EXHIBIT 151

UNREDACTED VERSION OF DOCUMENT SOUGHT TO BE LODGED UNDER SEAL

**From:** Ram Srinivasan </O=THEFACEBOOK/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=SRAMSRINA1A>
**Sent:** Wednesday, March 12, 2014 7:13 PM
**To:** Brady Lauback
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**Subject:** Sharing Metrics Weekly Update
**Attachments:** image007.jpg; image008.jpg; image009.jpg; image010.png; image011.png; image012.png; image013.png; image014.png; 56003D7F-3AA3-4458-B61B-2E617A545DC5.jpg; BAAB2006-E459-4B59-8C46-164D1919CB61.jpg; WeeklyReport.png; 16FB5BD2-D887-4A57-A796-6AE58EF77114.png; 4CF4DEC4-75D4-435F-B7DC-B5722CA2F6F6.jpg; WeeklyReport[1].png; 55C4D8DA-B6B1-4FB0-81C9-36DDEBF0FC94.jpg; 40B16375-CDE7-4C27-BF14-CB7DC8E44507.png; 0D89411A-EB84-4A53-B4DB-864AFC826E02.jpg; 437BBBAD-8EDA-4B7E-B28A-155C4FA501B9.jpg; B4CD343E-CCE8-477E-B762-55F5BA314331.jpg

[I missed the last one. So this will include 2 weeks worth of update. Normal service will resume. Some really high impact stuff by the team.]

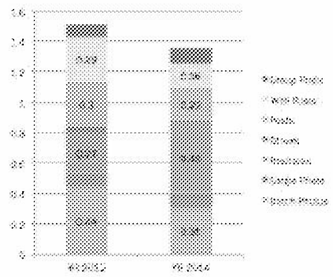
**Goodbye Jermiah!:** Friday is Jeremiah's last day at FB :(.

**Content production (Ram/Pinkesh):** We had a really good review with Chris Cox and co. This was the first milestone for our "understand content production" task force. There are some really interesting findings in the 70 slide deck attached in the email. I recommend a read. We will also be holding sessions where we go through this. For the sake of brevity, the three main slides are:

People are sharing less than they did in 2012 – but more importantly they are sharing drastically different types of content

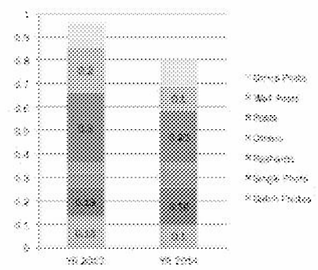
VOLUME SUMMARY – WE'RE FALLING BECAUSE...

- Bulk photos are failing due to mobile migration (and we don't get enough single photos to compensate)
- Wall posts are falling due to mobile migration because of falling Profile visits, less prominent wall composer and no (or poor) in feed birthday unit




WUC SUMMARY – WE'RE FALLING BECAUSE...

- Text posts are failing because they haven't been supported (or defended) by any team and have been cannibalized by re-shares and photos
- Wall posts are falling due to mobile migration because of falling Profile visits, less prominent wall composer and no (or poor) in feed birthday unit



**Privacy and Trust (Sandeep):**

1. Sandeep did some real good work in building a flexible framework to weight survey results, and extend the data infrastructure to account for all sentiment questions (and not just trust). Once we figure out "Cares about me" it is a 2 min job to ensure the data flows into the dashboard. Link here
2. The positive bump in the trust score by lookback videos has persisted well over three weeks now in the major countries like U.S., U.K. and Brazil. This is probably the first case we noticed where the positive impact of product launch/event has persisted for so long. The trust trend in the US is appended below.

**Videos (Nick):** Nick has been doing some really good work on videos.

- Comscore recently indicated that FB video consumption increased by 85% from Dec 13 to Jan 14! Nick did an analysis around internal data to confirm, and explain, what is happening. In summary, our internal data lines up very closely with the Comscore data which shows a massive 85% increase in time spent watching videos. This jump is fairly consistent across both android and iPhone. No smoking gun but details here
- Analysis of FB10 videos: Details here. This was a quick analysis on how "big" FB10 videos where. Summary
  - ~175 M FB10 look back videos were viewed (watched for longer than 3 s)
  - ~20 M hrs were spend watching the FB10 videos in Feb (15% of total time spent watching user generated videos and 5% of overall time spent watching videos)
  - ~325 M people watched an FB10 video
  - ~150 M people watched their own video
  - FB10 videos got more likes, but less comments than other user produced videos in Feb
  - ~ 6 M videos were deleted

