Possible End States for the Family of Apps,10/09/2018

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See also: - Project Log ; Organization ; Family Incrementality Review 9/28 ; 2018-07-30 / Messaging App Markets ; Comparison of Apps.

- **Q1: What are realistic end-states for the family of apps?** Is it realistic to expect all four apps to have high reach and high engagement?
- **Q2: Should we be worried about accelerating declines on Facebook?** Are there network-effects reasons to expect an acceleration?

Current State

The following graph shows the monthly reach of family apps across the 20 largest countries. Notable:
1. **Facebook and Messenger have intermediate to high reach across most countries,** and have steady reach in most countries.
2. **Instagram is growing rapidly in many countries, and has nowhere hit a ceiling.**
3. **WhatsApp has bimodal reach:** typically either very high, very low, or in transition from low to high (in many countries WhatsApp has around 95% mobile daily reach, higher than any other app can achieve).

MAP Across the Family, Sept. 2017 to Sept 2018
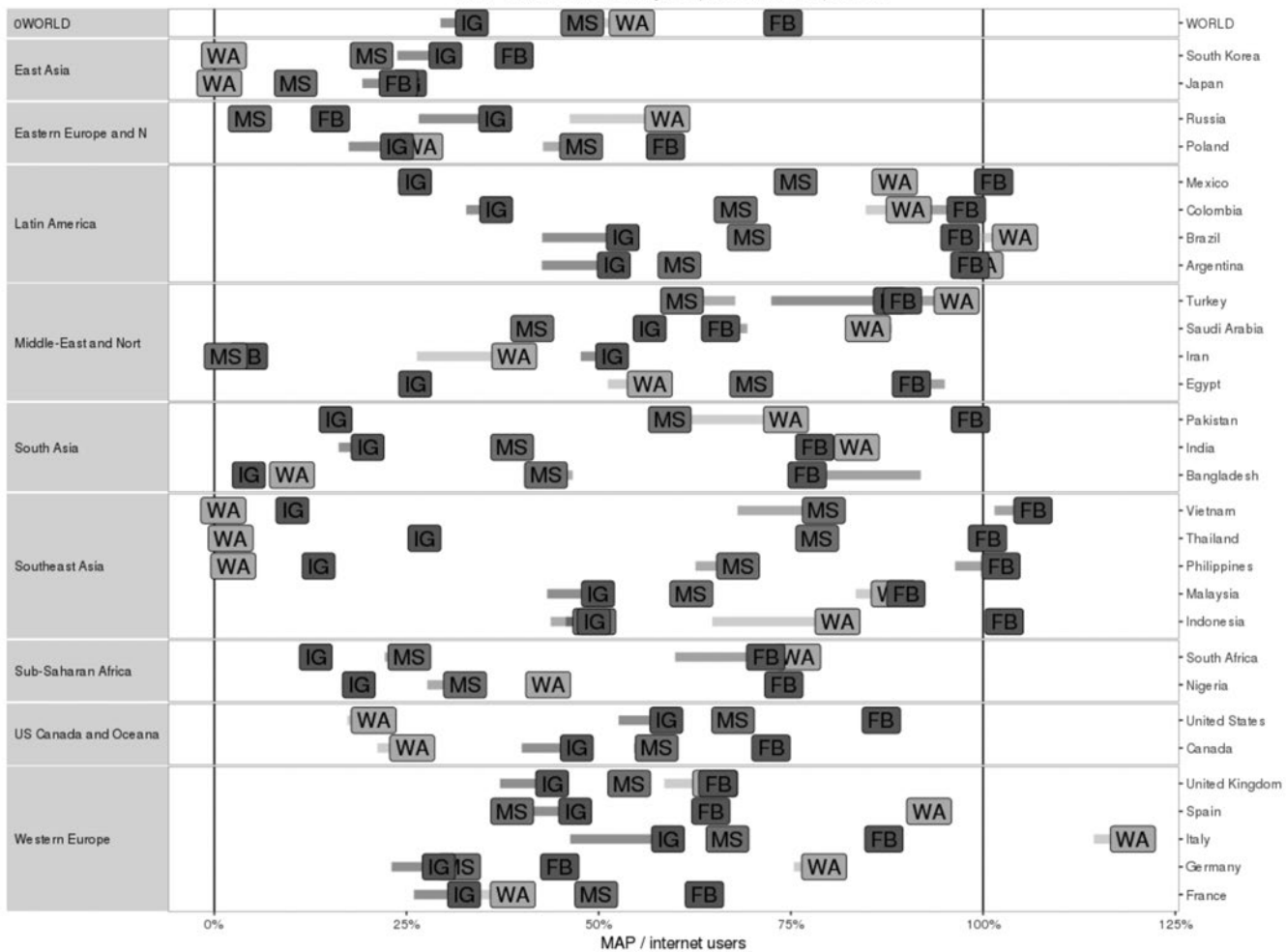
Executive Summary

1. **Messaging Shows a Tendency Towards Consolidation.** Most countries have a single messaging app or protocol (e.g. SMS) which is used by the majority of the population, reflecting the strong network effects in messaging. A country cannot, in general, support two messaging apps with high reach. We see strong tradeoffs in time-spent between Messenger and WhatsApp.
   a. **Some qualifications:** (a) a messaging app which is attached to a social network can survive when it is not the majority-usage messaging app (e.g. messenger, ig-direct), although with reduced reach; (b) teens sometimes use a teen-only messaging apps alongside the majority-usage messaging app (e.g. SnapChat alongside iMessage).

2. **Trends in Broadcast Sharing**
   a. **Facebook users have started sharing on Instagram and WhatsApp in addition to Facebook.** Although Facebook broadcast sharing has declined somewhat the overall trend is an increase in aggregate sharing and time-spent. Our best estimates all say that the growth of time-spent and sharing on Instagram and WhatsApp have been incremental to the overall family.
   b. **Key Question: *why* are people sharing on multiple networks?** The coexistence of social networks is surprising because earlier social networks were not able to coexist with Facebook (e.g. MySpace, Friendster, Hi5). Our appropriate direction depends on the underlying reason for the growth in sharing:
      i. **(1) Because people want to share with different audiences.** If this is true it implies that we should be curating graphs across apps to prevent them from becoming too similar, and improving the ability to manage multiple audiences within the same app.
      ii. **(2) Because the apps have different features.** E.g., WhatsApp's speed, Instagram's filters, versus Facebook's greater flexibility in sharing (link and text-sharing, groups, events, etc.).
      iii. **(3) Because their network is fragmented.** People may strictly prefer sharing to a single audience but they share to multiple apps because their network is fragmented. If this is the principal reason for multi-app use, it implies that we may be trending towards single-app use as graphs gradually overlap. E.g., when WhatsApp replaced BBM there was a transition period during which many people used both apps, but eventually BBM collapsed.

