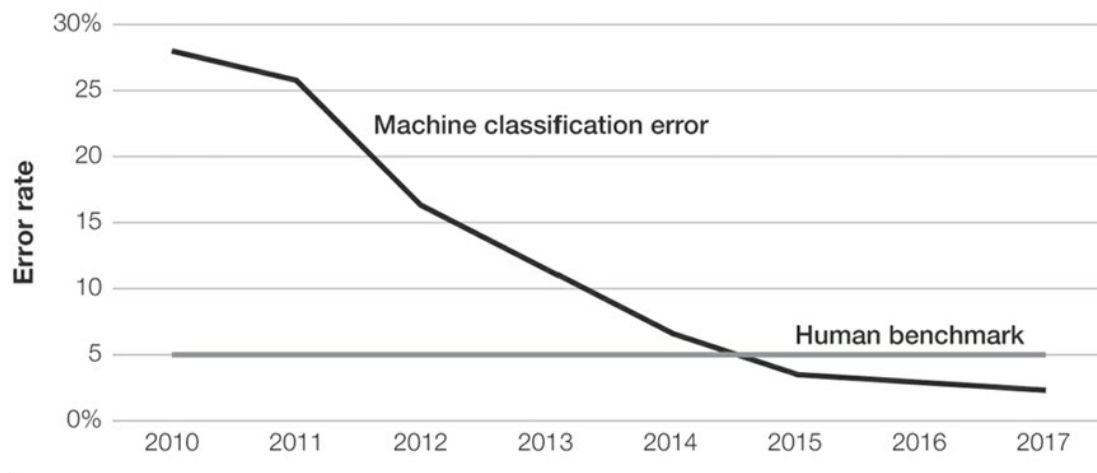
Source: Prediction Machines: The Simple Economics of Artificial Intelligence– April 17, 2018 by Ajay Agrawal, Joshua Gans and Avi Goldfarb

Figure 2: Timeline and Milestones in AI

Source: http://deckard.se/really-great-introduction-to-ai/
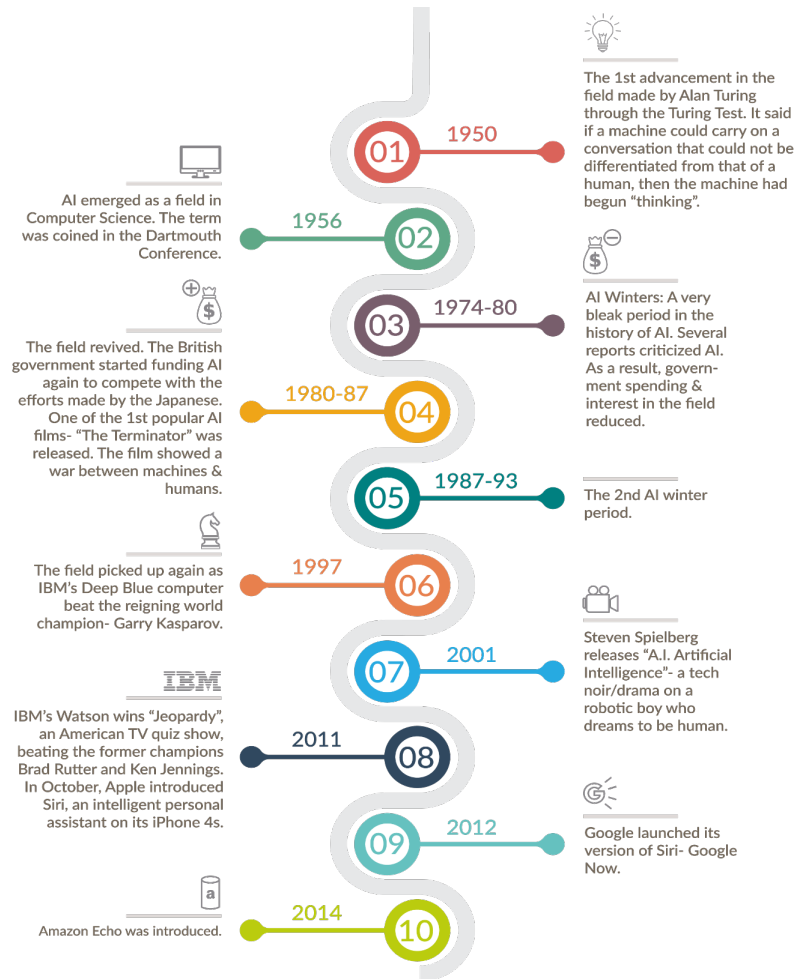
The first AI applications remained in the background of daily life or were only used by large organizations to solve complex problems – e.g., innovative ways of tackling major issues related to healthcare, traffic, and the environment. More recent applications directly impact the consumer experience, for example managing daily schedules, replying to emails, searching for photos, and watching videos. Technology titans like Google, Amazon and Apple incorporated AI into their technology and apps – e.g., facial-recognition systems, personal assistants, user-preference learning.

3. Categorization of AI Applications

AI, particularly deep machine learning, has had a revolutionary effect on daily life in the form of services such as voice assistants, language translation, GPS optimisation, and credit card fraud alerts. Kai-Fu Lee's *AI Superpowers* offers a framework to analyse AI capabilities, dividing them into four categories that have unfolded over time (see Figure 3).

