

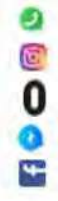
July 29, 2019

CONFIDENTIAL

# Industry Updates

July 2019

MARKET STRATEGY  
[fburl.com/ms](http://fburl.com/ms)



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FB-HJC-ACAL-00086409

# Agenda

## 1/ Overview of Top Apps

A/ Data Quality

B/ Industry Updates

## 2/ ByteDance & TikTok

## 3/ Trending apps: Photo & Video

## 4/ India: Password, Security Paradigms

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1A/ DATA QUALITY

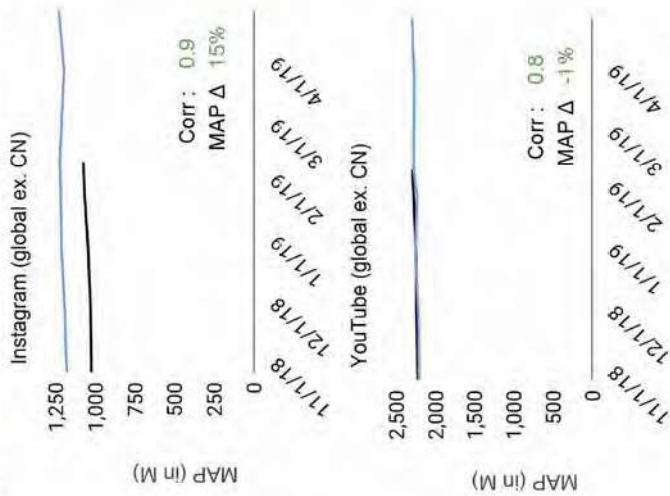
# Data source switched from Onavo to AppAnnie (AA). MAP trends for select examples illustrating H/M/L alignment

Evaluate AA and Onavo based on (i) absolute value (MAP delta) and (ii) trend alignment (correlation)

— Onavo  
— App Annie

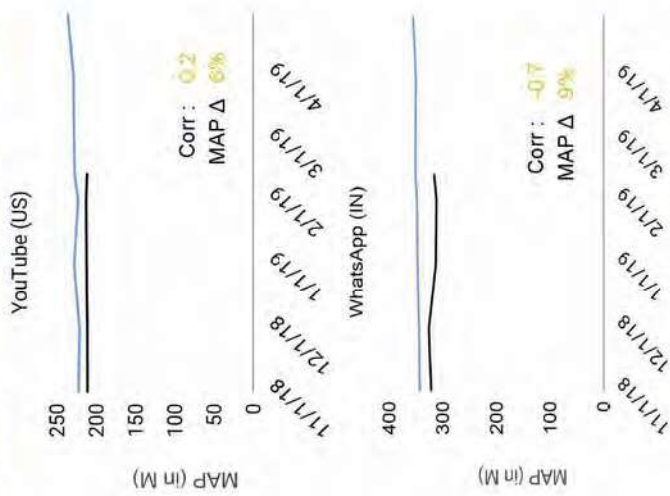
### High Alignment

A Apps with Low MAP Delta and High Correlation



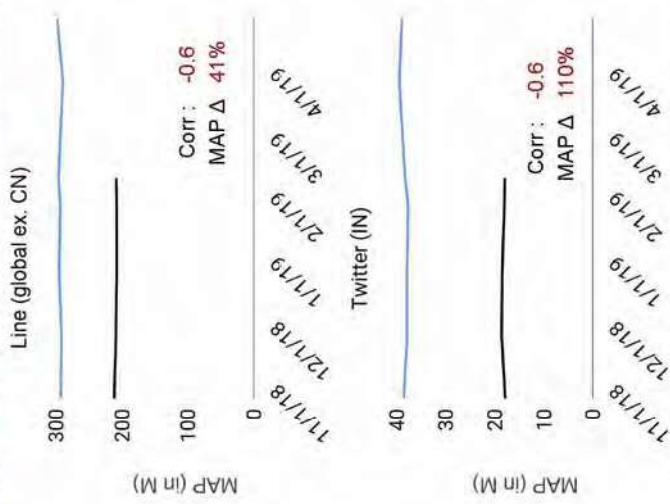
### Moderate Alignment

B Apps with Low MAP Delta and Low Correlation



### Low Alignment

C Apps with High MAP Delta and Low Correlation



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1A/ DATA QUALITY

# AppAnnie(AA) vs. Onavo for Top Apps shows alignment varies by market

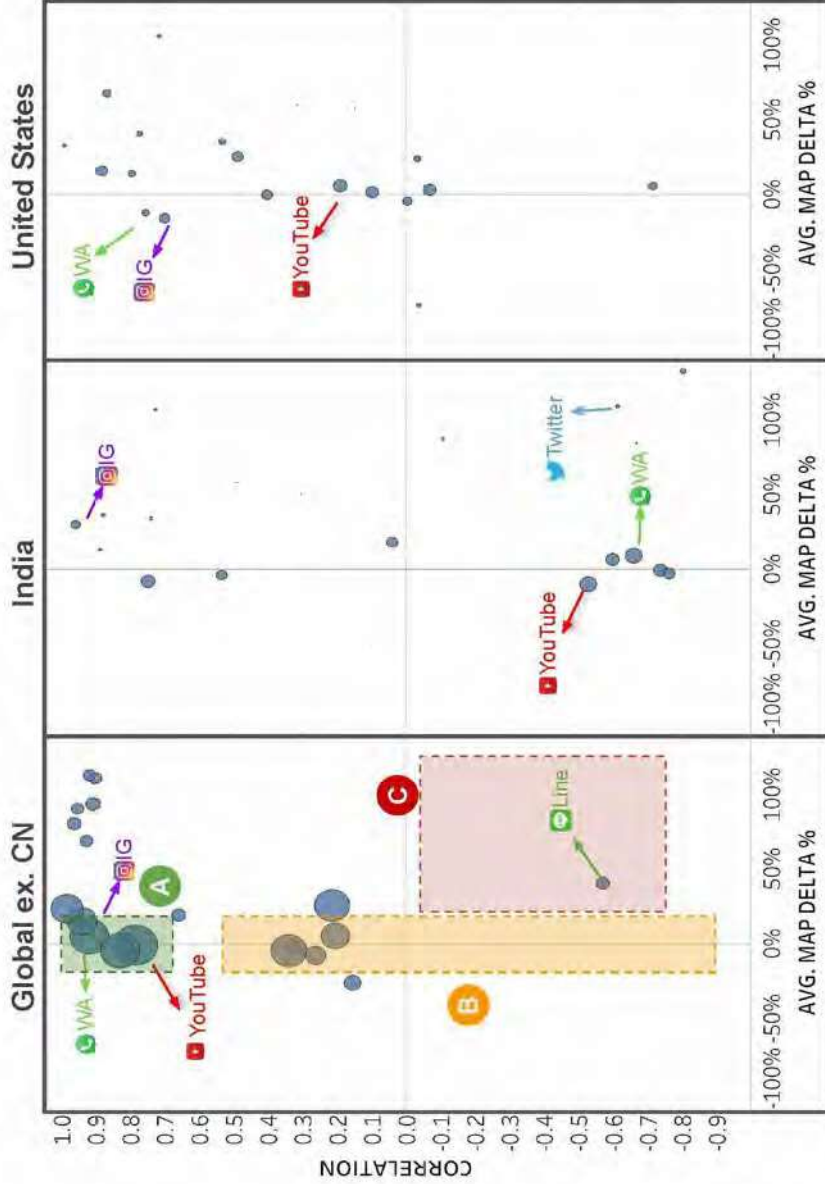
**Key Apps>200M**

(X) Avg. MAP Delta %: AA vs. Onavo.  
+ means AA is larger

(Y) Correlation: Corr (AA MAP, Onavo MAP)  
Oct'18-Feb'19

Bubble: Individual App

Bubble Size: Avg. Onavo MAP



**A High Alignment:** Apps with Low MAP Delta and High Correlation e.g. WhatsApp, IG, Youtube in global ex. CN

**B Moderate Alignment:** Apps with Low MAP Delta but Low Correlation e.g. Youtube (IN, US)

**C Low Alignment:** Apps with High MAP Delta and Low Correlation e.g. Line (Global ex. CN), Twitter (IN)

AA vs FB Family Apps (ground truth set)

**Representation Error<sup>1</sup>**

	Global ex. CN	IN	US
AA	Onavo	AA	Onavo
Android	15%	2%	29%
iOS	22%	16%	15%
		AA	Onavo
		15%	9%
		23%	29%
		15%	19%

[1] No significant differences between representation errors

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# Agenda

## 1/ Overview of Top Apps

A/ Data Quality

B/ Industry Updates

## 2/ ByteDance & TikTok

## 3/ Trending apps: Photo & Video

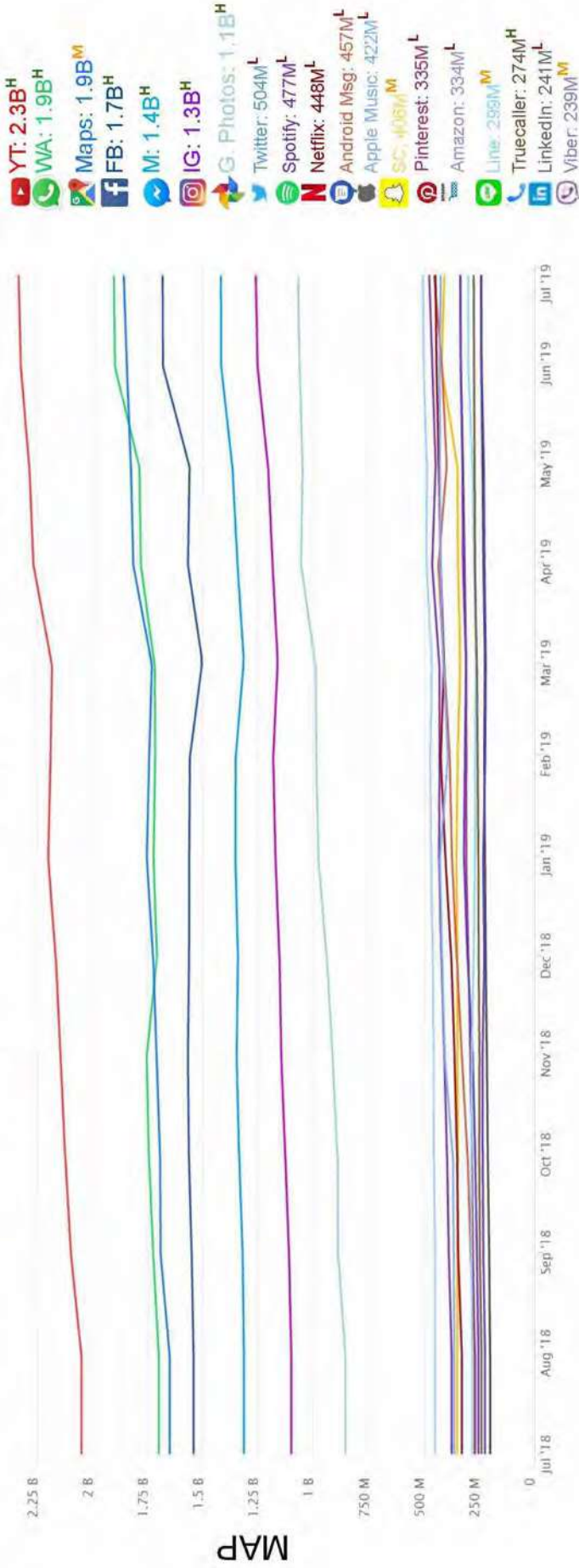
## 4/ India: Password, Security Paradigms