3. **Working Hypothesis: Broadcast Sharing Apps Can Coexist when One is "Narrow" and one is "Broad."**
   a. **Coexistence depends on some kind of differentiation: we think broadcast sharing apps are most likely to coexist when they are differentiated on *audience size*.**
   b. **WhatsApp and Facebook are coexisting as Broadcast Sharing Apps.** In Latin America both FB and WA are both used heavily for broadcast sharing, often by the same users. We do not think this is a temporary period, because both apps already have high reach. Our best guess is that they coexist because of differences in the size of the graphs: WhatsApp is used for narrow sharing (~100 contacts) and Facebook is used for broad sharing (~500). In addition, they both have distinctive features (WhatsApp has messaging, and FB has public content and long tail of social features).
   c. **It remains unclear Whether Instagram and Facebook can coexist.** We have not seen a substantial impact from Instagram's growth on Facebook. However, Instagram has not yet achieved reach comparable to Facebook in most countries, and we have reason to expect cannibalization to increase as reach increases. Friend graphs tend to be smaller on Instagram than on Facebook, which could be a point of differentiation, but extrapolating current trends we expect the gap to close as Instagram grows.
   d. **It seems unlikely that three Sharing Apps can coexist.** While many countries can support two apps with high participation (10% or more of the population share on that app on a given day), it is rare to have three different apps which cross that threshold. A realistic family strategy should take this into account. (Teenagers form a somewhat separate group.)

When do Social Apps Coexist?

A key question is when two social apps can coexist among the same set of users. This section summarizes broad findings.

- **Broadcast Sharing apps typically succeed or fail either (1) among teens within a country; or (2) in the whole country.**
- **Sharing apps can coexist when strongly differentiated on (1) user-base; (2) features; or (3) graphs.**
- **There does *not* seem to be good evidence for apps coexisting if they are only differentiated in how they are used, but not on any of the other axes.** - i.e., if two apps have similar user-base, features, and graphs, then they are unlikely to be able to coexist.

Differentiation on Userbase

Social Networks do Not Typically Remain Limited to Demographic Subgroups, Apart from Teens. E.g., we do *not* typically find that adoption is tightly constrained along lines of gender, region, or social class. Instead, social apps typically are adopted at the level of a country as a whole, although adoption rates vary substantially. The one important exception is that teens often adopt a social app different from those around them (e.g., teens using SnapChat, Instagram).

Differentiation on Features

Facebook and Messenger coexist despite having identical graphs, because they have very strong differentiation in features (direct messaging vs broadcast sharing).

Facebook and Instagram appear to be coexisting in *part* due to differentiation on features. Facebook has many features not available on Instagram — links, text, groups, etc. : ███████████████. Execution quality of features on Instagram has been historically strong driver of its growth.

Difficult for Messaging Apps to Coexist. In most cases countries have a single messaging app with 50%+ daily reach, i.e. it is not possible for two messaging apps to be sufficiently differentiated such that they can both have high daily reach in the same country.

Differentiation on Graph (Edges)

WhatsApp-Status and Facebook coexist in Latin America: WA has a much smaller graph than FB (~100 friends vs ~500), and so we suspect they are used for different audiences (narrow vs broad) - ███████████████

Facebook, Linkedin, and Nextdoor coexist in the US with similar userbases but orthogonal graphs: Facebook connects friends and family, LinkedIn connects coworkers, Nextdoor connects neighbors.

Facebook & Instagram appear to be coexisting in *part* due to graph differentiation — IG typically has 50-100 friends, compared to 200 on Facebook (Social Graph Overlap between FB and IG: Description and Causes).

WhatsApp and Messenger partly coexist in Latin America: WA is the leading messaging app yet Messenger survives, with reduced reach, as a way of contacting people in a broader social circle.

Multiple accounts on Instagram. Around 10% of people on IG have a secondary account, and perhaps half of those use it to maintain a secondary audience. Graph overlap is quite low between primary and secondary accounts ███████████████

We see *temporary* coexistence of social apps when one app is replacing another: e.g. over the time that WhatsApp was replacing BBM there was a period when many people used both apps. See below for more detail.

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Differentiation on Use-Case

We have very few examples of pure differentiation of use-case. We could not find any clear-cut examples of two apps coexisting among the same users with similar graphs and similar features, differentiated only by use-case. Note that many apps can share graphs if they use the phone's address-book, or if they they use the Facebook graph.

Prior social networks were not sufficiently differentiated to coexist. Many early social networks declined as Facebook rose (e.g. Myspace, Friendster, and Hi5), suggesting that there is limited room for coexistence. See
-Draft Note - Vignettes On Social App Declines

Instagram and WhatsApp. There is some evidence that people post to both Instagram and WhatsApp depending on the context — e.g. selectively choosing Instagram to post "unique/beautiful" moments — █████████████████

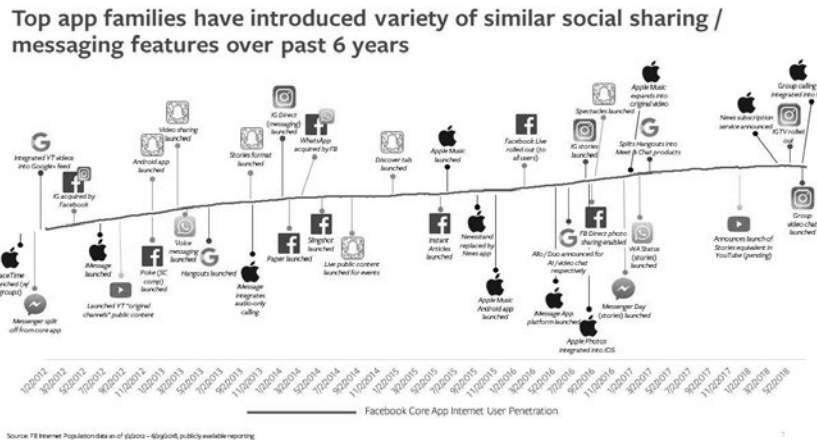More details at 2018-09-20 / Conditions for App Coexistence

