# *ByteDance*

**ByteDance** (Chinese: 字节跳动; pinyin: *Zìjié Tiàodòng*) or **Beijing ByteDance Technology Co Ltd.** is a Chinese Internet technology company operating several machine learning-enabled content platforms, headquartered in Beijing.[2][3][4] It was founded by Zhang Yiming in 2012.

| ByteDance<br>字节跳动 | |
|---|---|
| **Type** | Privately held company |
| **Industry** | Internet |
| **Founded** | March 2012 |
| **Founder** | Zhang Yiming[1] |
| **Headquarters** | Beijing, China |
| **Areas served** | Worldwide |
| **Products** | Toutiao<br>TikTok<br>BuzzVideo<br>Vigo Video |
| **Website** | www.bytedance.com |

ByteDance's core product, Toutiao ("Headlines"), is a popular content platform in China.[5][6] Toutiao started out as a news recommendation engine and gradually evolved into a platform delivering content in a variety of formats, such as texts, images, question-and-answer posts, microblogs, and videos. Toutiao offers its users personalized information feeds that are powered by machine learning algorithms. A content feed is updated based on what the machine learns about a user's reading preferences.

ByteDance also pioneered the video-sharing mobile app TikTok. After it

acquired music start-up musical.ly, the company combined the two platforms into a single application under the TikTok name. It also runs BuzzVideo and Vigo Video.

ByteDance had over 800 million daily active users (over 1 billion accumulated users) across all of its content platforms as of November 2018.[7][8] The company was valued at $78 billion as of November 2018 and is considered one of the most valuable unicorns in the world.[9] In May 2019 ByteDance announced the intention to launch a new app for free music streaming. The launch is planned at the

end of the first quarter, the company has started negotiations with well-known music labels.[10]

## Creation of Neihan Duanzi (2012)

In March 2012, ByteDance launched its first app called Neihan Duanzi (内涵段子). This app allowed users to circulates jokes, memes, and humorous videos.

At its peak, Neihan Duanzi had over 200 million users in 2017.[11]

On 10 April 2018, ByteDance permanently sunset Neihan Duanzi, as the State

Administration of Radio and Television accused Neihan Duanzi of hosting “vulgar” and “improper” content and “triggering strong sentiments of resentment among internet users”.[12]

## Creation of Toutiao (2012)

In August 2012, ByteDance launched its second app called Toutiao (今日头条).

Zhang's personal experiences motivated him to find better ways to access information. For example, in 2008, to tackle the challenge of buying train tickets during holiday seasons,[13][14] Zhang created a program that checked the

availability of train tickets automatically. Half an hour after completing the program, he received a notice by SMS and bought a ticket successfully.

In 2011, Zhang noticed that fewer and fewer people were reading newspapers. At the same time, smartphone sales in America were soaring. Zhang capitalized on this growth in the usage of mobile devices and incorporated AI technology into a product that aimed to transform how information is being consumed.[15] The first version of Toutiao was launched in August 2012,[16] five months after Zhang founded ByteDance. It was a simple

mobile-only news app but with two features that people had not seen before in China: 1) stories were pushed to users rather than the users needing to search for keywords or find accounts to follow;[17] 2) the more users clicked on content, the more Toutiao learned their tastes and interests, and refined its recommendations.[18][19] Toutiao quickly accumulated large numbers of downloads and hit 1 million DAU only four months after its launch.[20]

## Development (2013-2014)

From 2013, Toutiao expanded to offer content in more categories and formats. In January 2014, the company created the “Toutiaohao” (头条号) platform to attract more PGC (professionally generated content) and UGC (user generated content) creators; and later in the year, added video capabilities. As its creator community grew, Toutiao used interest-based and decentralized distribution to help long-tail content creators find an audience. An often cited example[21] is “Zhuguan Baba”, a young pig farmer in Northern China whose posts on how to raise pigs attracted millions of readers on Toutiao.[22]

To encourage more individual or small-team creators to use its platform, Toutiao also launched incentive programs in 2014. These programs ranged from offering office space and tools, to guaranteeing minimum monthly incomes upon meeting key targets such as read rates and number of articles.[20] Earlier in 2014, Toutiao began monetizing via advertising.

## Diversification and globalization (2015-2018)

### Short-form video platforms

Between 2015-2017, the company rolled out and acquired a series of short-form video apps, including: Xigua Video (西瓜视频, formerly known as “Toutiao Video”), BuzzVideo (formerly “TopBuzz Video”), Huoshan (火山, international version: Vigo Video), musical.ly, and others.