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## 1B/ INDUSTRY UPDATES, KEY APPS > 200M MAP

**Google Photos** passed **1.1B<sup>H</sup> MAP** (+12% H/H),  
**Snapchat** up to **406M<sup>M</sup> MAP** (16% H/H): driven by age/gender masks per Snap announcement



**H: High Confidence M: Medium Confidence L: Low Confidence**

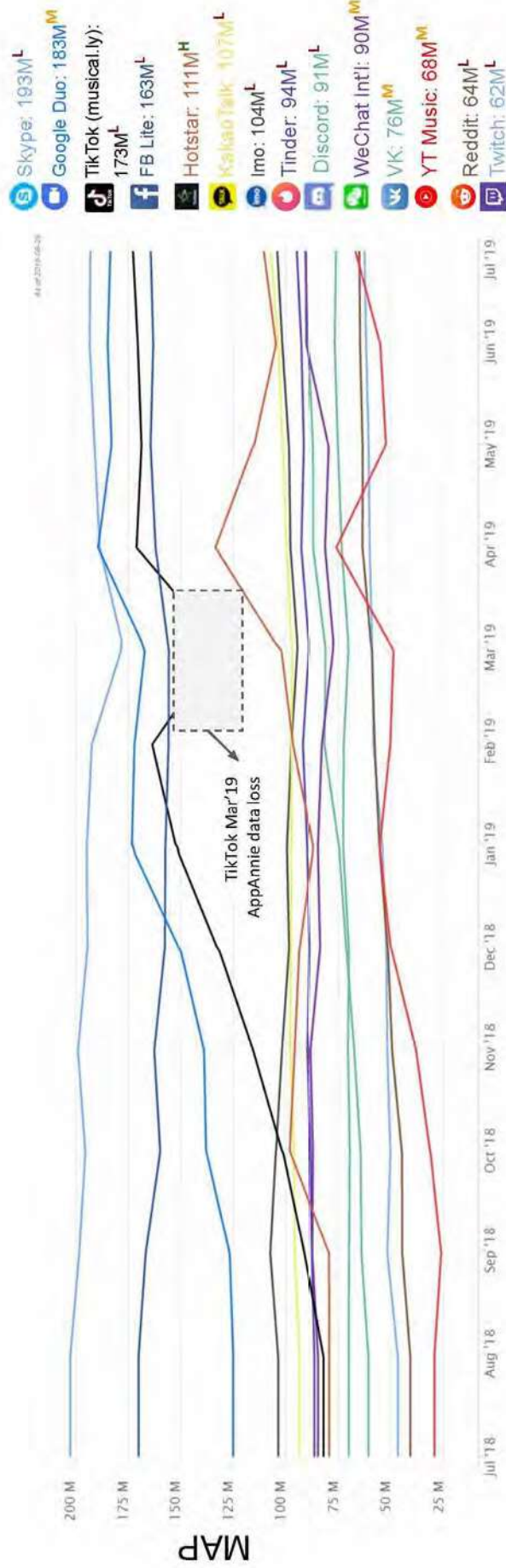
Source: MINT (30d rolling average), Facebook Internal Use Only

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1B/ INDUSTRY UPDATES, KEY APPS < 200M MAP

**Discord<sup>L</sup> (91M MAP) & Twitch<sup>L</sup> (62M MAP) grew 21% & 16% H/H;  
TikTok<sup>L</sup> (2 apps) growth slowed down Q/Q (+14% H/H, +1% Q/Q)**



**H: High Confidence M: Medium Confidence L: Low Confidence**

Source: MINT (30d rolling average), Facebook Internal Use Only

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# Agenda

1/ Overview of Top Apps

2/ ByteDance & TikTok

3/ Trending apps: Photo & Video

4/ India: Password, Security Paradigms

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## TL;DR ByteDance and TikTok: Key Updates

### Internal data (MINT)

- TikTok (musical.ly) MAP & engagement growth (global ex. CN) **slowed down** in Q2 (MINT, Jun'19)
  - **MAP 173M<sup>L</sup>** (+14% H/H, +1% Q/Q)
  - **TS/DAP 37min<sup>H</sup>** (+13% H/H, +2.6% Q/Q)
  - **DAP/MAP 46%<sup>H</sup>** (+12% H/H, +0.6% Q/Q)
  - **30-day new user retention 13%<sup>L</sup> US** (+8% H/H), **21%<sup>L</sup> India** (+1% H/H) (Android only)<sup>1</sup>
- TikTok Lite - the **consumption-focused** app primarily for India, grew 48% H/H (-29% Q/Q) to **4.9M MAP<sup>M</sup>**

### External news reports

- ByteDance announced **1.5B Global MAP** across family of apps (+50% H/H, with **47% DAP/MAP**)<sup>3</sup>
- ByteDance **commits to investing \$1B in India over 3 years**, including **adding data center in 6-18 months** and **investing in local startups** in content, commerce, edtech

1. External data source (less reliable), Jun'19
2. MINT, Jun'19
3. ByteDance public announcement, Jul'19

H: High Confidence M: Medium Confidence L: Low Confidence

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BYTEDANCE FAMILY OF APPS - External News

**Bytedance announced 1.5B Global MAP, with 47% DAP/MAP**

1. **Bytedance** announced **1.5B global MAP** in Jun'19, **+50% H/H**; DAP grew **+16.7% H/H** to **700M**<sup>1</sup>
  - a. Announced **TikTok** global DAP **+28% H/H** to **320M** (Internal data: **350M** undeduped DAP **+16% H/H**)<sup>2</sup>
  - b. Announced **Helo** has **50M MAP** in India (Internal data: **17.6M MAP**, **16% H/H**)

2. **TikTok & Helo** fueling growth through **referral programs**

- a. TikTok Rewards (US & IN) recruits college ambassadors, incentivizing referral download<sup>3</sup>
- b. Helo (IN) incentivizes referral download & 7-day engagement<sup>4</sup>

3. Hiring for US office to build<sup>5</sup>

- a. **Lifestyle Community App** targeted to **US youth**
- b. **Gaming partnerships and M&A**

4. **Douyin (TikTok CN)** extended video length from 15 seconds to 1 min (Apr'19); further allowed **15 min videos for celebrities (encouraging vlog)**<sup>6</sup>

1. Source: [KrAsia](#)
2. Source: MINT, Jun'19. 95M global ex. CN, 256M in CN
3. [Adweek, Apr'19](#)
4. Source: [Inc42](#)
5. Source: [LinkedIn](#)
6. Source: [Sohu CN](#)

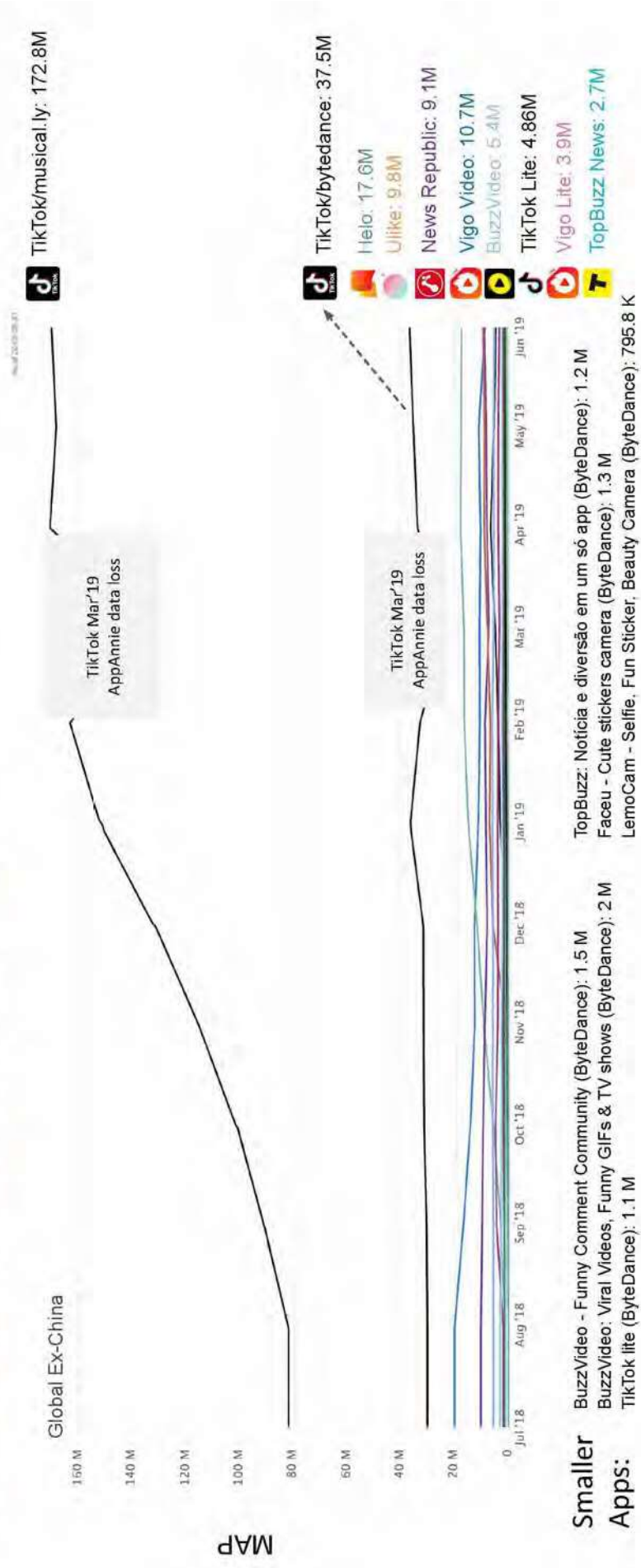
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BYTEDANCE FAMILY OF APPS - Metrics across apps