Key Facts

SUMMARY

- **MARKET-WIDE TRENDS.** Sharing has been moving towards visual, video, stories, and direct messaging. Social apps have been converging in features (Stories, GIFs, AR filters, Live video, video calling).
- **USE OF MULTIPLE APPS.** The majority of users of each family app are also active on at least one other family app, and dual-app users typically have comparable levels of engagement to single-app users on each of their apps. This is reassuring that the apps are coexisting so far.
- **CROSS-APP EFFECTS.** Across many studies of experiments and app-joining we find that cross-app effects are generally more than 50% incremental: i.e., for every unit of additional engagement on an app, we lose less than 1/2 a unit from other family apps.
- **NETWORK EFFECTS.** Our biggest concern should be tipping points on Facebook, which are very difficult to estimate. The existence of countries with intermediate Facebook reach is potentially reassuring that there are not severe tipping points, but requires more understanding.
- **LIFECYCLES OF SOCIAL NETWORKS.** We have observed a number of messaging apps decline, but there are few examples of broadcast-sharing networks declining where we have good data.
- **MESSAGING.** Messaging has been in a period of consolidation. A certain set of countries which heavily use SMS remains without any non-SMS app used by a majority of the population, but it remains unclear whether any proprietary messaging app can achieve high reach in these markets.
- **SHARING.** Overall family broadcast sharing is growing due to Stories products, while feed sharing on Facebook and Instagram is in gentle decline.
- **PUBLIC CONTENT.** Time on video remains growing, especially on YouTube and Instagram. Time on video and public content is flat on Facebook. It has been difficult to achieve critical mass for creators to adopt our intentional video platforms (Watch and IGTV).

More Details

MARKET-WIDE TRENDS

(X) Social Apps are Converging in Features. The major social apps have been trending towards feature parity: adding features such as ephemeral sharing, live video broadcasting, stickers, multi-party video chat, news and professional video. Geoff Summary - Recent FB Family Work; Evans (2018).

Top app families have introduced variety of similar social sharing / messaging features over past 6 years

(X) Messaging Apps have been in a Period of Consolidation. Most countries have a single messaging app with 50%+ daily reach, and in these markets the secondary messaging apps have tended to decline (Messenger and SnapChat are notable exceptions). Some messaging apps have been effectively eliminated in the past 4 years (BBM, Skype, Tango), and no significant challengers at the country-scale have entered in that timeframe. There is more discussion on the messaging situation below.

**(X) Sharing has been Moving Towards Visual, Video, Stories, and Direct Messaging.** ▆▆▆▆▆▆▆▆▆

(X) New generations of Western teens are adopting Facebook later, but there is a healthy representation of teens on Instagram and on WhatsApp. ▆▆▆▆▆▆▆▆▆

USE OF MULTIPLE APPS

(X) The average mobile phone users use 5 different social apps in a month: they use an average of 3 mainly-messaging apps (such as WhatsApp, Messenger, iMessage, SMS, etc.), and 2 mainly-broadcast apps (such as Facebook, Instagram, SnapChat, etc.), out of 30 total apps per month. Every day they use 1.5 messaging apps and 1 social app, out of 10 total apps per day. ▆▆▆▆▆▆▆▆▆

(X) There is substantial overlap among family app users. For each of the family apps, at least 2/3 of their MAP are also MAP on one of the other family apps.

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Family MAP Overlap (World)

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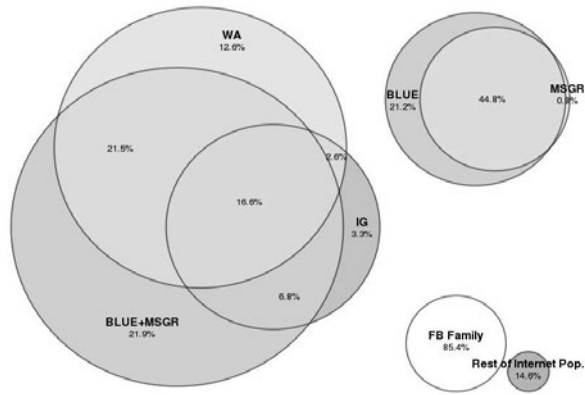
(X) Dual-App Users Tend to be as Engaged on Each App as Single-App users. In most cases, users who are DAP on two family apps engage roughly as much on each app as users who are DAP on only one. This data should not be taken as implying there is no cannibalization, because dual-app users tend to be people who are overall more active. Nevertheless this is reassuring: it implies that as more users become dual-app users, engagement on each app may fall, but is unlikely to fall dramatically (because the majority of users on each app are already dual-app users). ▉▉▉▉▉▉▉▉▉▉▉▉▉▉

(X) It Remains Disputed why Instagram is growing so rapidly among existing Facebook users. Instagram's does not offer many features not offered by Facebook, and Facebook has a larger user-base, so it remains somewhat unclear why Instagram continues to grow rapidly among existing Facebook users. A recent survey in the US say that users prefer Facebook over Instagram for most use cases — Instagram is unambiguously preferred to Facebook only in following celebrities.

CROSS-APP EFFECTS

(X) Social Apps Compete for Time-spent. We do *not* find any tradeoff in DAP on the different family apps. There does seem to be clear evidence of an aggregate tradeoff in time-spent across our apps: Instagram's strongest country for time-spent is Iran, where FB and WA are not present. Facebook's strongest countries for time-spent are Myanmar and Thailand, where IG and WA are not present.