## Extending global reach

As of 2018, ByteDance has a global footprint, with operations in Japan, South Korea, Southeast Asia, North America, Europe, Brazil, and India.[23]

ByteDance launched TopBuzz in August 2015, a content platform for videos, articles, breaking news and GIFs in the U.S. and later in Brazil in 2016.[24] ByteDance launched PGC short video platform TopBuzz Video in Japan in September 2016.[25] In October 2016, ByteDance invested in India's largest vernacular content aggregation platform Dailyhunt.[26] In December 2016, ByteDance invested in Indonesian news recommendation platform BABE.[27]

In February 2017, ByteDance acquired Flipagram,[28] a US-based popular short-form video app. In July 2017, ByteDance

launched UGC short video platform Hypstar (now Vigo Video) in Southeast Asia.[29] In November 2017, ByteDance acquired global news app News Republic[26] and global video community musical.ly.[30] In October 2018, it became the most valuable startup in the world.[31]

# Technology

## The Underlying AI Technology

ByteDance's products use machine learning algorithms to source and push content users find most interesting. This underlying technology learns users' feedback and preferences through their

interactions - time spent on each article, time of the day the user reads, pauses, comments, dislikes, and favourites. The engagement data from active users is fed into ByteDance’s algorithms, further refining the quality and relevance of content distributed to users. As a result, each user has a personalized content feed.[20] This AI technology has differentiated ByteDance's apps in China’s mobile Internet market, and the underlying tech also can be applied in international markets because it isn’t limited by linguistic or cultural barriers.[32]

Computer vision technology such as object recognition is also used to automatically tag and understand videos and images in order to facilitate recommendations across different languages.[23]

AI technologies are also applied to content creation activities. For example, the machine learning system helps creators predict viral content by comparing incoming articles with previous content that was widely popular.[33]

In 2016, ByteDance's AI Lab and Peking University co-developed Xiaomingbot, an

artificial intelligence writing bot that writes its own news article. The bot published 450 articles during the 15-day Summer Olympics. In general, Xiaomingbot published stories approximately two seconds after the event ended.[20]

In December 2017, ByteDance was included on the CBInsight AI 100 list, a list of 100 of the most prominent private companies applying artificial intelligence algorithms.[34] In February 2018, ByteDance was named to Fast Company's list of Most Innovative Companies, ranking #16[35] globally and #4 in the China Top 10 list,[36] ByteDance was commended for its

use of artificial intelligence to provide news and content.

## The AI Lab

ByteDance's research arm, the AI lab was founded in March 2016 and is headed by Wei-Ying Ma, former Assistant Managing Director of Microsoft Research Asia.[37] The lab's research focuses on AI for understanding information (text, images, videos) in depth, and developing large scale machine learning algorithms for personalized information recommendations.[38] Its main research areas include Natural Language

Processing, Machine Learning, Computer Vision, Speech and Audio, Knowledge and Data Mining, Distributed System and Networking, and Computer Graphics.[39]

# Products

## Toutiao

Toutiao delivers content recommendations to every user based on their interests. By analyzing the features of content, users and users' interaction with content, the algorithms generate a tailored feed of content for each user.[20]

In February 2016, a missing person alerts project was started on the Toutiao platform. In 2017, the alerts helped find 3,573 missing persons.[40]

## TikTok

TikTok is a Chinese music video platform and social network that was launched in September 2016, the app allows users to create their own short music videos, choosing a background music from TikTok music list which contains a wide variety of music styles.

## Xigua Video

In March 2016, ByteDance launched Toutiao Video, which was later rebranded as Xigua Video. Xigua Video is a short video platform that hosts a variety of video clips that are on average 2–5 minutes long.[41]

## musical.ly

musical.ly was a short-form video community that enabled users to share 15-60 second videos. Users could shoot, edit and post videos on the musical.ly app to express themselves through singing, dancing, and many other talents. In

December 2017, musical.ly officially joined ByteDance. The platform is currently defunct, having been folded into what is now TikTok.[42]

## TopBuzz

TopBuzz is the international version of Toutiao, a content aggregation and recommendation mobile platform that delivers videos, articles, GIFs and breaking news to users worldwide.[19]

## News Republic

News Republic is a news and video aggregator with daily breaking news and headlines from over 2,300 media partners in 47 countries and 43 languages.[43] In November 2017, ByteDance acquired News Republic from Cheetah Mobile.[44]

# Lawsuits

## Huxiu

In December 2018, ByteDance sued Huxiu for defamation after Huxiu reported that ByteDance's Indian-language news app Helo was propagating misinformation.[45]

### US Federal Trade Commission

On February 27, 2019, the FTC fined ByteDance US$5.7 million for collecting information from minors under the age of 13 in violation of the Children's Online Privacy Protection Act in the United States.[46] ByteDance responded by adding a kids-only mode to TikTok which blocks the upload of videos, the building of user profiles, direct messaging, and commenting on other's videos, while still allowing the viewing and recording of content.[47]

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