**Low end devices (Benedict):**

**#** Multi-interface analysis: Benedict did some really good fundamental work in understanding and demystifying multiple-interface. This was extremely impactful as it helped the M-Web photos team identify the correct interface to focus on. Detailed deck here Key insights:

- A significant proportion (28% of WAU) access FB through more than 1 mobile interface in a week. However, 90% of these users produce content on only 1 interface.
- MTouch and iPad are secondary interfaces. When a users uses mTouch and iPad in conjunction with any other interface, the user is more likely to produce content on the other interface.
- People generally use mBasic as their primary interface
- A very cool thing that we observed was that. People who use Snaptu and mBasic, do all the "lightweight" content production like posting texts and reshares on Snaptu but go to mBasic to upload photos. People who use mBasic and Android, do all the "lightweight" content production like posting texts and reshares on mBasic but go to Android to upload photos.

**#** Content production in groups: Benedict, with Dan's help, did an analysis on how users produce content in groups across multiple interfaces, with an emphasis on mBasic. The analysis led to a short term fix to expose photo uploads in the mBasic groups composer, plus a longer term exploration to include groups in the audience selection of composer.

- mBasic users have the highest mobile participation rate in groups, but they are posting less photos in these groups than iPhone and Android
- Only 4% of mBasic photos uploaded are uploaded into groups, compared to 8% on iPhone and 11% on Webloader
- Increase in participation rate from current 0.032 to 0.05 will boost mBasic group photos by 55.4% and overall mBasic photos by 2.4%

**Composer (Santosh):** Santosh completed the analysis of External Entry Points (EEP) into Composer last week. EEPs are places e.g. photo gallery from where one enters composer directly

- On Android, # of entered to composer from EEP is comparable to timeline (~11-12% posts).
- External entries have much higher completion rates
- Whatsapp accounts for 0.5% of all composer entries on FB!
- Product Change Proposal: Introducing entry point from FB Messenger on Android should increase content production by +0.4-0.7% on Android. Since the content is primarily photos, it should be a significant win for photos WUC!

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**Subject:** Sharing Metrics Weekly Update

[Main highlights]

**Videos (Nick):** We did our first understand analysis on videos content production to understand who is producing videos that "matter". Details here. Lots of stuff but the highlights

- More videos are produced by users, but videos from pages drive significantly more views
- Vast majority of user videos get < 10 viewers
- People with a lot of friends (400+) produce most of the videos and an even higher proportion of views
- US users produces a disproportionately high number of videos
- Community pages produce the most videos that lead to an even higher percentage of views

**Content production (Kyle):** Kyle looked at when user post after they open the app. Do they post immediately or do they spend time in newsfeed/other places before the post. This is important to understand for Muse, where we will trigger users with reminders in feed. Details here

- For 66% of our photo/checkin sessions the user enters the composer within 1 minute of app opening. This implies that people open the app to post photos and checkins!
- Interestingly, it is different for text posts. Only 33% of people that click on status before 60 seconds.

**Offline Posting (Santosh):** Details here. Offline posting attempts to allow users to post and succeed even without network connection. This features prompts the user to continue to post even without connectivity and once they post ensures it post eventually succeeds even if this happens numerous retries and hours later.

1. Santosh identified that posts that depend on connectivity for right rendering (preview for reshares, suggestion for tags/checkins etc) have high cancellation rates . The team is figuring out if with the correct "messaging" we can reduce cancellations and get these users to post.

2. Santosh also identified that about 5% posts have only server success but no client side success, I.e., the users does not know the post has succeeded. The team identified that this was because we were not waiting long enough at the client end for server confirmation. This will be resolved soon.

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**Subject:** Sharing Metrics Weekly Update

Pretty good 2 weeks with lots of awesome stuff by the team. I feel like we are now slowly generating useful/actionable insights (simple picker analysis, photos consumption, offline posting) that can inform the product team.

**Content Production (Nick, Tye, Benedict, Ram):** We had a very good review with Will, KX, Julie and co where we discussed our progress on the content production narrative. Detailed deck here. This is still WIP and we are continue to iterate and improve our understanding.