(X) Messenger and WhatsApp clearly compete for time-spent. Although there is not much relationship between DAP on Messenger and WhatsApp, we find a strong negative association in time-spent ▉▉▉▉▉▉▉▉▉▉▉▉▉
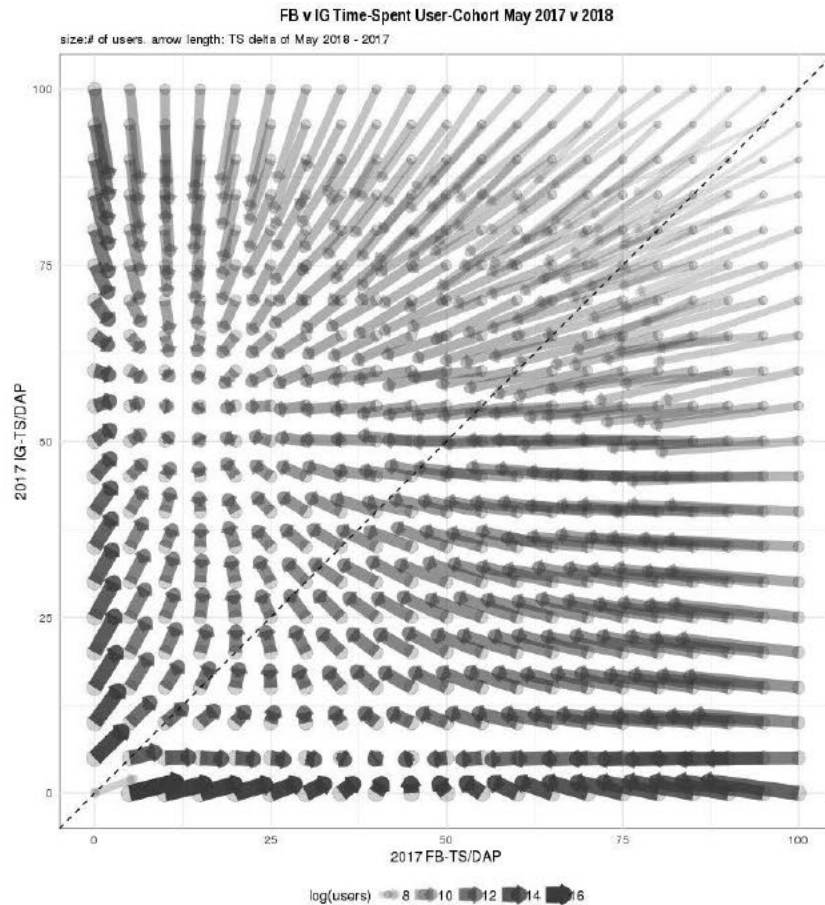
(X) Cross-app Experiments Say that Facebook and Instagram Growth is Mostly Incremental (excl. Network Effects). When we track the cross-app effects of experiments we typically find that each additional second on Facebook is associated with around 0.1 fewer seconds on Instagram, and each additional second on Instagram is associated with around 0.25 fewer seconds on Facebook. The asymmetry is probably due to the relative sizes of the apps: we expect larger apps to be cannibalized more. These estimates do not include network effects, accounting for network effects could imply that true cannibalization rates are either higher or lower. See ▉▉▉▉▉▉▉▉▉▉▉▉▉

(X) Event Studies Say that Growth is Incremental (excl. Network Effects). We have run a number of studies to track users after they have joined a second app, or after they started posting on a second app. These studies find varying rates of cannibalization, and cannot be perfectly trusted, but typically find that engagement on the new apps is more than

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50% incremental (i.e., the decline in engagement on the old app is less than half as large as the increase in engagement on the new app).   The effect of joining/first-action on...: 1. Summary of Facts

(X) Facebook Feed Sharing Hurt by Growth in Stories. Growth in FB feed sharing shows a negative association with growth in all three stories products (WA-Status, IG-Stories, and FB-Stories). However the tradeoffs among the three stories products are *not* apparent in the correlations — many countries have been rapidly growing in usage of 2 different Stories products ███████████████████

(X) User-Level Dynamics. Among dual-app users, we see that heavy Instagram users have lower levels of growth in Facebook time-spent, shown below. These short-term dynamics, if they continued, would imply that Instagram time-spent will eventually exceed Facebook time-spent, however this extrapolation is fairly speculative. ██████████████████

FB v IG Time-Spent User-Cohort May 2017 v 2018
size:# of users. arrow length: TS delta of May 2018 - 2017

log(users) 8 10 12 14 16

LIFECYCLES OF SOCIAL NETWORKS

We have done a study of the lifecycle of social networks and messaging apps, to understand dangers in possible declines.

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(X) A number of messaging apps have undergone substantial declines in at least one country. BBM, Hike, Line, Skype, Viber, IMO.

(X) We have not found clear leading indicators for those declines: typically DAP, MAP, time-spent share, and app-downloads seem to peak at around the same time. Time-spent/DAP often peaks *after* the other metrics decline. The half-life of a decline varies between 6 months and 18 months.

(X) There are few good examples of well-established broadcast-sharing networks declining. The best examples are Twitter (which never had high reach), VKontakte (which declined only in Russia), and old web-only social networks such as Friendster, hi5, and MySpace (we do not have good data on the reach of these networks; see -Draft Note - Vignettes On Social App Declines).

(X) Once Users Start Using a Social App, their Use Declines Slowly (Ratchet Effect). We have a number of lines of evidence for the existence of this ratchet effect:
1. Different countries have different market-leading messaging apps, it seems likely that their current position is due to being first to market in that country (e.g. LINE in Japan & Thailand, Kakao in Korea, Zalo in Vietnam, IMO in Pakistan, WhatsApp in many other countries).
2. There are many cases where a social app has stopped growing, but was very slow to shrink (e.g. SnapChat, Twitter, VKontakte).
3. Among US teens we saw that each age-cohort kept increasing their use of Facebook, despite an overall decline among teens, because newer cohorts would adopt Facebook later.
4. A short-term outage of an app sometimes has long-term effects: when users adopt another app, to substitute for the app with an outage, the new app is able to retain many of the users acquired (and the app with the temporary outage suffers long-term harm).
5. MINT data shows disproportionately few cases of negative DAP growth.

This ratchet effect should be both reassuring and concerning. It is reassuring because it implies we are unlikely to see any network undergo a rapid decline. It is concerning because it means that, when we see small declines in visitation, they could reflect significant declines in underlying demand or market-fit. ████████████████████████████

More details:
- -Draft Note - Vignettes On Social App Declines
- 2018-06-14Tentative Conclusions - App Declines / 2018-07-17 Additional Propositions
- 2018-05-03 Apps that Have Declined / Died - Vignettes

NETWORK EFFECTS

(x) Summary: the most important concern is the location of *tipping points* for each app. For WhatsApp the existence of a tipping point is clear and we could be experimenting with pushing adoption in new markets; for Instagram it is difficult to tell because the app is growing so fast; for Facebook there are many countries in which Facebook has intermediate reach.

(x) The most important concern should be network effects, not within-user cannibalization. We have reviewed many studies which estimate cannibalization among apps for individual users, all of which find positive incrementality across the family: i.e. when a user increases their use of one app, they tend to decrease their use of other apps, but the total family effect is positive. This should not be surprising - it is unlikely that any of our apps are *perfect* substitutes for an individual user. However a serious concern is network effects: when you use an app less, that makes it less appealing to other people, and at certain times and places those effects could be very large.