Figure 3: Four Waves of Artificial Intelligence Applications
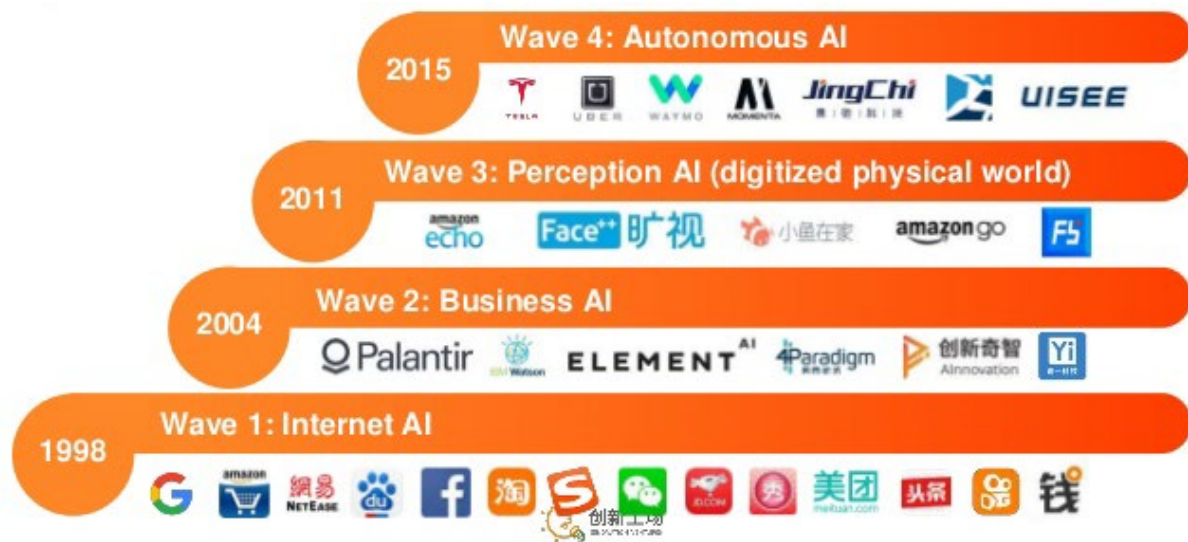
Source: Dr Kai-Fu Lee, CEO of Sinovation Ventures, "The 4 Waves of Artificial Intelligence Application" in
https://www.youtube.com/watch?v=VHuNWDDcEHY

Wave 1 - Internet AI: Powered by the huge amount of data flowing through the web, internet AI leverages the fact that users automatically 'label' data as they browse (buying vs. not buying, clicking vs. not clicking. American "big tech" companies like Google pioneered internet AI, and Chinese companies like Baidu later embraced it by automatically curating and recommending content based on user preferences and habits.

Wave 2 - Business AI: Algorithms are trained on proprietary datasets ranging from customer purchases and machine maintenance records to complex business processes—ultimately leading to improved decision-making. For example, Smart Finance, a Chinese financial services company built an AI-powered app for microfinance that depends almost exclusively on algorithms to make millions of micro-loans.

Wave 3 - Perception AI gets an upgrade with eyes, ears and other senses collecting new data that has never been captured and uses it to create new applications. One KFC restaurant in China teamed up with Alipay (Alibaba's mobile payments platform) to pioneer a 'pay-with-your-face' feature.

Wave 4 - Autonomous AI is the most monumental but also the most difficult. Integrating all previous waves, autonomous AI gives machines the ability to sense and respond to the world around them, to move intuitively, and manipulate objects as easily as a human. An example of this are the autonomous vehicles developed by Google, Tesla and Baidu that can 'see' and respond to the environment in real time.

4. Comparing AI – China vs. the US

A war for leadership – in government as well as the private sector – of AI and machine learning is underway between the US and China. Although the US began with a clear advantage in AI science and discovery, its lead has diminished. The Chinese government is committed to being global leader by 2020;[7] the US government is struggling to secure support at top levels to advance its AI agenda. In addition to allocating billions of dollars towards infrastructure to house AI businesses in designated industrial parks, entrepreneurial activity around AI has exploded in China in the past 10 years. Decades of research and billions of investments put the US ahead. Firms such as Google and Microsoft attracted top AI researchers from around the globe. China benefits from the many returnees from US technology companies, and a large population of STEM-educated (science, tech, engineering, maths) local talent. By some measures, China has taken the lead in number of AI research publications (see Figure 4). If quantity does not necessarily equate to quality, the surge in AI research in recent years has demonstrated the eagerness of the Chinese government to dominate the field.[8]