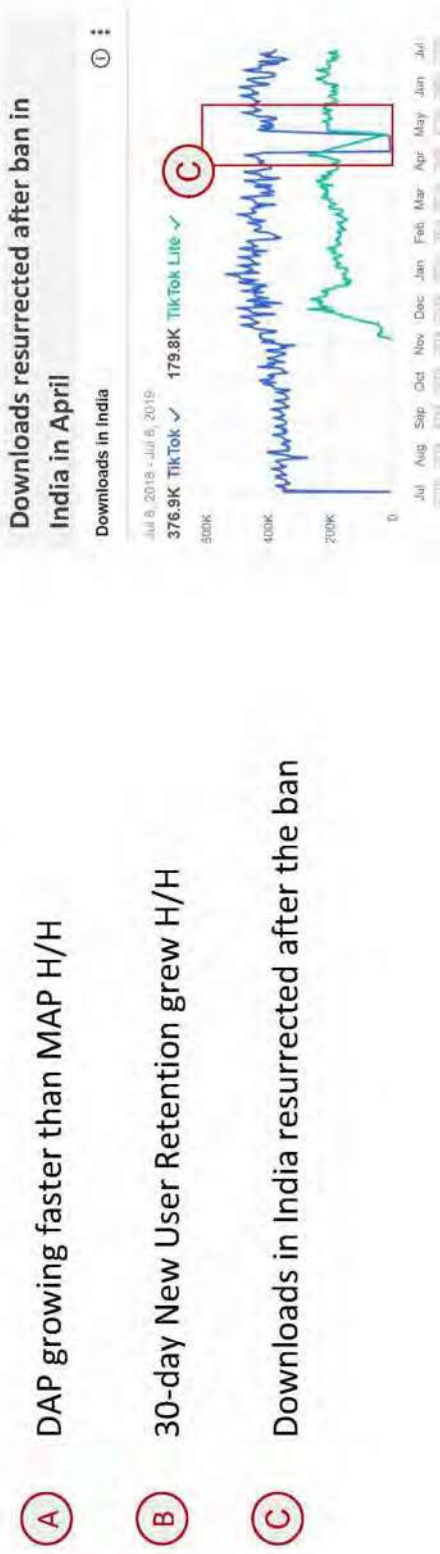
**TikTok (musical.ly) (173M MAP)<sup>L</sup> growth slowed down last quarter (+1% Q/Q)**  
**Helo +16% H/H to 17.6M MAP (-2% Q/Q)**



BYTEDANCE FAMILY OF APPS - TikTok (musical.ly) Metrics

TikTok (musical.ly) (Jun'19): DAP growing faster than MAP H/H, with retention improving

% increase H/H, Jun 30'19	MAP (H/H)	DAP (H/H)	DAP/MAP (H/H)	TS/DAP (min) (H/H)	30-day new user retention*
<b>A</b> 173M (+14%) <sup>L</sup>	80M (+28%) <sup>M</sup>	46% (+12%) <sup>H</sup>	37 (+13%) <sup>H</sup>	N/A	
22M (+19%) <sup>M</sup>	8.6M (+41%) <sup>H</sup>	39% (+18%) <sup>H</sup>	<b>B</b> 48 (-8%) <sup>L</sup>	13% (+8%) <sup>L</sup>	
69M (+23%) <sup>L</sup>	39M (+48%) <sup>L</sup>	57% (+21%) <sup>H</sup>	34 (+19%) <sup>H</sup>	21% (+5%) <sup>L</sup>	



**A** DAP growing faster than MAP H/H

**B** 30-day New User Retention grew H/H

**C** Downloads in India resursected after the ban

Source: MINT (monthly average), Facebook Internal Use Only  
 \*SimilarWeb, Dec'18-Jun'19, Android only

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## BYTEDANCE FAMILY OF APPS - TikTok Lite Metrics

# TikTok Lite (4.9M MAP<sup>M</sup>) growing predominantly in India

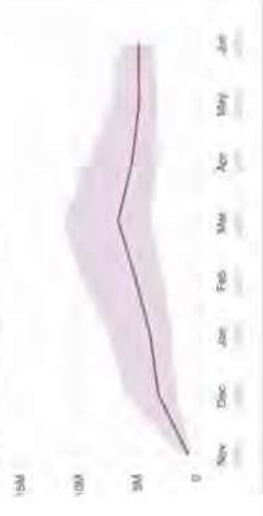
### Metrics in India (Jun '19)

- 15MB in size. Launched Oct 29th, 2018 in India as **consumption only app**
  - Comps: *Messenger Lite* - 5.7MB, *FB Lite* - 1.24MB
- **MAP: 4.9M MAP<sup>M</sup>** Grew w/o FB ads
- **TS/DAP: 23 min<sup>M</sup>**
- **Rank: Top 15-35** in India since December
- **30d New User Retention: 9%<sup>L1</sup>**
  - Hypothesis: low retention because users still have to download the main app for saving videos and creation, thus churning from the Lite app
- **Avg MB/user: 50-200MB/day<sup>L</sup>** Spikes on Sundays [source: *App Annie, India only*]
  - Hovered upto 300MB+ on Sundays between Jan - March
  - Now around 200MB+ per day on Sunday
  - Comps: *YT Go*: 60MB<sup>L</sup>, *FB Lite*: 23MB<sup>L</sup> on Sundays

Slight weakness in MAP since April ban

### TikTok Lite MAP in India

Nov 30, 2018 - Jun 08, 2019  
4.86M (3.59M - 6.58M) Android + iOS ✓



### TikTok Main + Lite app: TS/DAP flat Q/Q

Time Spent per DAP in India

Jun 6, 2019 - Jun 6, 2019

34.0 TikTok ✓ 22.65 TikTok Lite ✓

40 min<sup>L</sup>



10 min<sup>L</sup>

Jan 2019 Feb 2019 Mar 2019 Apr 2019 May 2019 Jun 2019 Jul 2019

Source: MINT, Facebook Internal Use Only

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H: High Confidence M: Medium Confidence L: Low Confidence 1. External data source (less reliable), Jun '19

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## BYTEDANCE FAMILY OF APPS - TikTok vs TikTok Lite

TikTok & TikTok Lite have high user overlap; likely due to limited feature set on Lite app

We believe the low retention on TikTok Lite is due to the lack of feature set such as

- **Option to 'save videos' does not exist** (one of the most requested features on reviews). This signals that *individuals still want to use TT Lite for inbound material on WhatsApp*.
- Recently introduced creation tools on April 4th, but still have **some restrictions on creation**. E.g. features like duets, live photos, save as GIF are not available.
  - This may be due to the difficulty to incorporate the same AI functionality on a smaller app size.
- Many **settings stripped down** in privacy, digital wellbeing, wallet, etc.

**44%<sup>M</sup> of TikTok Lite users in India also use TikTok**

Apps Overlap - India, X-Platform <sup>(7)</sup>



Source: MINT, Feb 2019

**Key Takeaway - The Lite app has to have the most desired features from the main app to make it retentive.**

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# Agenda

- 1/ Overview of Top Apps
- 2/ Bytedance and TikTok
- 3/ Trending apps: Photo & Video
- 4/ India: Password, Security Paradigms

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## Section Overview

### Context

- Many photo/video editing apps trending in H1'19, fueled by growth of IG, Snapchat, TikTok
- Snapchat released **baby/gender filters** leading to its highest **downloads on May 19th at 1.9M worldwide**.
- **FaceApp (8.8M MAP)<sup>M</sup> & AgingBooth (135K MAP)<sup>L</sup> topped US iOS/GPlay chart on Jul 17**, as old age filter went viral

### Key Findings

- **Apps use innovative new features (ex Masks) as a hook to gain new users**, however retention is dependent on the core value proposition.
- Most apps used as tools, few used for sharing (ex G Photos). Most apps not retentive (1-8% 30d new user retention)
- **High user overlap**: May need multiple apps to fulfill various editing needs, esp. **niche features** not in large social apps.
- **Music-focused creation apps** had the **fastest H/H growth**.

### Next Steps

- As Music overlay was a key 'hook' for IG stories growth, we need to investigate **an innovation roadmap for FB to create such viral hooks** that encourage connection and sharing.
- Investigate new product and tech e.g. Canva-style IG/FB story templates, TikTok AI music rec.

H: High Confidence M: Medium Confidence L: Low Confidence

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TRENDING SPACE

Many Photo & Video apps trending in H1 2019, with few retentive apps

Examples of trending apps (2019)

Source: AppAnnie

iOS top 10, US, Jan 21'19

#	Free	App Name	Developer
1	Color Bump 3D	Good Job Games	
2	Words Story	Worzzle	
3	Polysphere	Playgendary	
4	TikTok - Real Short Videos	Musical.ly	
5	PicsArt Photo Editor + Collage *	PicsArt	
6	Instagram	Instagram	
7	Netflix	Netflix	
8	YouTube: Watch, Listen, Stream	Google	
9	Crowd City	Voodoo	
10	Wordscapes	PeopleFun	

iOS top 30, US, Apr 8'19

#	Free	App Name	Developer
21	Facebook	Facebook	
22	TikTok - Real Short Videos	Musical.ly	
23	DoorDash - Order Food Delivery	DoorDash	
24	MLB Tap Sports Baseball 2019	Gu	
25	Funimate - Be Music Video Star	Ayct	
26	Cash App	Square Inc	
27	WhatsApp Messenger	WhatsApp	
28	Amazon - Shopping made easy	Amazon	
29	Bitmoji	Bitstrips	
30	House Paint	SayGames	

iOS top 10, US, Jul 18'19

#	Free	App Name	Developer
1	FaceApp - AI Face Editor *	FaceApp	
2	Face Aging App - Oldify Camera	Muzan Labs Company Limited	
3	Shootout 3D	Kovalev	
4	AgingBooth *	PVM&Co	
5	Origame	Kechnapp Studio	
6	Jelly Shift	SayGames	
7	Picker 3D	hollic	
8	aquapark.io	Voodoo	
9	Battle Disc	SayGames	
10	Collect Cubes	Allictus	

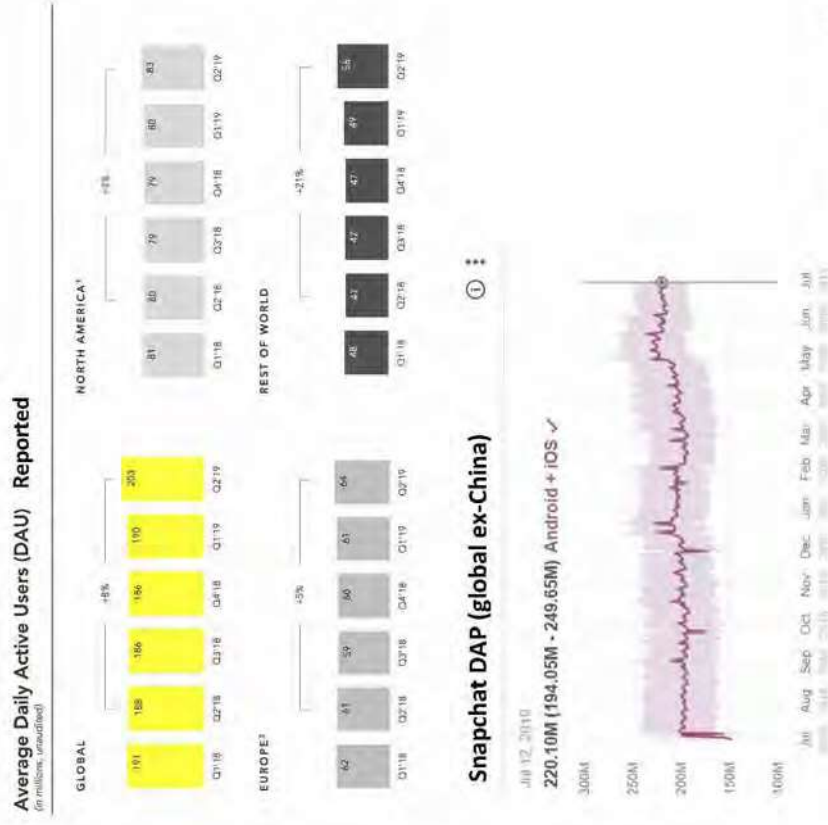
\*Deep Dive in following slides  
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## TRENDING APP