- Impact of Shift to mobile on content production:
  - We confirmed that the drop in web is primarily due to users acquiring phones by looking at a set of web-only users who have never got a phone
  - What happens when a web user gets a phone? His/her web DAU drops and Web cp/dau on web drops across all content types Interestingly, if we look at overall content/dau, we see a drop *only* for Reshares and Bulk Photos. We DO NOT see a drop for text posts and single photos. This means that the shift to mobile does not affect text posts and single photos. We can all see this from the fact that cp/dau for single photos/text posts on mobile ~ the value on web.
- Why is Andrioid on a rocket ship while iPhone is flat? Android is up 28% while iPhone is -5% on WUC. T*his is a difference of 33% in growth between the two platforms.*
  - We have confirmed this is not due to the standard demographics, I.e., there are more users from Brazil/13-18 etc. on Android. We also see this across high end/low end Android and all screen sizes.
  - Much larger portion of Android is new users compared to iPhone. New users in general post more content than old users. This explains about 7% of the difference
  - Users who migrate to Android from Web/Other platforms produce more than the average on Android. Thus the migration to Android push the overall cp/dau by 10% up. his pushed iPhone down by –8%. The users migrating to Android used to produce more content on Web (even before migration) than users who migrate to iPhone. This means that *users migration from other platforms explain almost half of the difference in growth rates between Android and iPhone.*

**Simple Picker Analysis (Kyle):** Full details here. Kyle did some very good analysis on figuring out how the user navigation has changed from multi picker to simple picker.

- Composer abandonment (exit out of the app), which reflects the most dramatic dissatisfaction with the interface, is down 12% with simple picker.
- Cancels tend to happen later in the session, on the composer screen rather than in the picker itself when the user gets to see the image in full. This suggests that potential uploaders are dissatisfied with image quality on lux usage. I found that 8% of people who reach the gallery screen try lux, and nearly half of those end up taking it off. So there is demand for image enhancement, but it is not being satisfied by the current feature. Since there's a 3% difference in post rate between people who click on the lux button and others who reach the same screen, we may be able to increase post rate by up to 3% if that feature were living up to expectations.
- With the move to simplepicker, we're also reducing the number of people who make it to the gallery screen where tagging, filters, and lux happen, which increases the potential impact of auto-tagging and auto-enhancement (if lux quality improves to the point that more people would want it on).

**How do users consume photos on Web? (Jeremiah)** We completed this and presented this to the entire team. Details here. There is a lot of good stuff in there. Main highlights.

- We found that more than 80% of photos viewed on timeline are more than 30 days old, but these photos receive feedback only 10% as often as recent photos and photos from News Feed. So WUF does not completely represent photos consumption and we should track photo views (unique ds, userid, photo_id) pairs as well.
- We found that 30-60% of photos consumption occurs in Snowlift. We also found that snowlift sessions are often long, with the median number of profile photos viewed per session = 6, and the average 10.5 So we recommended that the Photos team add pivots to Snowlift to keep users browsing longer.
- We found that only 10% of photo tab views are self, and the rest are friends or FoFs. We are going to dig a bit more into this before recommending action.

**Breakfast club and tagging: (Santosh)** : One of the issues with BClub was reduction in user tagging which in turn reduced the WUC. Digging into data revealed that even though the # of status updates have remained same for test and control at ~2.3M, the # of status updates with custom privacy has increased by 87K whereas the tags have reduced by 61K. This we believe explains the reduction in tagging if:
1. User sets of BClub's privacy settings mostly overlaps with users of tagging
2. Users of BClub privacy settings consider tagging redundant because they are already directing their status updates at the users whom they would have sought through tagging earlier.

**Offline Posting: (Santosh) I**nitial analysis revealed that share posts had much lower posting rate than text posts. After some investigation, we identified that this was because "resharing" involves scraping which in turn requires connectivity. Consequently, users got a poor error messaged and canceled out. We believe that changing the message from the current "Preview Unavailable" to "Preview will be added when you post" will increase the posting rate.

-Ram

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**From:** d <sramsrin@fb.com>
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**Subject:** Sharing Metrics Weekly Update

We figured it was efficient for each time to post the metrics. update to the relevant group.