Figure 4: Global Publications on Deep Learning Research

Source: http://discoverchina.asia/2019/01/watch-out-america-chinas-a-i-is-getting-smarter/
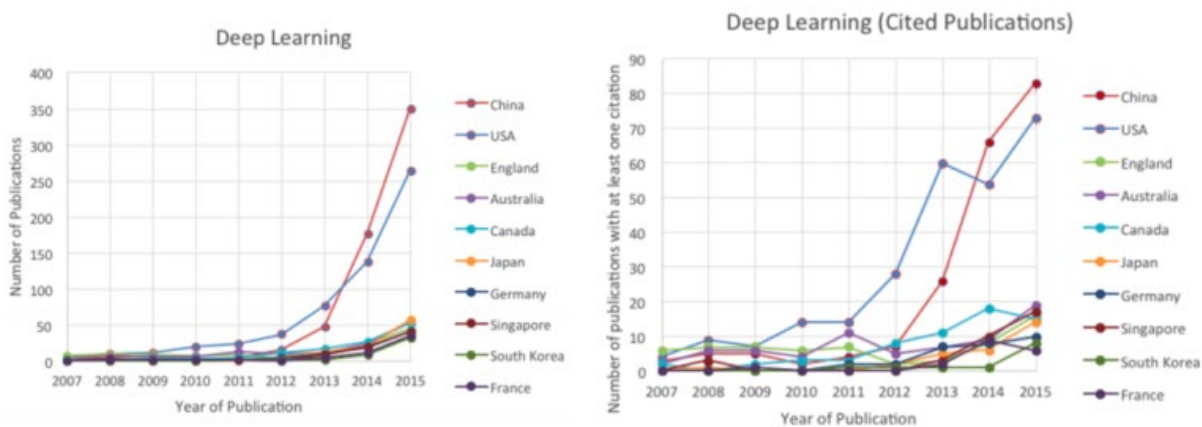
While many Chinese apps are subject to severe censorship requirements at home, ByteDance prevented that from undermining its popularity overseas by releasing different versions of the app known as Douyin in China – named TikTok overseas. The *Financial Times* sees ByteDance's strategy as a possible 'road map' (paywall) for other Chinese tech firms trying to go global.[9] By 2019, its global footprint included China, Japan, South Korea, India, Europe, Brazil, North America and Southeast Asia.[10]

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7   https://thenextweb.com/artificial-intelligence/2018/07/30/china-set-to-leapfrog-us-in-the-ai-race/
8   http://discoverchina.asia/2019/01/watch-out-america-chinas-a-i-is-getting-smarter/
9   https://qz.com/1564270/ByteDance-video-app-tiktok-rival-to-facebook-reached-1-billion-downloads/
10   https://www.forbes.com/sites/bernardmarr/2018/12/05/ai-in-china-how-buzzfeed-rival-ByteDance-uses-machine-learning-to-revolutionize-the-news/#4a67cd7940db

5. The ByteDance Story: Founding an AI Technology Company

Back in 2012, ByteDance was founded by 29-year-old Zhang Yiming, who predicted mobile devices was the key to the way information would be consumed in the future. Investors were sceptical that a news aggregator app could compete profitably against existing news apps. Defying all expectations, ByteDance became a world-leader in apps that leveraged its AI capabilities. Its success was largely attributed to its artificial intelligence and machine learning algorithms that delivered customized content feeds to users of all its products. Initially, ByteDance's differentiator lay in its use of proprietary technology to cut out 'content search'. Unlike Amazon and its counterparts that used collaborative technology (user characteristics and similar user profiles), ByteDance used content-based technology that took into account user behaviour (reading, clicking, liking) to predict their preferences.

Following success with texts in Toutiao (the news reading app), it applied its technology to all ByteDance products including Douyin (and TikTok) which used AI and machine learning to deliver preferred content, using algorithms in computer vision and natural language-processing technology to understand and analyse written content, images and videos, and then delivered customized content. As users interacted with the content (by taps, swipes, time spent on each article, comments) ByteDance's large-scale machine learning and deep learning algorithms learnt more about their preferences to refine content delivery. This resulted in a high-quality content feed based on individual preferences and interests. The more content the system accumulated, the better the algorithms to enhance the content experience.

Among the many accolades received, ByteDance was named a top AI innovator by CBInsight on its 2018 AI 100 List, and by Fast Company on its "most innovative companies" list. In January 2018, with $3.8 billion in funding, ByteDance topped the list of most promising global AI start-ups (see Figure 5).