(x) We should expect tipping points in social apps. As an extreme simplification, social networks have two stable equilibria: either everyone uses them, or no-one uses them. In contrast, non-social apps (e.g. weather apps, exercise apps) can exist anywhere along a continuum of adoption. The binary nature of social networks implies that there should

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exist a *tipping point*, i.e. some critical mass of adoption, above which a network will organically grow, and below which it will shrink.

(x) The pessimistic case rests on the existence of a tipping point. A pessimistic perspective on Facebook would be that, as WhatsApp and Instagram grow, the negative effect of each additional user on Facebook is small, but eventually Facebook is pushed below its tipping point, and enters a decline which is self-sustaining. Therefore whenever we measure direct cross-app effects (cannibalization) we must evaluate that in light of best estimates of any tipping points that may exist for each of our apps.

(x) Most internal estimates of network effects are not relevant. Most internal work on network effects is focussed on measuring the *marginal* or *linear* network impact of a change: for example, estimating the network impact of a feature which increases comments by 1% in an AB-test. Even if we had precise knowledge of these marginal effects (and we do not) this would not tell us where the tipping points are. We have reason to believe that the strength of network effects around the tipping point will be significantly larger than those which we typically measure in experiments, which are in equilibrium (where reach is well above the tipping point).

(x) The distribution of reach gives insight into tipping points. As predicted by our model we see that, in some cases, social apps tend to have all-or-nothing reach. The pattern is most clear in messaging apps: apps such as WhatsApp, LINE, Kakao, and IMO have a bimodal distribution of reach across countries: typically reach is either above 90% or below 10%. This implies that these apps do not have stable equilibria with intermediate levels of reach, and so there exist tipping points. To be precise: if you were able to temporarily lower the reach of one of these apps from 90% to 10%, then it's likely that, because you crossed the tipping point, that app's reach would remain permanently low and another competitor app would take its place. ██████████████████████
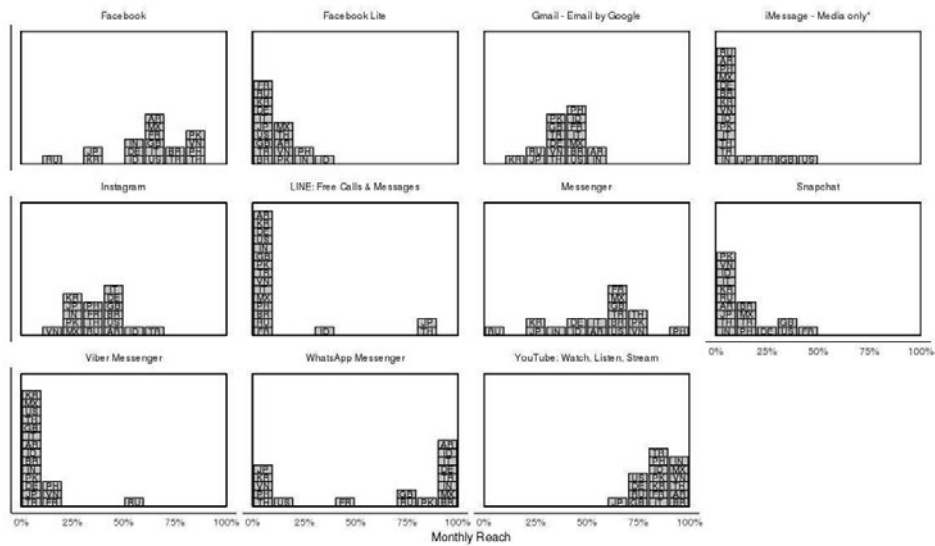
(X) Network Effects Cluster at Different Scales Depending on the Use-Case.

The bimodal pattern across countries is very clear for pure messaging apps, but it is somewhat more complicated for other apps.

There are different scales at which different types of social connections cluster (e.g. high school, city, country, world), and these determine the scales at which social products operate. For example, messaging apps tend to have all-or-nothing reach at the country scale, this would be consistent with 1-1 messaging connections tending to cluster within

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countries. We also see that Snapchat tends to win over individual high schools, this is consistent with there existing school-level messaging clusters within a country.

YouTube, in contrast, has fairly high reach in virtually every country. This is consistent with videos tending to have broad international interest.

	A	B	C	D	E	F	G	H	I
1			use case						
2			direct messaging	sharing (friends)	sharing (public)	buying & selling	events	jobs	music listening
3	scale of clustering	high school	SnapChat, IG, Messenger	SnapChat, IG, Facebook, ...	Facebook groups				
4		neighborhood / city			Nextdoor, Facebook groups	FB Marketplace, craigslist, gumtree	FB events, Eventbrite	FB Jobs	
5		demographic w/in country (e.g. teens, parents, elderly)	Snapchat, Instagram	Instagram, Facebook, WhatsApp ?	Mumsnet				
6		country	WhatsApp, LINE, Messenger					Monster	
7		language / culture							
8		global	Messenger			eBay		LinkedIn	YouTube, Spotify, Apple Music
9		interest groups (global)			reddit, tumblr, Facebook (groups), pinterest, Twitter	Etsy			

- More details @ 2018-07-05 Network Effects & Competition in App Growth .

(x) The relationship between engagement and reach gives insight into the size of network effects. Looking across countries we find that time-spent/user and friends/user scales roughly 1:1 with the reach of a social app. I.e., when you double the number of users, that doubles the average number of friends, and doubles the average time-spent/user. This pattern generally does not occur for social apps. This implies that network effects are very *strong*, but it's not clear that it's informative about the location of tipping points. ███████████████████

(X) A Declining App Will Decline *After* a Competitor Rises. Suppose that a market is in the process of transitioning from app A to app B. Should we expect the trajectory to travel along a diagonal line (i.e. the reach of app A decreases at the same rate that reach of app B increases), or along the curved line? (i.e. the reach of B increases, then later the reach of A declines).