# Snapchat: Reported DAU increase to 203M(Q2) from 190M(Q1), majority increase attributed to AR lenses per Snap announcement

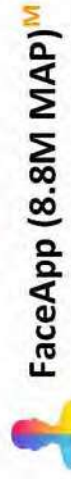
- 1. DAU increase (+7% q/q)**
  - a. Largest sequential increase since Q2 '16
  - b. 6M+ from North America, Europe
  - c. 7M+ from Rest of World
    - i. May be due to Android Code rewrite
- 2. Snap estimates 7-9M (out of 13M) DAU increase came from new AR lenses (baby, gender swap)**
- 3. 30-day new user retention increased from 16% (May'19) to 19% (Jun'19)<sup>1</sup>**



1. External data source (less reliable), Jun'19, US, Android only

## TRENDING APP

Most recently **FaceApp (8.8M MAP)** & **AgingBooth (135K MAP)** topped US iOS/GPlay chart on Jul 17, driven by old age filter going viral



- Similar to Snapchat's gender/ baby masks
- Growth drivers: Celebrities sharing photos
- Now has 150M+ People's Faces And Names ([Forbes](#))
- Increasing privacy concerns around media usage

30-day downloads  
(Global)

DOWNLOADS

2.9m



What you need to know before using FaceApp  
FaceApp has gone viral with people using it to edit pictures of themselves to appear older but privacy experts worry the photo-editin...  
© ctvnews.ca

Source: MINT, Jun '19

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**AgingBooth (135K MAP)™**

- Age face in photos, launched in 2012
- Growth driver:
  - People search for 'age/aging' to find FaceApp. Appears in similar apps to FaceApp
  - Trending on social media

30-day downloads  
(Global)

DOWNLOADS

412,774

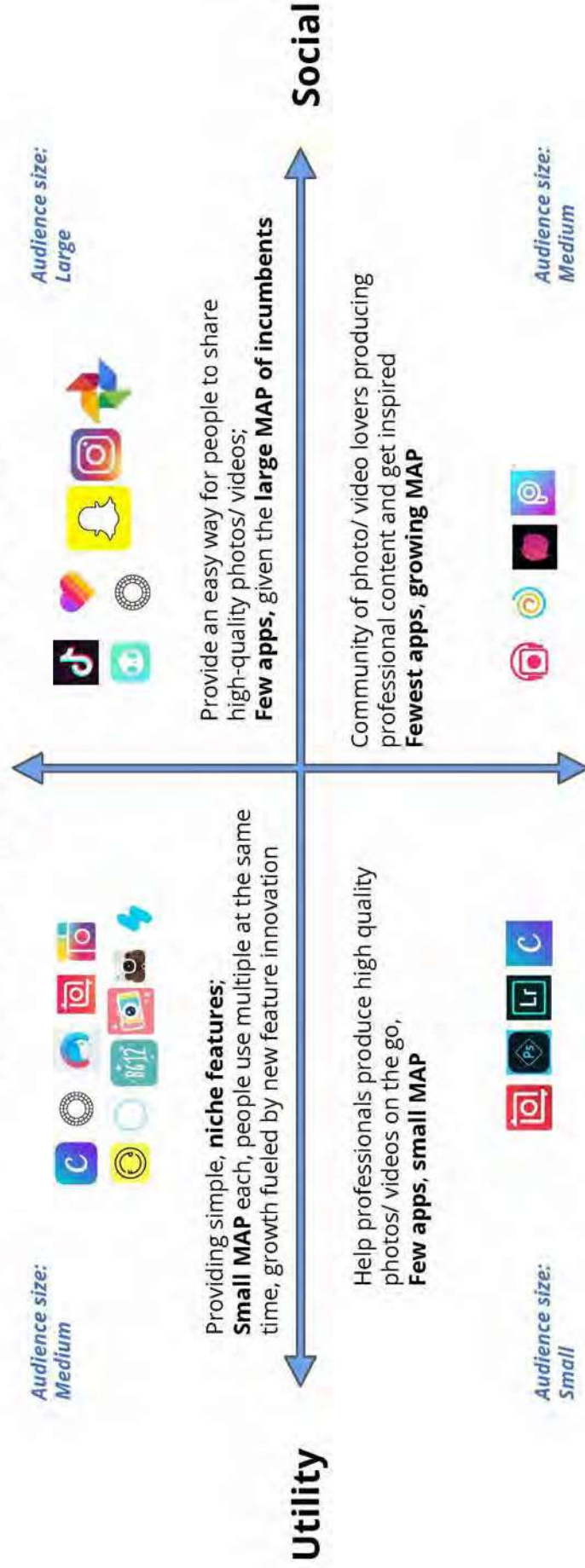


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## FRAMEWORK FOR PHOTO, VIDEO APPS

Many new editing apps trying to pivot to social sharing; but few apps that cater to niche, easy editing have scaled

### Features: **Easy**, for the camera novice



### Features: **Advanced**, for the camera pro

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TRENDING SPACE

Music focused creation apps with social sharing feature had the fastest H/H growth

Top apps by category (Jan - May'19):

**Social, Advanced**

- Picsart (113M MAP, +14% H/H)
- Funimate (2M MAP, +201% H/H)
- Lomotif (7M MAP, +112% H/H)
- Triller (1M MAP, +54% H/H)

**Social, Easy**

- TikTok (170 MAP, +29% H/H)
- VSCO (32M MAP, +6% H/H)
- LIKEE (22M MAP, +48% H/H)

**Tool, Advanced**

- Adobe Photoshop Express (27M MAP, +12% H/H)
- Adobe Lightroom (20M MAP, +41% H/H)

**Tool, Easy**

- Facetime 2 (3.5M MAP, +30% H/H)
- InShot (2.2M MAP, +25% H/H)
- PicCollage (17M MAP, +10% H/H)
- Magisto (2M MAP, -11% H/H)
- Canva (23M MAP, +31% H/H)

**Music-focused**  
**Beauty-focused**

MAP across top photo/video apps, Jan-May'19, Global ex. CN



Source: MINT, Jan-May'19

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## TRENDING APP



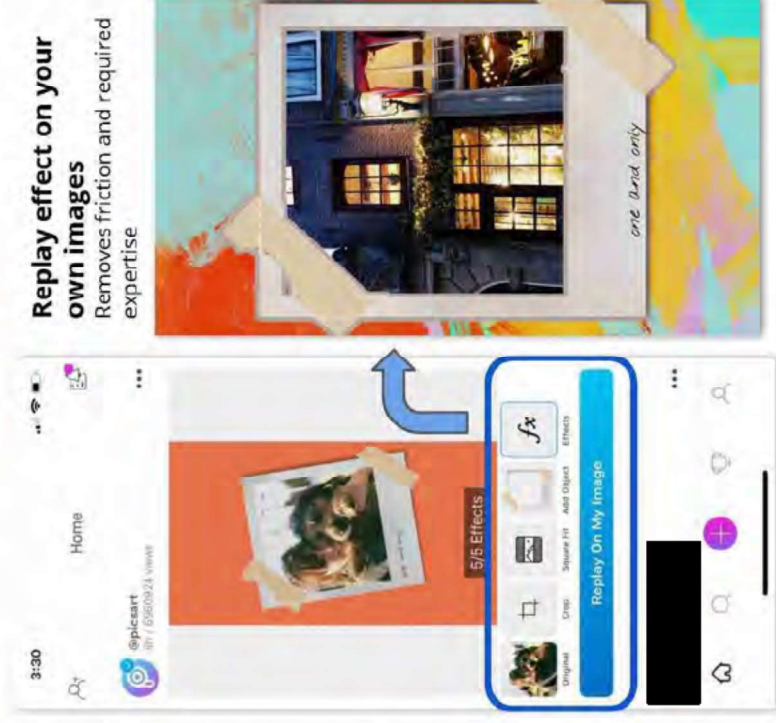
**Picsart (113M MAP)** is the largest app to emerge in the photo editing space; encourages creation via features like replay image and celebrity contests

### Metrics

- **MAP:**
  - a. **Global ex. CN: 113M** (May '19)
    - i. **130M MAU, 15% in CN\*** (Reported actuals)
  - b. **US: 4.5M** (May 31'19, new MINT data)
  - c. **CN: 14.5M** (May 31'19 from QM)
- **TS/DAP: 9 min**
- Featured on iOS home page collection list since March 14

### Value Prop

- **3K tools**, including replay and library
- **Community:** Passion based. Share images for remixing
- **AI features** (30-ppl in AI team across Armenia & Mexico)



\*Disclosed by PicsArt team

Source: MINT, Facebook Internal Use Only

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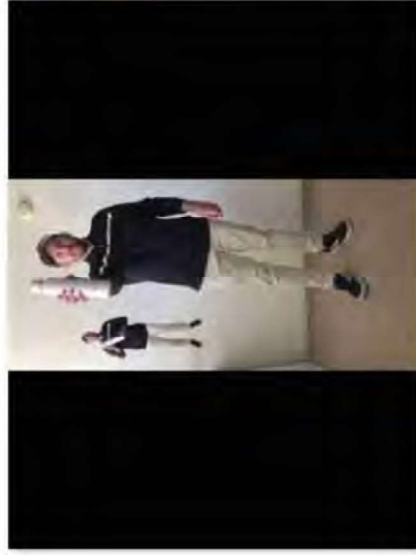
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## TRENDING APP



# Picsart: Initiatives we can learn from to encourage creation

### Easy Sticker Creation



### Image Remix Challenges w/ celebrities



### Leaderboards



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TRENDING SPACE

# Google experimenting with Fabby apps to keep up with photo editing trends



**Fabby Look - Hair Color Editor**

*App too small to track*



**Fabby - Photo & Video Editor**

299k MAP global ex-China<sup>1</sup>



**COLOR HAIR**



**SHARE**



**I'M LUCKY**



**BLUR**



**FUN**



**BEAUTY**

Source: MINT, May'19, Global ex. CN

H: High Confidence M: Medium Confidence L: Low Confidence

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TRENDING SPACE

**Google Photos** and **Snapseed** are the only editing apps that have meaningfully scaled



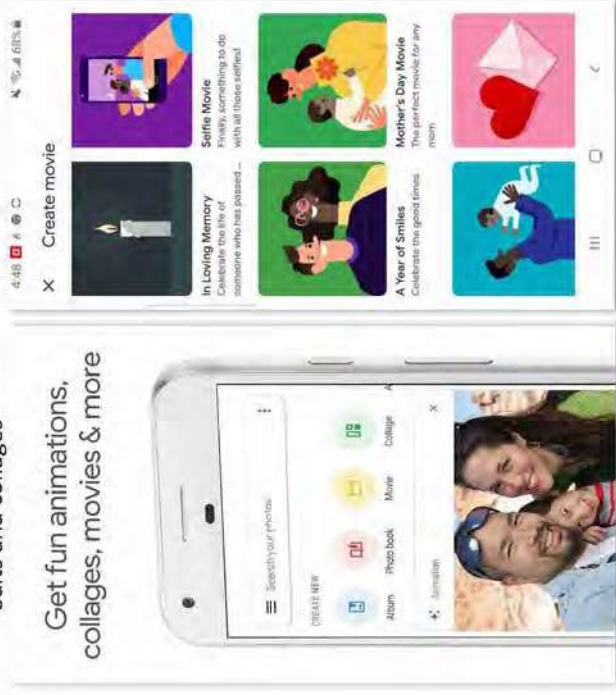
**Google photos** - 1.1B<sup>H</sup> MAP