Figure 5: 100 Most Promising AI Start Up Globally

Source: https://www.cbinsights.com/research/artificial-intelligence-top-startups/
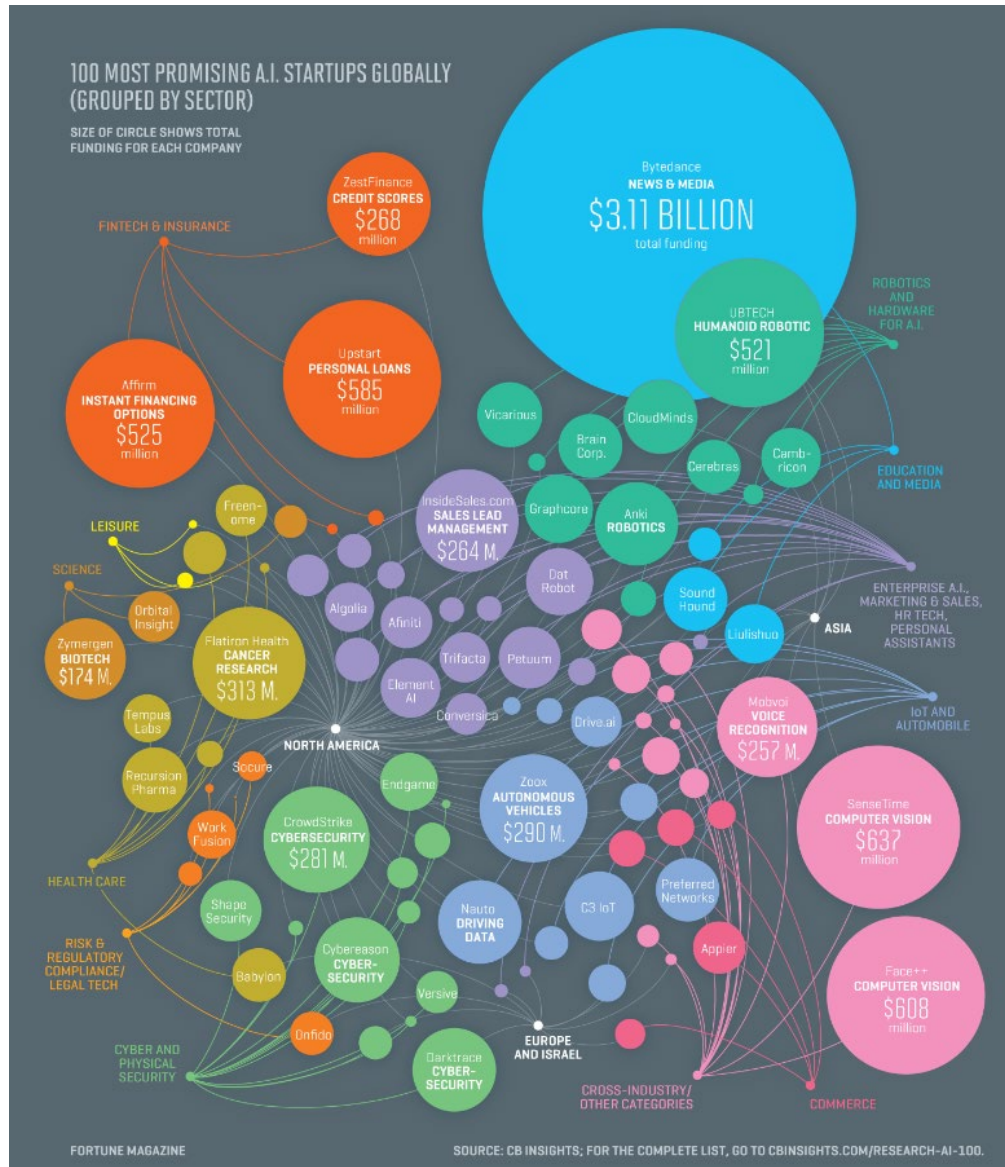
As the underlying technology that powered ByteDance's systems was not limited by linguistic or cultural barriers, the company easily expanded beyond China. While a relative latecomer to China's tech scene, ByteDance embarked on a globalization strategy with a series of mergers and acquisitions. It thus accumulated a vast amount of content and social media created by people and rich engagement data across all their various products.

Jinri Toutiao (Toutiao)

Launched by ByteDance in 2012, the mobile app Toutiao was one of the first Chinese algorithm-driven news apps to become a staple among Chinese users. Toutiao used AI to source and curate daily news and articles for users via 4,000 partner sites. Through the app's machine-learning algorithm, Toutiao understood and personalized content for each user, creating a unique experience based on their taps, wipes, page views, location etc. Using an advertising-based business model, its AI capability also enabled advertisers to target consumers accurately. Success relied on learning effects, network effects and stickiness, particularly in the first year when it rapidly gained market share and thus could collect more data and refine the AI algorithm to improve its product and user experience.[11] It enjoyed network effects, with users on one side and content creators on the other,[12] creating a virtuous cycle (more users attract more content creators, which attract more users) that propelled it to market leadership in news and information content in China. Personalized news recommendations increased the time users spent on the app, and therefore its appeal to advertisers[13] (see Figure 6).

Figure 6: Toutiao's AI-Powered Information/Content Platform

Source: https://digit.hbs.org/submission/toutiao-an-ai-powered-news-platform/
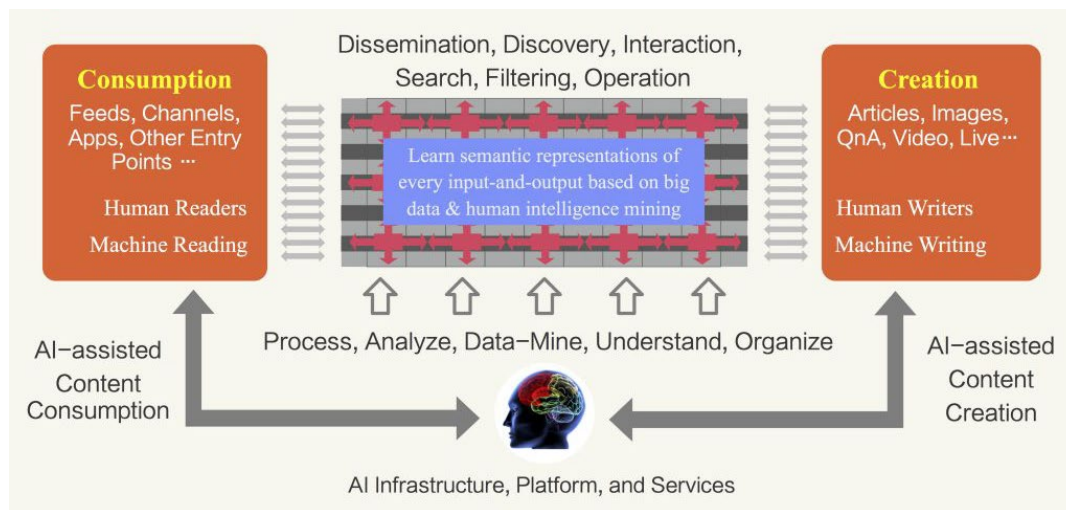
6. TikTok (and Douyin)

ByteDance launched Douyin in September 2016 as a media app for creating and sharing short videos. At a time when the BaiduAlibabaTencent (BAT) trio were fighting over video streaming services and copyright, Douyin emerged with unique content that was generated mainly from China's third- and fourth- tier cities. The 15-second video-sharing model was not only new but also satisfied the young generation who preferred snippets to lengthy in-depth content. The funky videos created by 'ordinary' app users connected with a segment that was previously under-represented online.