There are a couple of reasons for expecting the curved trajectory. This should make us more concerned about small declines in Facebook visitations and engagement: they may be leading indicators for a larger decline.
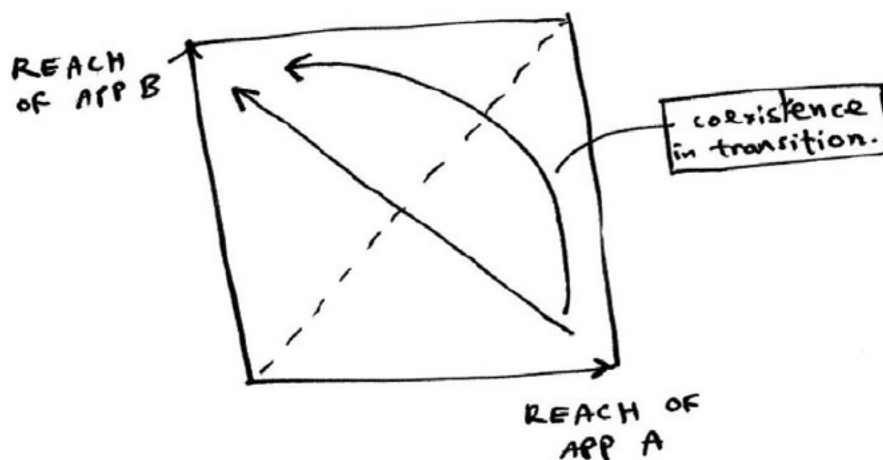
First, simply because of ratchet effects: since users are already active on Facebook, there is very little cost to keep checking their accounts. This would predict that drops in visitation would be disproportionately due to drops in new-account signups.

Second, when both apps have incomplete reach there will be a strong incentive for people to use both apps, as they will have friends who are only available on one of the apps. E.g., as Instagram grows many people still have family who are only available on Facebook, so they remain active on both apps. As Instagram grows the number of Facebook-only users will decline, and so the incentive to remain active on both apps should be expected to decline. We may expect engagement (posting, time-spent) to decline more quickly than visitation.

(X) Tipping Points for WhatsApp. WhatsApp's bimodal distribution of reach shows that there must exist very strong tipping points. Because WhatsApp does very well when it is the market-leader (in many Latin American countries WhatsApp has nearly 90% daily reach and users spend 60 minutes/day), this suggests that it would be worth a substantial investment to try to push WhatsApp over its tipping point in other countries.

(X) Tipping Points for Instagram. It is difficult to judge where Instagram's tipping points lie because it is still growing very rapidly and it does not appear that there is any country in which its growth has hit a ceiling.

(X) Tipping Points for Facebook. There are a number of countries in which Facebook has intermediate levels of monthly reach (10%-50%).
- **In some countries reach is intermediate because of differential adoption by sub-populations.** In Japan and South Korea Facebook has significantly higher penetration among youth than among elderly. The role of an intergenerational social network is partly filled by other apps (LINE and Kakao). ▇▇▇▇▇▇▇▇▇
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Note: in some of these countries Facebook has launched initiatives to increase adoption ("special country") but we do not believe that this accounts for their intermediate levels of reach: i.e., without those initiatives we don't think that visitation would have collapsed.

	A	Monthly Reach	HoH	YoY	Variation Across Demographics	Friendships outside Country
1	South Korea	39%	1%	1%	High penetration among teens, very low among older adults, who use Kakao.	20%
2	Germany	45%	0%	1%	Penetration is low across the age distribution	30%
3	Japan	34%	0%	-2%	Greater penetration among younger users, although teens are shifting to IG / Twitter	27%
4	Russia	14%	2%	14%	Higher penetration in "urban elite" in Moscow / St. Petersburg	50%
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Messaging

The following graph shows the 1-day reach of messaging apps across the largest countries. Broad takeaways are that: (1) Messenger has consistent modest market-shares across countries; (2) WhatsApp typically either has very high or very low reach (points are omitted on this graph for very low reach); (3) certain other apps succeed in individual countries (LINE, Kakao). ██████████████