Also has AI generated movies, collages, gifs, editing

Auto suggested animations, edits and collages

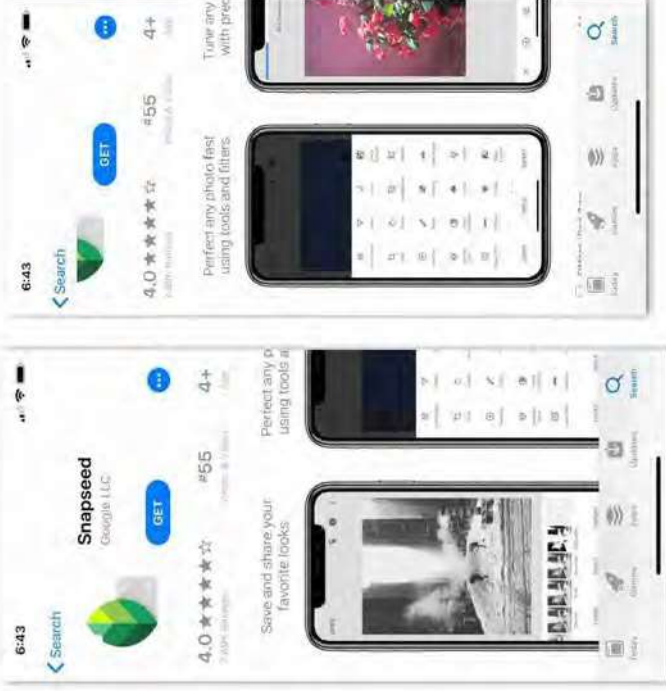
One click movies

Get fun animations, collages, movies & more



**Snapseed** - 76M<sup>M</sup> MAP

Complex photo editing



Source: MINT, May'19, Global ex. CN

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H: High Confidence M: Medium Confidence L: Low Confidence

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TRENDING SPACE

ByteDance

**Bytedance:** one of the strongest contenders in photo, video editing with AI

Other photo focused apps owned by BD besides TikTok



**FaceU**  
(1.2M MAP\*)



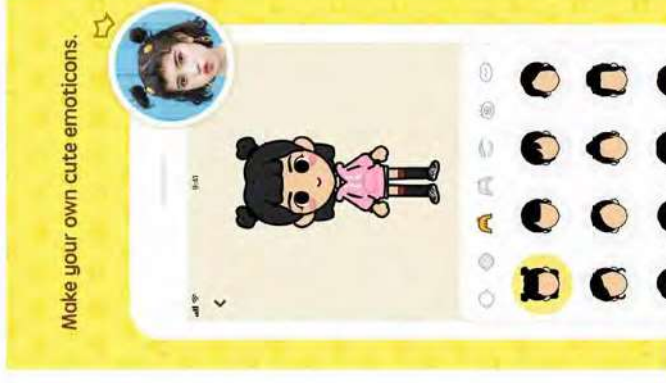
**LemoCam**  
(794K MAP)



**Ulike**  
(9.7M MAP)



**Qmoji (MAP not available)**



\*MINT, May'19, Global ex. CN

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# Agenda

- 1/ Overview of Top Apps
- 2/ Bytedance and TikTok
- 3/ Trending apps: Photo & Video
- 4/ India: Password, Security Paradigms

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## Section Overview

### Context

- Community Integrity and Core Growth wanted design and product inspiration around how other apps handle login and password security in India, since it is one of the largest markets for weak passwords. For this ‘Understands’ phase, we analyzed 16 apps to understand their login and password reset models.

### Key Findings

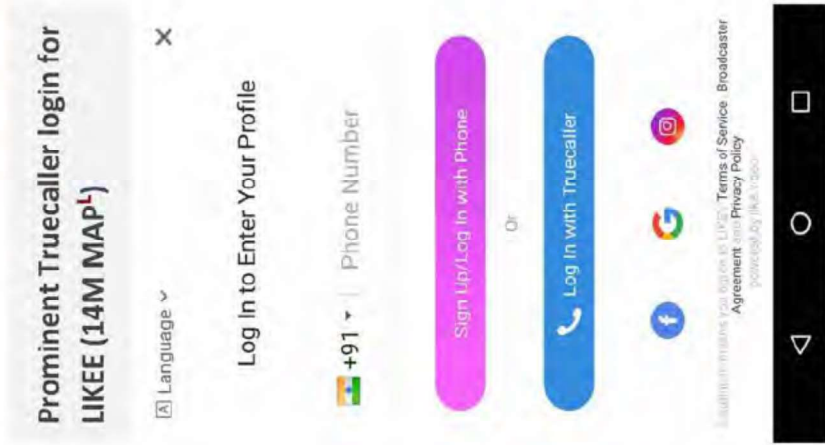
- Peers like YouTube, TikTok, LIKEE, Vigo, VMate, SHAREit, etc. have cold start options.
- Phone number registration is the most widely available option. When email is used, it is usually to send an OTP rather than to create a password.
- Some apps have differentiated models like guest logins and allowing you to set your password later.

### Next Steps

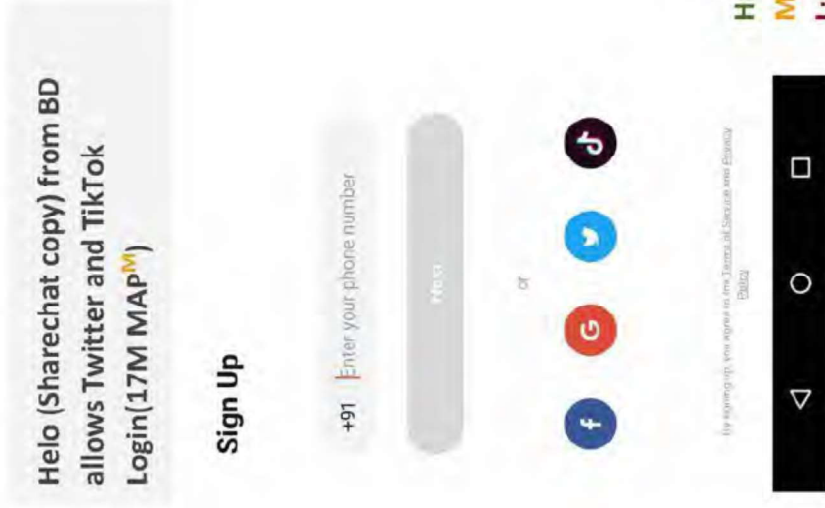
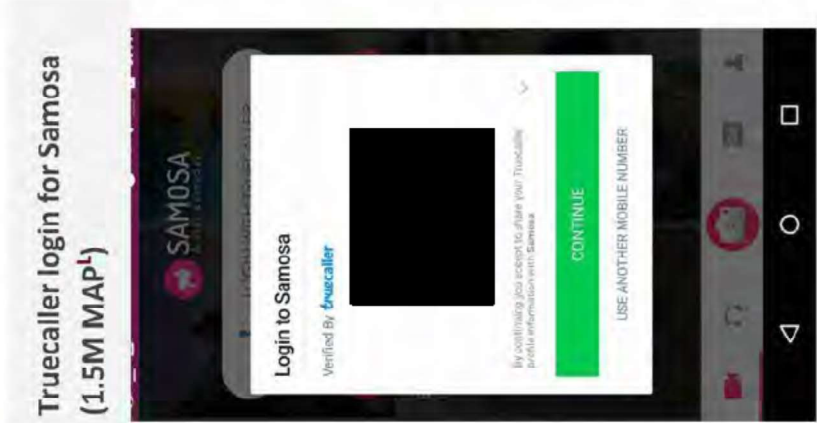
- Investigate cold start options for FB apps
- CI + Core Growth investigating
  - OTP model which can still reduce reliance on SMS. Code generator has some challenges
  - Challenges with phone sharing, number recycling, local passwords, deferred passwords, SUMA

## PASSWORD & SECURITY IN INDIA

11/16 apps analyzed had FB, Google login but some are now also using IG, Twitter, TikTok and Truecaller login



Source: MINT, Facebook Internal Use Only  
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H: High Confidence  
M: Medium Confidence  
L: Low Confidence  
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## PASSWORD & SECURITY IN INDIA

Phone # is more commonly used mechanism than email

### Contributing factors

1. Many people in emerging markets **don't have email**
2. SMS is **already enabled** on the phone. User may not have email client installed on phone by the time they download your app
3. **SMS notifs are easier to read** for checking OTP, and **may not require app switching**
4. Some apps enable **SMS readability**, so you may not even have to input the code.



When email is used, it is generally to send an OTP rather than to create an associated pwd

1. **Method used both during account creation and login** (after you already have an account).
2. Able to **bypass the complexity of having to remember passwords**.

For full list of apps observed and their models, please see [Appendix](#)  
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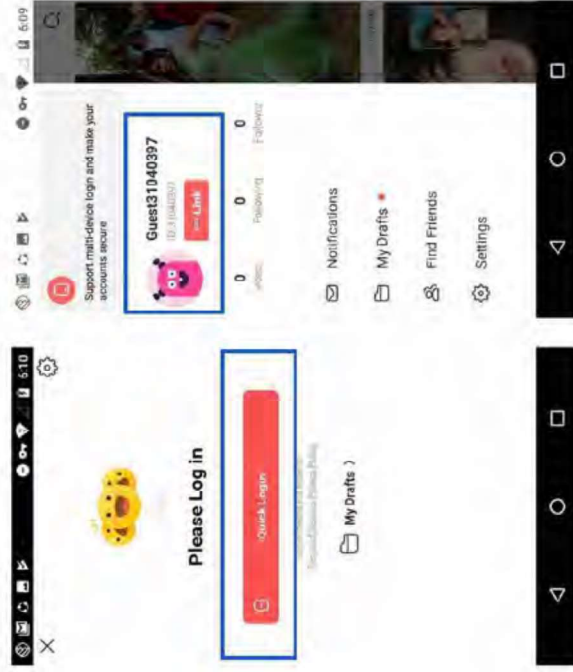
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## PASSWORD & SECURITY IN INDIA

### Other interesting models

#### VMate - Quick login creates guest username to get in the app ASAP

- 5M MAP<sup>L</sup>, Quick login only option
- Can edit your Username once in the app



Source: MINT, Facebook Internal Use Only

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#### LIKEE - Set your password later

- 14M MAP<sup>L</sup>; Lets user login with SMS Code each time instead of pwd

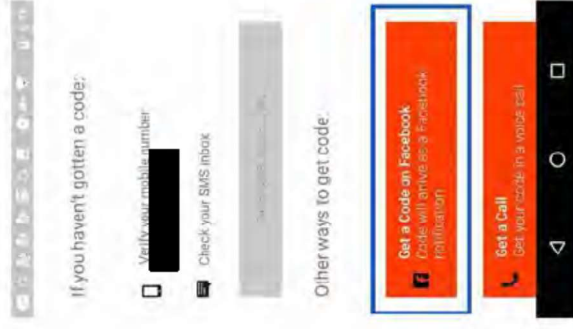


H: High Confidence M: Medium Confidence L: Low Confidence

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#### Gaana - Get code on FB as a notif

- 44M MAP<sup>L</sup>



# Appendix

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## AppAnnie(AA) vs. Onavo comparison

Evaluate AA based on comparison with (i) Onavo (ii) Ground truth (Representation Error)

Top 15 countries by Internet Pop.