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11   https://digit.hbs.org/submission/toutiao-an-ai-powered-news-platform/
12   *Ibid.*
13   *Ibid.*

Unlike existing video apps, Douyin offered neither a 'play' nor 'pause' button; the moment a user opened the app, the 15-second videos automatically (and endlessly) start playing – without the user having to think. This meant that many users watched Douyin videos all day (and night) whenever they had downtime – an average of 82 per day. In fact, Douyin rolled out an 'anti-addiction' system in April 2018 to remind users when they spent too much time on the app. Initially, Douyin curated its content using artists (and influencers) by reaching out to art and music schools to provide high-quality content and working with agencies in China which specialized in grooming ordinary citizens for internet stardom. Another strategy was to treat top influencers as part of the company – actively promoting and subsidizing their traffic. Douyin videos were also popular for 'life hacks', such as the one involving 'Hai Di Lao' in which users uploaded videos of their own DIY dishes at the restaurant, inspiring others to do similar hacks.

Douyin also launched hashtags as a theme to create videos, some of which went viral like the 'Seaweed Dance.' What set it apart from other video apps was that it allowed creators to embed product links into their videos, for seamless commercial linkage. A Douyin influencer who created his own food product line, for example, had a shopping cart on the right-hand side of the screen that allowed users to purchase with one click as they watch the videos. Such features were made possible by the AI capability which ByteDance had built across all its products.

ByteDance launched Douyin (branded as TikTok) for overseas markets in September 2017, a year later. Like Douyin, it offered easy-to-use special effects so that anyone could make fun videos anywhere, anytime. However, the videos were tall (rather than square) and instead of tapping or swiping, users scrolled up and down. Special effects included shaking and shivering with hip-hop and electronic music, hair-dyeing, 3D stickers, props, and a vast music library. ByteDance created hashtags around various challenges, jokes or other content for comedy and daily-life videos. Its closest competitor globally, Musical.ly, was limited to user-created videos based on music, gestures, dance, and imitating singers.

In all ByteDance apps, and particularly TikTok, AI would become the product itself. TikTok leveraged the confluence of AI research, drawing on it to shape the product and using profiles and reactions from users to instantly customize content to their preferences. On TikTok, users did not provide input, content, nor a social profile; the AI technology predicted their interests and inclinations (from their taps, swipes, time spent on each article, time read, delays, remarks, loathes, top picks, and so on). The outcome was a customized, brilliant feed made explicitly for each user every time they opened the app.

TikTok differed from apps such as Instagram and Twitter in its recommendations of both what its users should watch and what they should post, effectively minimizing the 'thinking' required. The concept was akin to Instagram's 'Explore' tab, Twitter's 'trending topics' and tweets, and Facebook filling a user feed before members 'friended' anyone. [14] A landing page called 'For You' automatically opened the moment a user opened the app, an AI capability applied from Toutiao as well as Musical.ly which fed an endless stream of videos based on their profile (i.e., clicks, time spent, etc.) rather than asking what users want to watch based on their searches or friends' feeds. Using algorithmic observations and inferences, the app constantly fine-tuned its learning over time, so that the stream of videos was personalized to each user.

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14   https://www.nytimes.com/2019/03/10/style/what-is-tik-tok.html?action=click&module=Editors%20Picks&pgtype=Homepage

By the end of 2018, TikTok had more than 500 million monthly active users and available in over 150 markets and 75 languages. It had also firmly established itself as the short video platform of choice in the US, India, and other countries through its AI learning machine, which tailored content to diverse local audiences (see Figure 7).

Figure 7: TikTok Global Reach (Estimated)
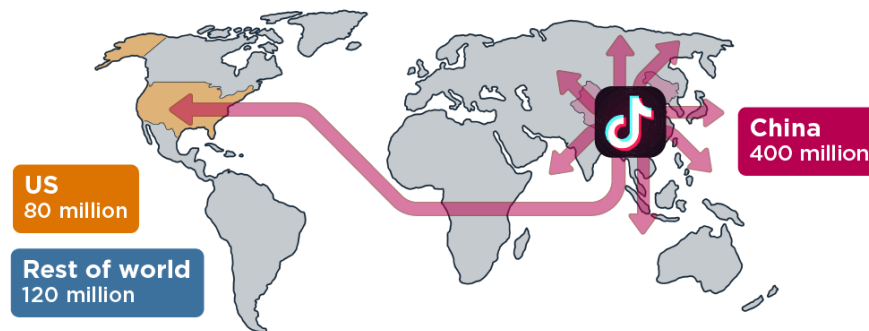
Source: ByteDance, The Guardian

According to app analytics service SensorTower, TikTok's overseas version was the world's most downloaded non-game app in both the iOS App Store and Google Play. Users could register and share content on other social media giants such as Weibo and WeChat, allowing Toutiao to increase its reach[15] (see Figures 8 & 9).