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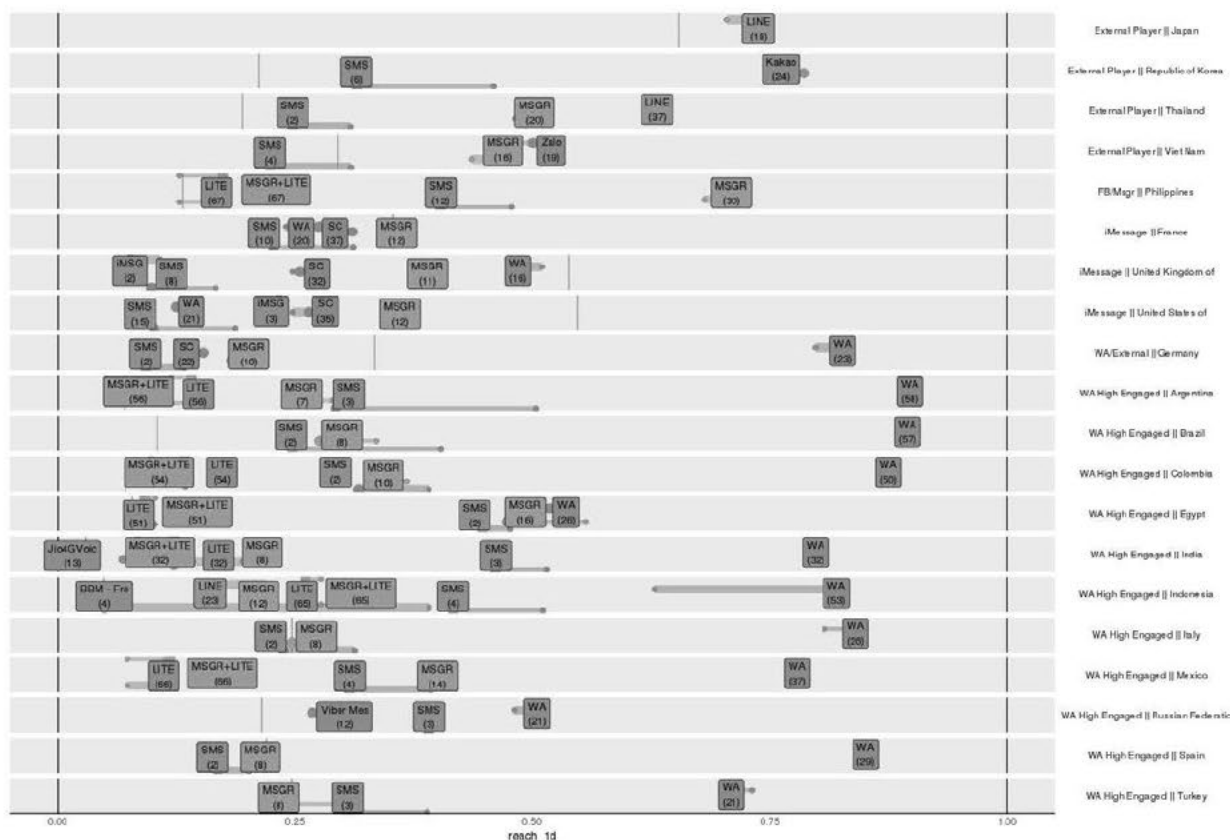
- **Status of Messenger.** MAP is growing, DAP growing a little slower, Sends/DAP are flat, and Stories/DAP are growing rapidly. Messenger is losing ground with Teens & iPhone markets; growth in developing countries, RTC, and group messaging. People who are MAP on Messenger are almost all MAP on Blue as well; Messenger penetration closely tracks FB penetration
- **Status of WhatsApp.** Distribution of penetration is bimodal — many countries have 90%+, many with less than 10%, a few rapidly transitioning upwards. Time/DAP growing slowly, sends/DAP growing steadily, status/DAP growing rapidly. WA countries have significantly higher penetration, time, and sends, than MSGR countries (and higher engagement conditional on penetration).
- **Status of IG Direct.** IG Direct has significant participation-rate among Instagram users, but a relatively low volume of sends.
- **Most countries have a single messaging app with 70%+ daily reach.** The most common app is WhatsApp. Others include Messenger, LINE, and Kakotalk.
- **The markets which do not have a majority-usage messaging app typically (1) have historically had unlimited SMS; (2) are Western; (3) currently have high iPhone and iMessage usage.** E.g., US, UK, Australia, Canada, Denmark, Norway, New Zealand, Sweden, and Poland (Poland is an outlier, in being primarily Android).
  - **Among countries with unlimited SMS, we have never seen a non-SMS-compatible app achieve daily reach above 50%.** This should inform our expectations about whether *either* MSGR or WA could achieve high reach/engagement in any of these countries. Extrapolating current WA trends, it may reach majority-usage status in the UK.
- **The messaging market has been in a period of consolidation over the last 4 years.**
  - **Three apps were functionally wiped out in major countries** (BBM, Skype, Tango), 3 saw substantial declines in some countries (LINE, Viber, and WeChat), and 9 have survived in all of the countries in which they have 50%+ reach (SMS, iMessage, WhatsApp, Messenger, IMO, Telegram, KakaoTalk, Zolo & TrueCaller). IMO and WhatsApp have seen substantial increases in some countries.
  - **There have been no new messaging apps in that period which have achieved significant market shares in any country.**
  - **Most messaging apps which do not have 50%+ market share are shrinking.**
  - **The apps which survive without majority-usage are typically attached to some other product/service.** E.g., SnapChat (attached to Stories), Messenger (attached to Blue), Instagram Direct (attached to Instagram), iMessage (compatible with SMS).
- **Where Messenger is the majority-usage app, it does not have as high reach or engagement as WhatsApp in a similar position (e.g. Philippines, Iraq, Algeria).** The extra time-spent on WhatsApp can be partly attributed to WhatsApp Status, but we also see that WhatsApp has a higher rate of messages sent.
- **Where WhatsApp is not the majority-usage app, it generally has very little presence.** Most of the exceptions are SMS markets in which WhatsApp is growing rapidly and may become the leading app soon (e.g. UK).
- **Where Messenger is not the leading app, it is able to maintain a stable presence.** Although it will not have high levels of engagement, as the majority-usage app fulfills daily person-to-person use-case. Messenger's survival depends on FB having high reach, and MSGR's use cases become — (1) messenger hooks from Facebook; (2) universal directory; (3) presence; (4) web interface.
  - Mexico has significant and growing Messenger use despite high WA reach - prior Mexico research concludes that drivers of Messenger use are: (1) using Msgr to contact people without phone numbers (and some privacy concerns about sharing phone numbers); (2) using Messenger web for media sharing; (3) Specific to Mexico - WA has poor voice quality, compared to Messenger.
- **Dual-app users (MSGR+WA) send more messages on WhatsApp, and fewer on Messenger, than single-app users of either app.**
- **Compatibility makes it easier for messaging apps to get started, but harder to reach majority-usage.** There are two important types of compatibility in messaging: (1) using the phone's address book (WhatsApp, Viber, iMessage, Android Messages), and (2) compatibility with SMS (iMessage, Android Messages). Both features help an app grow. However SMS-compatibility is likely to weakens the peer effects from using the app — i.e., you do not need to use your friend's app, if you can now contact them via SMS — and so makes it harder to achieve

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high reach. Using the phone's address book makes the market less defensible: a challenger app can scale up more quickly with access to the phone's address book. (8 - Interoperability [draft]).

**Comparisons Between the Apps.**

- **Feature differences.** WA uses less data, is faster, more stable and simpler interface. Messenger has many extra features (esp. stickers and AR) has close links to Facebook-Blue. Comparison of Apps
- **Cross-effects.** We have not analyzed effect of Messenger experiments on WA usage. When users start using WA Status, see a noticeable decline in Messenger sends ███████████
- **Cross-promotions.** There are some promotions of WhatsApp on Facebook, and no promotions of Facebook on WhatsApp.

End States

- **iMessage poses a significant threat to both apps** — iMessage tends to be preferred in messaging between iPhone users — but is limited by the growth of iPhones ████████████████████ ██████████████████
- **If RCS is successful this could be a significant threat** — esp. through preloading Android Messages and zero-rating, and especially a threat to WhatsApp. [DRAFT] RCS One-Pager

Potential Policy Levers: This is just a list of possible policies, not recommendations: (1) subsidize Messenger/WhatsApp through special pricing or zero-rating; (2) interoperability between MSGR & WA; (3) merge the graphs - both apps using a common contact list; (4) promotion of WhatsApp on Facebook; (5) WhatsApp interoperability with SMS; (6) WhatsApp and Messenger interoperability with RCS.