Geo	vs. Onavo		vs. Ground truth			
	# of apps # of Apps with Low Alignment <sup>(1)</sup> (of Apps >200 M MAP)	Error with Truth Set (4 FB Apps) (Representation Error)		Error with Truth Set (4 FB Apps) (Representation Error)		Onavo
		AA	Onavo	AA	Onavo	
IN	5	29%	15%	23%	15%	15%
US	2	9%	8%	29%	19%	19%
BR	4	8%	6%	9%	19%	19%
ID	2	33%	9%	36%	50%	50%
RU	5	32%	54%	76%	67%	67%
MX	2	41%	10%	8%	14%	14%
JP	8	29%	33%	38%	74%	74%
VN	3	176%	70%	196%	99%	99%
PH	2	199%	74%	124%	53%	53%
TR	7	8%	17%	20%	23%	23%
TH	7	193%	94%	126%	78%	78%
DE	4	9%	11%	13%	10%	10%
GB	3	10%	4%	23%	13%	13%
SK	3	26%	24%	28%	20%	20%
FR	1	18%	6%	15%	7%	7%

### Vs. Truth Set

- AA has lower RE in only 4 of the top 15 countries for **Android**
- AA has lower RE for 5 of the top 15 countries for **iOS**
- For 3 countries (PH, VN and TH) the errors are significant

### Vs. Onavo

#### (For Key Apps >200M)

- 5 countries of the top 15 countries have Low alignment with onavo data

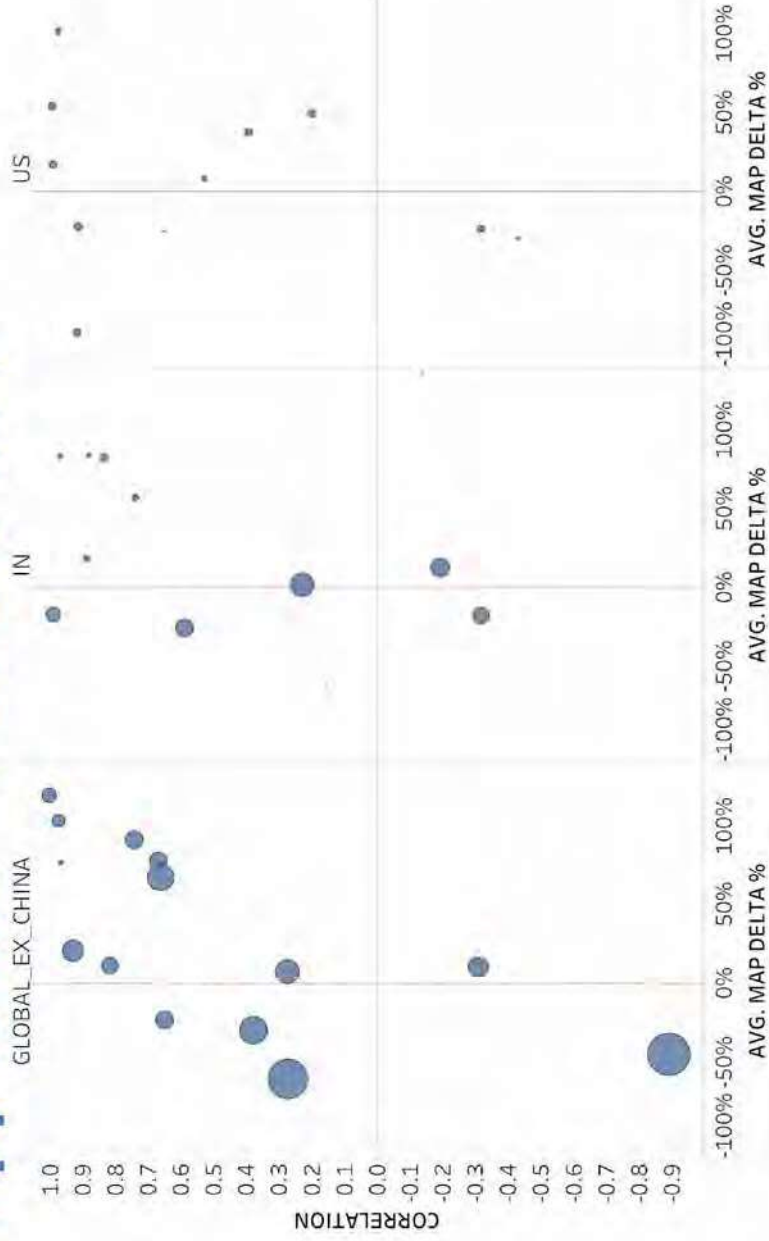
[1] **Low Alignment** with Onavo is defined as MAP Delta >20% and correlation <0.7

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KEY APPS < 200M MAP

# App Annie vs Onavo MAP



(X) Avg. MAP Delta %: AA vs. Onavo.  
 + 've means AA is larger  
 (Y) Correlation: Corr (AA MAP, ONAVO MAP) Oct'18-Feb'19  
 Bubble: Individual App  
 Bubble Size: Avg. Onavo MAP  
 Collection: Key Apps<200M

Source: MINT (monthly average), Facebook Internal Use Only

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KEY APPS > 200M MAP

# App Annie vs Onavo MAP - Global\_Ex\_China

## Key Apps >200M - GLOBAL\_EX\_CHINA

App Name	Avg. MAP Delta%	Avg. Onavo MAP F	Correlation
YouTube	-0.85%	2,259,550,791	0.8
WhatsApp Messenger	4.93%	1,742,976,971	0.9
Facebook	-4.55%	1,712,893,899	0.8
Maps - Navigate & Explore	25.85%	1,412,115,791	0.2
Messenger - Text and Video Chat for Free	-4.64%	1,462,489,594	0.3
Gmail	23.64%	1,172,335,585	1.0
SMS/MMS	1.142,626,517		
Instagram	14.96%	1,049,517,590	0.9
Google Photos	5.46%	931,626,240	0.2
Apple Music	-7.59%	469,813,329	0.3
Snapchat	-2.37%	373,671,164	0.3
iMessage - Media only*		288,687,734	
Truecaller: Caller ID, block robocalls & spam ..	19.18%	218,786,468	0.7
Viber Messenger - Messages, Group Chats &..	-26.03%	320,796,169	0.2
Twitter	93.74%	247,236,246	0.9
Netflix	80.67%	225,113,162	1.0
Spotify: Discover music, podcasts, and playl..	111.08%	206,732,819	0.9
Pinterest	68.87%	184,851,173	0.9
Amazon Shopping	90.41%	164,823,772	1.0
Messages	113.42%	177,055,855	0.9
LINE: Free Calls & Messages	40.54%	208,942,123	-0.6
LinkedIn: Jobs, professional profile, & netw..	173.82%	83,340,652	0.9

Avg. MAP Delta%, Avg. Onavo MAP and Correlation broken down by App Name on page GLOBAL\_EX\_CHINA. The view is filtered on Geo ID, which keeps GLOBAL\_EX\_CHINA, IN and US.

Source: MINT (monthly average), Facebook Internal Use Only

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## KEY APPS > 200M MAP

# App Annie vs Onavo MAP - IN

### Key Apps >200M - IN

App Name	Avg. MAP Delta%	Avg. Onavo MAP	Correlation
YouTube	-10.03%	319,804,313	-0.5
WhatsApp Messenger	9.11%	318,386,892	-0.7
Facebook	-8.06%	212,566,391	0.7
Maps - Navigate & Explore	-0.54%	216,216,456	-0.7
Messenger - Text and Video Chat for Free	-3.84%	133,352,971	0.5
Gmail	6.39%	198,790,889	-0.6
SMS/MMS		213,656,963	
Instagram	30.12%	99,532,374	1.0
Google Photos	-3.01%	165,233,876	-0.8
Apple Music	13.34%	9,038,808	0.9
Snapchat	34.01%	17,122,241	0.7
iMessage - Media only*		2,193,246	
Truecaller: Caller ID, block robocalls & spam ..	17.97%	141,318,509	0.0
Viber Messenger - Messages, Group Chats &..	57.96%	2,396,890	0.5
Twitter	109.40%	18,163,405	-0.6
Netflix	36.36%	14,271,645	0.9
Spotify: Discover music, podcasts, and playl..	239.75%	1,506,606	-0.7
Pinterest	87.58%	10,695,034	-0.1
Amazon Shopping	84.61%	4,165,873	-0.7
Messages	133.09%	39,322,814	-0.8
LINE: Free Calls & Messages	50.75%	1,466,399	0.3
LinkedIn: Jobs, professional profile, & netw..	107.03%	11,414,349	0.7

Avg. MAP Delta%, Avg. Onavo MAP and Correlation broken down by App Name on page IN. The view is filtered on Geo ID, which keeps GLOBAL\_EX\_CHINA, IN and US.

Source: MINT (monthly average), Facebook Internal Use Only

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## KEY APPS > 200M MAP

# App Annie vs Onavo MAP - US

### Key Apps >200M - US

App Name	Avg. MAP Delta%	Avg. Onavo MAP	Correlation
YouTube	5.94%	211,940,550	0.2
WhatsApp Messenger	-12.04%	59,030,594	0.8
Facebook	3.22%	185,374,762	-0.1
Maps - Navigate & Explore	25.64%	152,632,182	0.5
Messenger - Text and Video Chat for Free	1.58%	178,421,714	0.1
Gmail	16.11%	130,846,128	0.9
SMS/MMS		42,121,110	
Instagram	-15.86%	133,078,994	0.7
Google Photos	5.93%	79,931,271	-0.7
Apple Music	-0.28%	133,038,941	0.4
Snapchat	-4.50%	106,043,567	0.0
iMessage - Media only*		137,577,670	
Truecaller: Caller ID, block robocalls & spam ..	57.18%	2,662,799	0.1
Viber Messenger - Messages, Group Chats &..	-74.51%	24,093,693	0.0
Twitter	40.54%	45,075,654	0.8
Netflix	14.26%	68,504,066	0.8
Spotify: Discover music, podcasts, and playl..	24.00%	53,596,953	0.0
Pinterest	35.35%	53,883,235	0.5
Amazon Shopping	67.85%	71,934,854	0.9
Messages	32.99%	14,528,052	1.0
LINE: Free Calls & Messages	60.37%	3,709,727	0.3
LinkedIn: Jobs, professional profile, & netw..	105.88%	16,241,873	0.7

Avg. MAP Delta%, Avg. Onavo MAP and Correlation broken down by App Name on page US. The view is filtered on Geo ID, which keeps GLOBAL\_EX\_CHINA\_IN and US.