Figure 8: Top Non-game Apps by Worldwide Downloads (June 2020)

Source: SensorTower

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15   http://discoverchina.asia/2019/01/a-look-at-toutiao-chinas-artificial-intelligence-news-platform/

Figure 9: TikTok New Installs By Month (2020)
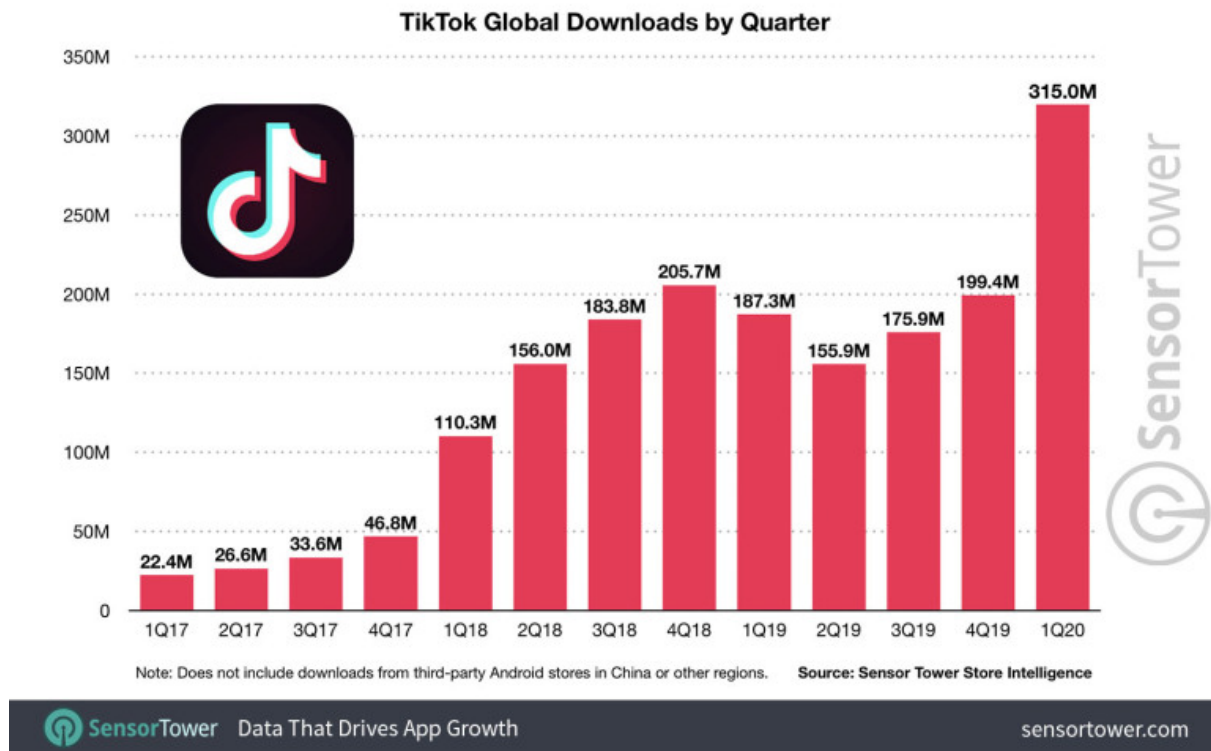
Source: SensorTower

TikTok regularly hosted challenges in which fans imitate certain moves, actions, or songs. The '1 Million Audition', its first global online short-video creator contest was successfully launched in 2017 in the US, Brazil, Portugal, India, Thailand, Indonesia, Japan. A TikTok press release in India announced:

Creators are already excited about the challenge and are showing off their immaculate artistic skills. The audition has seen a tremendous response and has received close to a million videos ever since its first edition! The first two days of the fifth edition of the 1 Million Audition has seen over 100K videos being posted on the app. The audition has included categories like fashion and art for the first time given the popularity of these categories among India creators. Hashtags like #1MFashionIn and #1MArtIn are already trending on the app![16]

TikTok's Expansion

By April 2020, TikTok had achieved 2 billion lifetime downloads. It came less than 5 months after it had surpassed 1.5 billion downloads. From January to March 2020, the app was downloaded 315 million times, which broke the record of downloads for any app in a quarter[17]. Following its success in short-video streaming, the company looked to diversify beyond its flagship product to

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16   https://www.how2shout.com/lifestyle/tiktok-organizes-fifth-edition-of-the-1-million-audition-to-find-talent.html
17   https://techcrunch.com/2020/04/29/tiktok-tops-2-billion-downloads/

build an ecosystem to decrease its reliance on one product and tap opportunities for further revenue growth.