More details @ 2018-07-30 Messaging App Markets

Total Sharers Across the Family, Sept. 2017 to Sept 2018
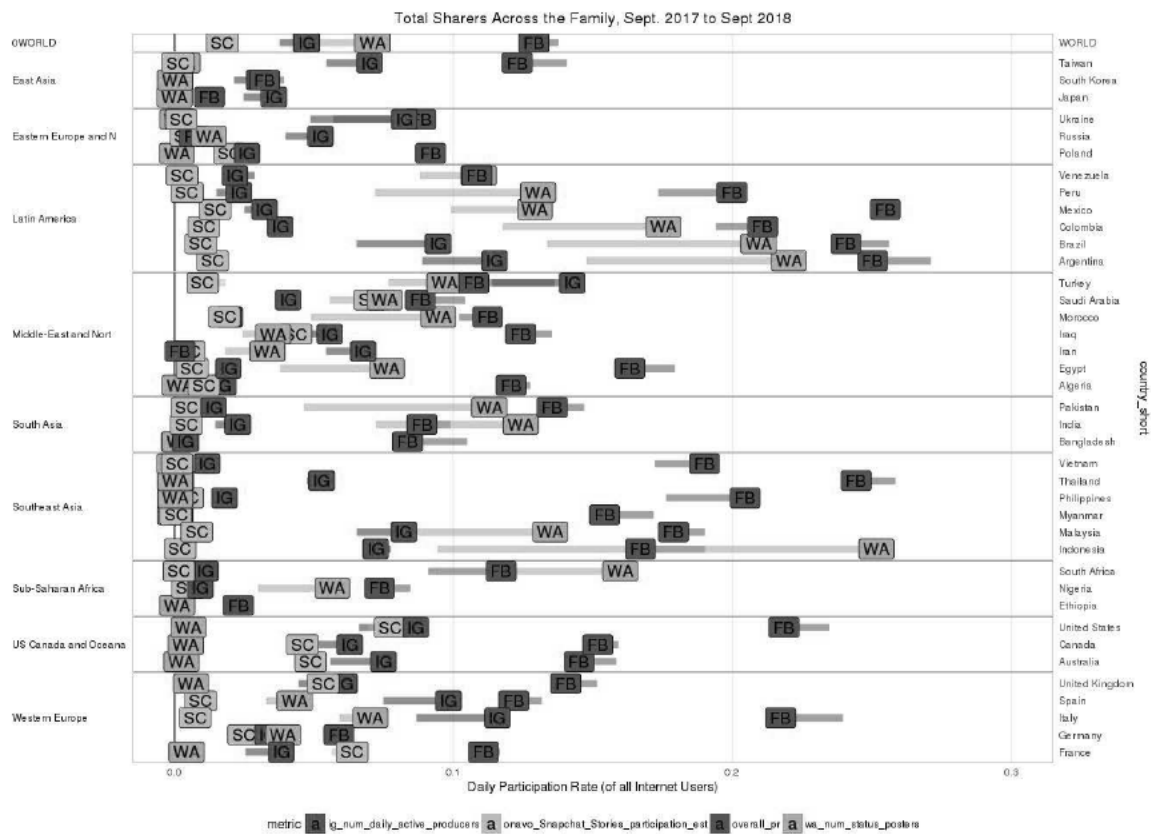
Broadcast Sharing

This graph shows the fraction of the population who broadcast-share each day on each app. The Facebook numbers include reshares. We see consistent increases in Instagram and WhatsApp sharing across countries. Facebook's movement is mixed but negative in aggregate.

- **Status of Facebook.** Facebook has high reach and time-spent in most countries. User growth is tracking internet growth: global reach is roughly stable. DAP is showing weakness in developed countries and especially teens. There has been a small recent intentional decline in ts/DAP, but long-running decline in time-spent share (from 16% to 12% over the last year). Engagement is flat in 2018 after falling in 2017. Original sharing is roughly flat: the increase in Stories has roughly offset the decline in Feed sharing.
- **Status of Instagram.** The growth in users has been very rapid, there appear to be *no* countries in which growth has hit a ceiling. The growth in time/DAP and engagement is high. Global time-spent-share has grown from 3.5% to 5% over the last year.
- **Status of WhatsApp.** WhatsApp Status sharing has grown very rapidly. The vast majority of WA-Status posting is non-original, i.e. re-uploaded content.

Comparisons
- **Friends.** The median monthly-active user has around 220 friends on Facebook, 100 contacts on WhatsApp, and 110 followers on Instagram (65 reciprocal followers). The small number of friends/followers on Instagram is partly attributable to (a) the lower reach of Instagram; and (b) the lower average time-on-platform, thus extrapolating current trends we expect Instagram's graph to grow ██████████████████████
- **Overlap in friendships.** We only have data on friending overlaps for the US. In the US, an average 40% of an Instagram user's reciprocal follows are also their friends on Facebook. This overlap tends to decrease with an Instagram user's tenure, and is lower with newer cohorts. And 12% of a Facebook user's friends are reciprocal-follows on Instagram ██████████████████
- **Difference in use cases.** A US Survey says that Instagram better for following celebrities, but FB as good or better for all other purposes.
- **Difference in content.** around 1/3 of Facebook feed is friend original content. But on Instagram it's much lower: just 6% is from normal reciprocal follows, 16% normal non-reciprocal, 55% of feed is top-accounts; 25% is interests.
- **More data:** Social Graph Overlap between FB and IG: Description and Causes.
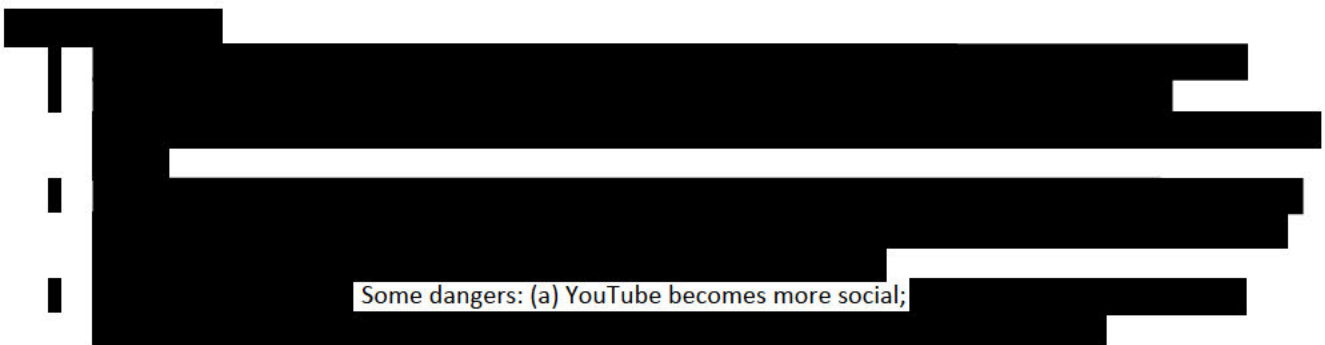
██
██
██
██████████████ Some dangers: (a) YouTube becomes more social; ████████████
██

Possible Policies: (1) reduce promotion of Instagram on Facebook; (2) add Facebook features to Instagram (groups, marketplace, links); (3) subsidize Instagram with free internet; (4) add Instagram features to Facebook (Stories, celebrities); (5) vary public/private mix; (6) promote Facebook on Instagram.

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END