Source: MINT (monthly average), Facebook Internal Use Only

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KEY APPS < 200M MAP

## App Annie vs Onavo MAP - Global\_Ex\_China

### Key Apps <200M - GLOBAL\_EX\_CHINA

App Name	Avg. MAP Delta%	Avg. Onavo MAP	Correlation
Dailyhunt (Newshunt)- Cricket, News, Videos	-23.46%	53,518,220	0.6
Discord - Chat for Gamers	119.84%	35,142,058	1.0
Facebook Lite	-45.08%	293,171,277	-0.9
Hotstar	7.17%	90,960,186	0.3
iMessage - Media only*		288,687,734	
imo free video calls and chat	-60.55%	258,147,071	0.3
KakaoTalk: Free Calls & Text	91.67%	53,980,527	0.7
Patreon	222.45%	512,425	0.0
Reddit	258.06%	15,747,049	1.0
Ring - Always Home	157.26%	6,081,706	1.0
Skype - free IM & video calls	67.34%	117,532,953	0.7
TIKTok	-29.81%	125,399,341	0.4
TIKTok Lite	76.94%	3,311,337	1.0
Tinder	77.81%	52,306,235	0.7
Twitich: Livestream Multiplayer Games & Es..	103.62%	27,783,633	1.0
VK — social network and calls	10.33%	66,326,031	-0.3
WeChat	20.80%	73,690,448	0.9
YouTube Music - Stream Songs & Music Vide..	11.09%	44,826,474	0.8

Avg. MAP Delta%, Avg. Onavo MAP and Correlation broken down by App Name on page GLOBAL\_EX\_CHINA. The view is filtered on Geo ID, which keeps GLOBAL\_EX\_CHINA, IN and US.

Source: MINT (monthly average), Facebook Internal Use Only

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## KEY APPS < 200M MAP

# App Annie vs Onavo MAP - IN

## Key Apps <200M - IN

App Name	Avg. MAP Delta%	Avg. Onavo MAP	Correlation
Dailyhunt (Newshunt)- Cricket, News, Videos	-25.54%	51,283,927	0.6
Discord - Chat for Gamers	84.01%	2,484,370	0.9
Facebook Lite	12.72%	56,761,525	-0.2
Hotstar	1.95%	90,010,649	0.2
iMessage - Media only*		2,193,246	
imo free video calls and chat	-17.51%	44,003,299	-0.3
KakaoTalk: Free Calls & Text	345.00%	105,348	-0.6
Patreon		22,759	
Reddit	367.53%	924,220	0.6
Ring - Always Home		5,748	
Skype - free IM & video calls	82.36%	10,614,014	0.8
TIKTok	-17.19%	34,626,201	1.0
TIKTok Lite	83.46%	3,005,296	1.0
Tinder	57.12%	5,964,876	0.7
Twitch: Livestream Multiplayer Games & Es..	135.75%	599,543	-0.1
VK — social network and calls	41.35%	176,280	-1.0
WeChat	18.65%	5,144,022	0.9
YouTube Music - Stream Songs & Music Vide..	-62.92%	795,535	0.2

Avg. MAP Delta%, Avg. Onavo MAP and Correlation broken down by App Name on page IN. The view is filtered on Geo ID, which keeps GLOBAL\_EX\_CHINA, IN and US.

Source: MINT (monthly average), Facebook Internal Use Only

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KEY APPS < 200M MAP

## App Annie vs Onavo MAP - US

### Key Apps <200M - US

App Name	Avg. MAP Delta%	Avg. Onavo MAP	Correlation
Dailyhunt (Newshunt)- Cricket, News, Videos		27,923	
Discord - Chat for Gamers	54.29%	10,020,297	1.0
Facebook Lite	-29.59%	1,734,895	-0.4
Hotstar	174.14%	57,443	0.3
iMessage - Media only*		137,577,670	
imo free video calls and chat	-89.48%	11,174,632	0.9
KakaoTalk: Free Calls & Text	159.19%	1,192,948	0.5
Patreon	287.00%	242,936	-0.2
Reddit	139.67%	7,484,429	0.9
Ring - Always Home	101.65%	5,313,014	1.0
Skype - free IM & video calls	49.71%	9,887,350	0.2
TIKTok	-23.63%	9,831,074	-0.3
TIKTok Lite		3,894	
Tinder	37.65%	10,199,946	0.4
Twitch: Livestream Multiplayer Games & Es..	17.03%	9,304,789	1.0
VK — social network and calls	-25.20%	400,662	0.6
WeChat	7.93%	4,609,046	0.5
YouTube Music - Stream Songs & Music Vide..	-22.23%	11,202,865	0.9

Avg. MAP Delta%, Avg. Onavo MAP and Correlation broken down by App Name on page US. The view is filtered on Geo ID, which keeps GLOBAL\_EX\_CHINA, IN and US.

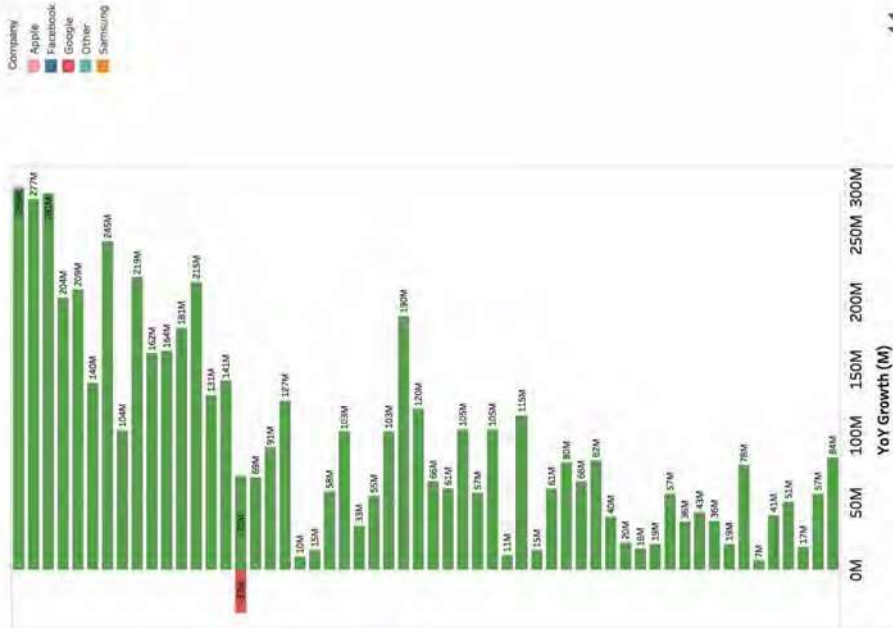
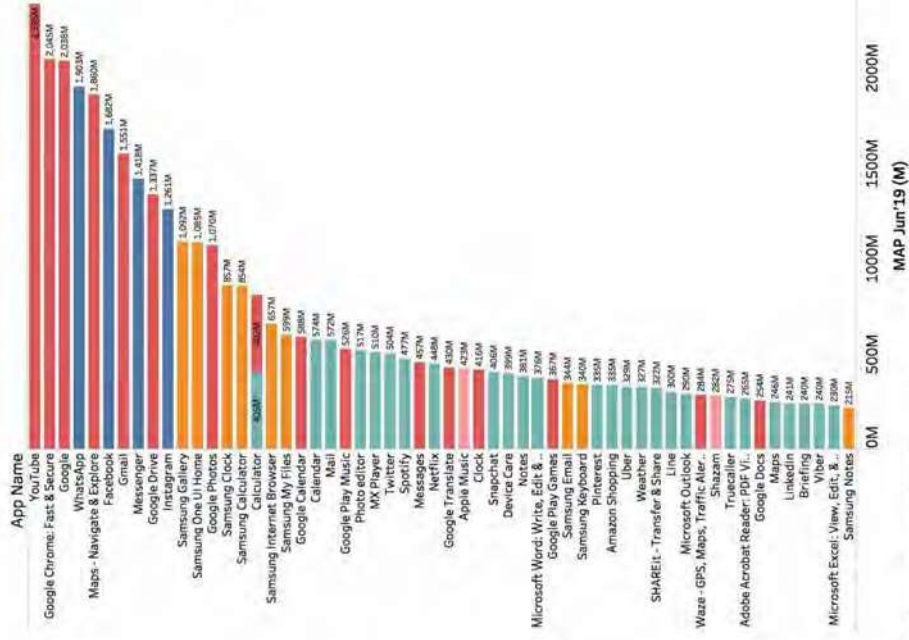
Source: MINT (monthly average), Facebook Internal Use Only

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# TOP 50 APPS - GLOBAL\_EX\_CHINA