As a video platform, TikTok initially offered a spin on gaming which its users could relate to. Inside jokes, parodies of pains of picking characters, and videos of people misusing their systems were topics that only gamers would understand had found success on TikTok. TikTok's gaming content soon built a foundation for a gaming community[18]. Social media platforms like TikTok, YouTube, and Instagram were becoming popular tools for esports and gaming companies to attract fans and players. Leveraging TikTok's key appeal to its users of using AI to automatically analyse users' interests based on their interactions with the app to generate content, TikTok's aimed to capture the growing gaming market and in line with ByteDance's push into gaming in China with a new gaming division[19]. During the League of Legends World Championships finals, TikTok partnered with Riot Games to launch an original music track as well as launched a user-generated content challenge. Following its success, the company shared that it planned to partner closely with TikTok to deliver even more customer experiences for existing and new fans[20]. Even traditional sports leagues were starting to jump on the bandwagon and in September 2019, NFL announced a multi-year partnership with TikTok[21].

TikTok's biggest stars had built their TikTok platforms through creating catchy dance and comedy videos. With millions of followers, they had monetized their fame through promoting merchandise to their fans on tours or in-person appearances. However, the corona virus pandemic in 2020 had forced the cancellation of these events. Some of them, particularly those who were already gamers, quickly turned to TikTok's newly released gaming platform as alternative sources of revenue which consisted games highlights, clips, and game news videos[22]. The pandemic further increased the demand for gaming and e-sports; in April 2020, ESL, a third-party tournament organizer, set up two separate TikTok channels: one specially for its highly popular Counter-Strike Global Offensive match highlights and the other for more generic esports content[23]. With a strong focus on targeting Generation Z, born between mid-to-late 1990s to the early 2010s, both channels garnered a staggering 2.5 billion views within 10 days of their launches[24].

In addition to gaming, TikTok also looked to expand e-commerce and other areas like music streaming and financial services. In March 2020, it launched Resso, its 'social music streaming' service in India (and beta-tested in Indonesia). Again, leveraging its AI capabilities, music auto plays as soon as its users opened the app. Its users were encouraged to give comments, share lyrics, and even generate their own content to share with each other[25]. Unlike TikTok, which was free to use and primarily built on an ad-based model, Resso instead followed the freemium route that other big music apps, such as Spotify, had taken. It offered a free tier with ads and lower streaming quality as well as a premium, ad-free tier faster streaming, free downloads, and the ability to skip tracks[26]. In August 2020, TikTok announced partnership with UnitedMasters, a music

18   https://newsroom.tiktok.com/en-us/gamersontiktok/
19   https://www.techinasia.com/bytedance-builds-gaming-division-tackle-tencent-headon
20   https://esportsobserver.com/tiktok-impact-esports-gaming/
21   https://esportsobserver.com/tiktok-impact-esports-gaming/
22   https://digiday.com/media/why-tiktok-stars-are-pivoting-to-gaming/
23   https://esportsobserver.com/tiktok-impact-esports-gaming/
24   https://esportsobserver.com/tiktok-impact-esports-gaming/
25   https://techcrunch.com/2020/03/04/resso-music-india-bytedance/
26   https://techcrunch.com/2020/03/04/resso-music-india-bytedance/

distribution company to allow artists to distribute their songs directly on its platform[27]. Bypassing the music label companies and reaching young music fans directly, artists keep 90% of their royalties and UnitedMasters taking the remainder 10%. The app had already a proven track record in popularizing little-known artists including Lil Nas X, Ambjaay, and bbno$[28]. More established artists were also starting to use the platform for music performances and previews.

In June 2020, TikTok followed its Chinese peers (e.g., Alibaba's Ant Financial and electronics maker Xiaomi) to enter digital financial services by reportedly partnering with a Singapore bank, OCBC, to bid for one of the five electronic banking licenses to be issued by the end of 2020[29].

TikTok Revenue Model

In 2019, ByteDance booked revenues US$ 17 billion, doubling its 2018 revenue of US$ 7.4 billion[30]. Much of its success could be attribute to TikTok; with its astronomical user growth and engagement, the app drew advertisers away from Tencent and Baidu Inc.[31]. TikTok's videos generated revenue by selling brands the 'commercial' time in between its 15 second videos. Using its AI to specifically target users, the ads nonetheless give users the option to click to skip past them. Additionally, by April 2020, TikTok had cumulatively collected US$ 456.7 million from its users although most of the spending — about 72.3% — came from China[32]. United States had spent about US$ 86.5 million on TikTok, thus the second most important market for TikTok from the revenue standpoint[33]. While 75.5% of all TikTok's downloads were through Google Play Store, most of the spending were from Apple's devices (US$ 435.3 million of US$ 456 million)[34].

7. Conclusion

AI technology lies at the heart of all ByteDance's content platforms, intelligent machines that can understand and analyse texts, images and videos using natural language-processing and computer vision technology. Its AI capabilities facilitated effortless content discovery by using large-scale machine learning and deep learning algorithms to serve users with preferred content. Its founder Zhang Yiming shared his aspirations for the company[35]:

> *We must work harder, we must also be more perfectionist. Just like there was international division of labour in the industrial age, in today's information age there's also an international division of labour. Chinese entrepreneurs must also improve their own capabilities as they go global. Google is a company without borders. I hope Toutiao will be as border-less as Google. Personally, I hope to do things that are interesting and meaningful to society.*