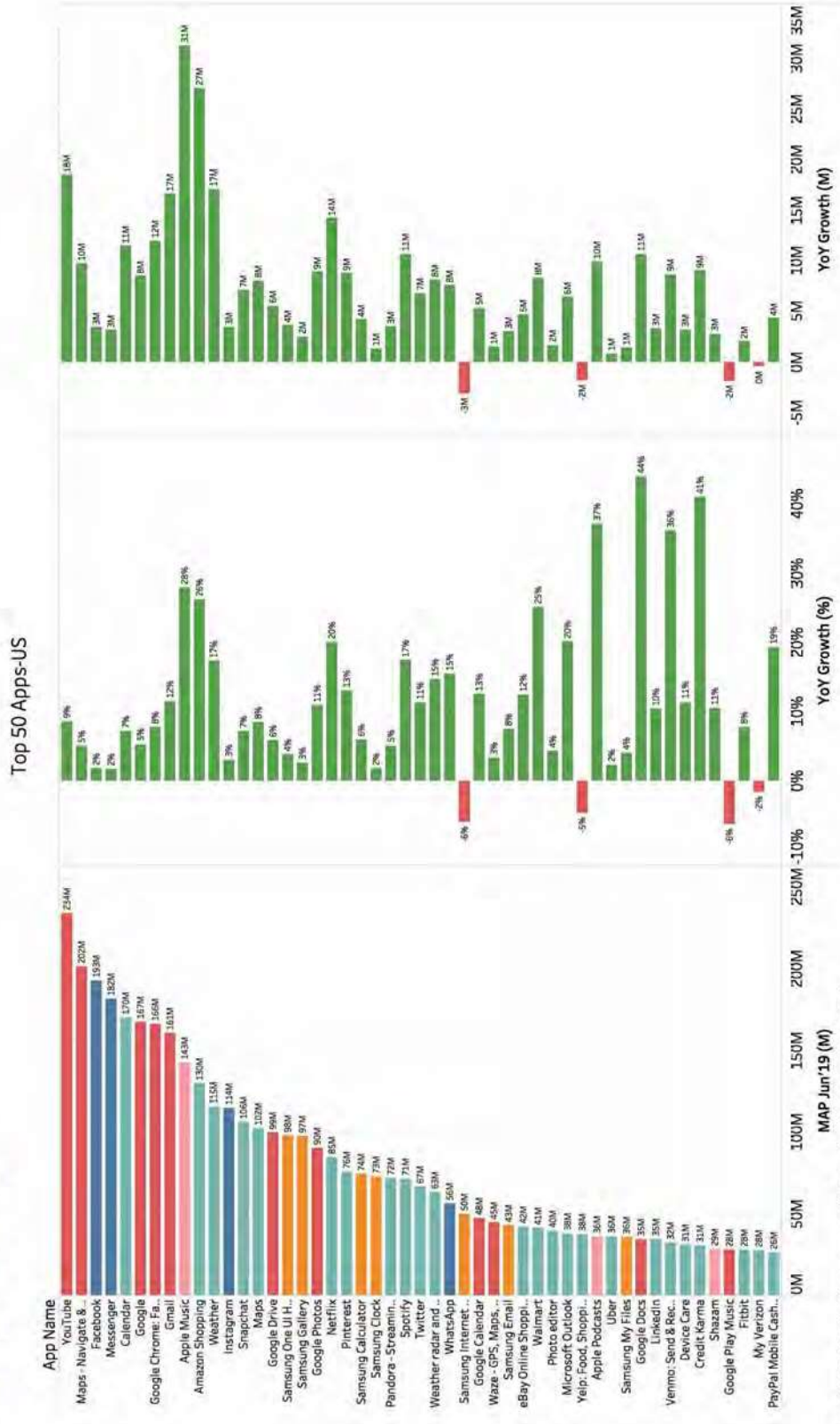
Top 50 Apps-Global\_Ex\_China



Source: MINT (30d rolling average), Facebook Internal Use Only

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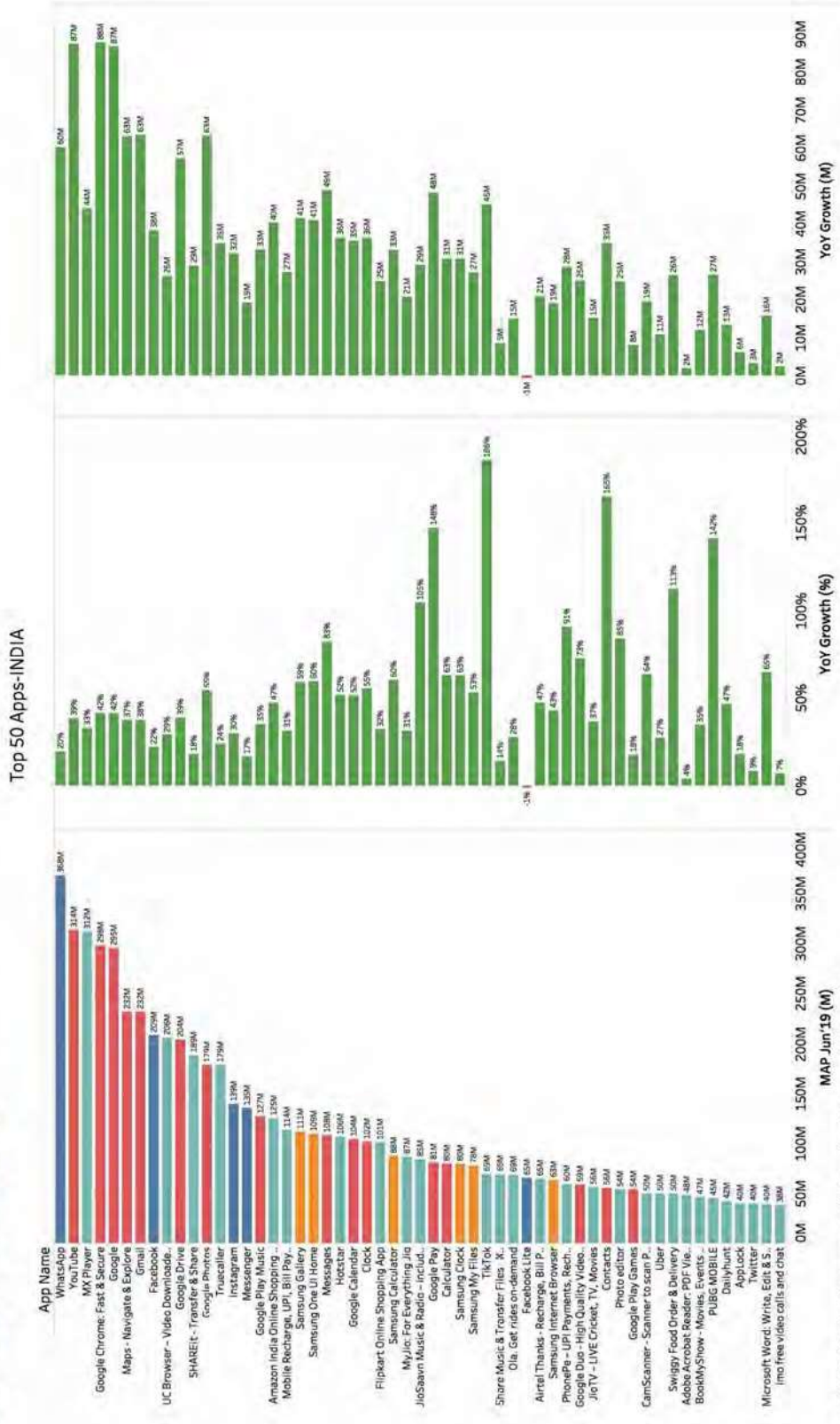
# TOP 50 APPS - US



Source: MINT (30d rolling average), Facebook Internal Use Only

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# TOP 50 APPS - INDIA



Source: MINT (30d rolling average), Facebook Internal Use Only

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## MINT vs actuals

	Onavo (Feb 13)	AppAnnie (Feb 28)	Internal (Feb 28)	Onavo (Feb 13)	AppAnnie (Feb 28)
YouTube	2,307,255,408	2,182,061,871		Pinterest	194,286,021
WhatsApp	1,786,098,393	1,718,124,116	1,521,099,585	Messages	1,136,971,055
FB	1,747,440,763	1,499,464,115	2,143,270,379	Amazon	170,798,635
Messenger	1,485,499,984	1,313,218,208	1,393,665,590	LinkedIn	87,802,057
IG	1,076,560,470	1,160,299,144	965,130,972	TikTok 1	67,037,939
G.Photos	947,854,233	990,127,446		TikTok lite	5,964,569
Apple Music	488,390,727	412,274,376		Maps	1,428,678,080
Snapchat	369,347,379	334,721,916		SMS/MMS	#N/A
Viber	320,472,549	219,528,819		iMessage	#N/A
Twitter	252,239,928	462,980,993		Netflix	241,866,554
TikTok	223,463,809	129,343,818		Newshunt	56,806,446
Truecaller	220,280,437	260,333,374		FB lite	296,305,530
Spotify	211,304,470	429,678,152		YT Music	47,014,876
Line	209,711,297	264,460,201			

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# Comparison across apps login, password models

	Cold Start	Ph No	Email	SSO	Details asked	Interesting Models
<b>Social apps</b>						
TikTok	Yes	Yes	Yes	FB, Ggle, IG, Twitter	Asks for bday	Pwd reset using bday and OTP
LIKE	Yes	Yes	No	FB, Ggle, IG, Truecaller	Optional UN, gender, bday	Set pwd later
Vigo	Yes	Yes	Yes	Ggle (main), FB		Email reset uses OTP sent to email
Hike	No	Yes	N/A	N/A	No password needed	
Roposo	No	Yes	Yes	FB, Ggle	No password needed	Use OTP for login
ShareChat	No	Yes	No	No	Name, gender, age range	Pwd not needed. Linked to ph #.
Samosa	No	Yes	No	Truecaller		No OTP needed for Truecaller login
VMate	Yes	Yes (optional)	No	No	Quick login: Nickname, gender	No ph #, email reqd upfront
<b>Media apps</b>						
Hotstar	No	No	Yes	FB	Name, email, pwd, age, gender	
Gaana	Yes	Yes	Yes	FB, Ggle		Option to get a code on FB
<b>Utility apps</b>						
Truecaller	No	Yes	Yes	FB, Ggle		No login reqd as it's always running
UC Browser	Yes	Yes		FB, Ggle	Can create UC account	No option to delete account or logout
ShareIT	Yes	Yes		FB		Ph # login only available in India
Ola	No	Yes		No	Full name and email	
Zomato	Yes	No	Yes	FB, Ggle		Uses email OTP for acc. Creation and login

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FB-HJC-ACAL-00086453

# Snap Inc. 2019 Q2 Growth and Engagement Update

Highlights	Market Strategy Commentary
<p>DAUs 203 million in Q2 '19, compared to 190 million in Q1 '19 and 188 million in Q2 '18.</p> <p>Snap estimates that 7-9 million of 13 million additional DAU were attributable to the launch of new augmented reality lenses, which brought in new users and also increased engagement of existing users</p> <p>"Snapchatters in the United States who joined five years ago and were active at the end of their first year have retained at more than a 95 percent annualized rate."</p> <p>Average number of Snaps created per day is at more than 3.5 billion</p>	<ul style="list-style-type: none"> <li>• Largest quarterly sequential absolute increase since 2016 Q2</li> <li>• Largest quarterly sequential percentage increase since 2016 Q3</li> <li>• Over 50% of the 13 million DAU increase came from "Rest of World", which includes countries like Saudi Arabia, India, and Brazil</li> <li>• The RoW increase may be in part due to the Android code rewrite</li> <li>• New gender swap lenses launched in mid-May 2019</li> <li>• Longer term retention of these users uncertain</li> <li>• Perfect example of a "hook" which spurs people to download or open an app</li> </ul>
<p>"Snapchatters in the United States who joined five years ago and were active at the end of their first year have retained at more than a 95 percent annualized rate."</p> <p>Average number of Snaps created per day is at more than 3.5 billion</p>	<ul style="list-style-type: none"> <li>• Note that <b>most long term retention loss is within 100 days</b></li> <li>• However, <b>95% annualized retention after the first year is impressive</b> and roughly on par or superior to FB's long term retention from teens in the 2014 confirmed year cohort</li> <li>• This further supports that <u>Snapchat is a multi-generational challenge</u> and that usage continues as users age up</li> <li>• Previously announced figure was 3 billion per day</li> </ul>

Average Daily Active Users (DAU)  
(in millions, unaudited)



Average Revenue Per User (ARPU)  
(in dollars, unaudited)



Sources: Snap Inc., previous Market Strategy analyses

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