27 https://www.nytimes.com/2020/08/17/business/dealbook/tiktok-unitedmasters-music.html
28 https://techcrunch.com/2020/08/17/tiktok-announces-a-deal-with-unitedmasters-its-first-music-distribution-partnership/
29 https://www.pymnts.com/news/digital-banking/2020/tiktoks-bytedance-bids-for-singapore-banking-licence/
30 https://www.bloomberg.com/news/articles/2020-05-27/bytedance-is-said-to-hit-3-billion-in-profit-as-revenue-doubles?sref=vuYGislZ
31 https://www.bloomberg.com/news/articles/2020-05-27/bytedance-is-said-to-hit-3-billion-in-profit-as-revenue-doubles?sref=vuYGislZ
32 https://techcrunch.com/2020/04/29/tiktok-tops-2-billion-downloads/
33 https://techcrunch.com/2020/04/29/tiktok-tops-2-billion-downloads/
34 https://techcrunch.com/2020/04/29/tiktok-tops-2-billion-downloads/
35 https://hans.vc/toutiao/

ByteDance continued to invest in and acquire other global content providers, including Dailyhunt (India), Babe (Indonesia) TopBuzz (US), and News Republic (US), with plans to integrate its AI expertise into these acquisitions to personalize them for each end-user. ByteDance recruited tech leaders away from its rivals with attractive remuneration packages. Despite stiff competition from BAT, it aimed to leverage its machine-learning platform to sustain its growth, in the face of intensifying competition and hostile political climates.

Regulatory investigations and government backlash increased with TikTok's rapid global growth. US President Donald Trump had ordered ByteDance to sell its US TikTok assets citing national security and personal privacy threats with its Chinese ownership and links to the Chinese government. Other countries including the UK, South Korea, and Australia had expressed similar concerns on whether TikTok should be allowed to operate and be allowed to gather data on their citizens. In July 2020, India announced that it would block 59 mobile apps from China, including TikTok, as they were 'engaged in activities… prejudicial to [the] sovereignty and integrity of India[36]. TikTok also pulled itself out of Hong Kong amid increasing protests of the Chinese government's involvement in its politics. Other Asian countries reactions to TikTok also varied based on their political attitudes towards China. (see Figure 10).

Figure 10: Asian Countries' Reactions to TikTok

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[36] https://foreignpolicy.com/2020/07/02/india-banning-chinese-mobile-apps-tiktok-tech-market/

Country	TikTok's relationships with countries	Number of TikTok downloads* (Estimates, in millions)
India	Government bans TikTok	658.1
Indonesia	Government imposes a 10% tax on TikTok and other tech companies	152.8
Vietnam	No official government stance but a tech company sues TikTok for alleged copyright infringement	81.8
Thailand	No discussion underway	57.9
Philippines	Presidential spokesman Harry Roque says government finds no reason to shut down TikTok	48.2
Japan	Policymakers call on government to limit TikTok use Several muncipalities stop using TikTok in response to citizens' concerns	30.3
Malaysia	No discussion underway	25.7
South Korea	Regulator fines TikTok for mishandling children's data	18.9
Singapore	Government partners with TikTok in a campaign to encourage young people to pursue their passions	3.5

Source: SensorTower, Media reports * as of September 2020

At the end of August 2020, TikTok's CEO (and ByteDance's COO) Kevin Mayer announced his resignation from the company after only three months. The ex-Head of Streaming at Disney was hired as a way to create some distance between the company and its Chinese roots; in his first public statement as the CEO, he offered to release the code which drives TikTok's content-moderation algorithm as well as data flows. However, the US administration remained unconvinced and with TikTok poised for a sale to a US company, his role had become increasingly redundant[37]. Mayer shared with his staff, 'As the political environment has sharply changed, I have done significant reflection on what the corporate structural changes will require, and what it means for the global role I signed up for…[38]'

On September 14, 2020, ByteDance announced that it had chosen Oracle as TikTok's technology partner in the US one day before the government's ban on the app[39]. However, ByteDance stated that TikTok's algorithm was not for sale and it would neither sell nor transfer the code behind its

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37   https://www.businessinsider.com/tiktok-ceo-kevin-mayer-resigns-control-acquisition-bytedance-zhang-yiming-2020-8
38   https://www.businessinsider.com/tiktok-ceo-kevin-mayer-resigns-control-acquisition-bytedance-zhang-yiming-2020-8
39   https://www.nytimes.com/2020/09/13/technology/tiktok-microsoft-oracle-bytedance.html

apps[40]. With its global expansion plans in constant flux, ByteDance announced its plans to invest billions of dollars in 'business-friendly' Singapore to use it as a beachhead for its Asian expansion as well as build a data centre which would be used to operate TikTok and Lark[41].

Even ByteDance's AI cannot predict its future. How would ByteDance compete against Tencent in China, Facebook & Google in the US, and startups everywhere? What new applications would ByteDance find for its AI capabilities, including areas as disparate as gaming and productivity? Which ones would benefit most from its unique international userbase and capabilities in consumer AI? How might other companies apply the ByteDance AI formula in their own industries?

Case Study Questions

1. What role does AI play in ByteDance's TikTok product? Is it different than recommendation systems that came before (e.g., YouTube, Netflix)? How does AI create value for consumers of these products?

2. How difficult is it for competitors like Facebook and Google to imitate the success of TikTok? What is their best strategy to compete in the space?

3. What new applications should ByteDance build using its AI capabilities? What value does AI provide in these cases?

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40   https://www.scmp.com/economy/china-economy/article/3101362/tiktoks-algorithm-not-sale-bytedance-tells-us-source
41   https://www.straitstimes.com/asia/east-asia/tiktok-owner-plans-to-spend-billions-in-singapore-after-us-ban