**How do users view photos on Web?**
Jeremiah made some good progress on this. We should wrap this up in the next week or so. The main narrative we have so far is:

- Timeline drives O(50%) and feed O(30%) of traffic to snow lift. WUF/Impression when snow lift is opened from timeline < when snow lift is opened from feed. This supports our thesis that "WUF does not capture all the consumption value in photos".
- Photos tab redesign: 45% of the time a user views the timeline of a FOF, 45% a friends and 9% of the time a user views his own timeline. So the redesign **has** to focus on the main use case, which is viewing somebody else's timeline

**Trust**

- Audience Alignment and Awareness (AAA): If you take current public posters and ask them who would they prefer to share with, then 55% of them say public. **(55% alignment),** We launched the following product which prompts you to select an audience when you open the composer and hopefully align you https://www.facebook.com/pxlcld/kVv0. If you just take the raw results then the alignment goes up to **75% (+ 20%).** Pinkesh dug into this further and showed that there are a significant number of people who dismiss the dialogue (20%) or just escape from the composer (30%). So if you ignore them, the alignment shoots up to **83% (+28%).** The Privacy sentiment number is up by **4% +/- 2%** and Trust is pretty flat.

**Content Production:**We now have triangle charts for all the dimensions that matter here. https://tableau-dev.thefacebook.com/views/ContentProd_TriangleChart/Triangle#1 Using this, we have started answering a few important questions.

*Why are wall posts dropping?*

- New users use the product less than the older users.
- On Web, some product change around Jan 7-10 really caused a drop in directed wall posts.
- On Mobile, we see a decrease in usage for a users with FB age

*Why is Android photos/dau increasing while iPhone is flat?*

- Android is increasing across the board. Upload/Rate for users who joined FB in 2012 is increasing. The users who we have added recently have an even higher upload rate. Some product change in August had a big impact
- Iphone is pretty interesting. Upload/Rate for users who joined FB in 2012 is increasing. There is really no difference between the users we added in 2012 and 2013.

**Infrastructure:**

- Thanks to work done by Elizabeth on the BI team we know have the videos dash where the main metrics are being tracked. There is still someway to go: https://tableau.thefacebook.com/views/video_playback/Dash
- We are now measuring upload reliability in a consistent manner across photos, videos and the overall composer.
- Survey Concatenation: Towards the end of August 2013, we switched from 'Legacy' survey tool to 'Simon' Survey tool and also changed few questions in main tracking survey. Therefore in order to obtain a long term trend we made an adjustment on legacy survey scores to sync it with simon survey scores (the current version). The long duration of data gives us tremendous insights on seasonality and long term trends like discussed in research section.

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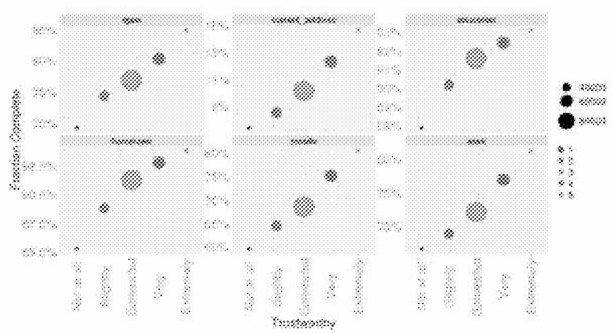
## Analysis Highlights

**What does trust affect?**
*So far:* We are seeing that trust seems to impact our major metrics like dau in a minor way. The impact is small and most product changes would have much higher impact. However, trust is significantly correlated with interactions that users have with facebook. If we are asking them to give us permission to install apps (platform apps) or Socrates (where we ask users to fill in their profile info), then trust is a much bigger driver, comparable to a lot of demographic variables.

Pinkesh next looked at how trust correlates with Profile completeness. As we can see from the picture, there are significant differences in the "profile completeness" between users who do not trust us versus users who trust us. Profile completeness is pretty important and we spend a LOT of effort (Socates) getting people to fill in their profiles. Further, some fields such as "mobile" (phone numbers) are crucial to products like messenger.

This is further evidence that points to the following narrative on trust: *Trust does not matter so much when users use Facebook as a conduit to communicate with their friends or the public. But it matters a lot whenever users interact with Facebook the entity.*
Detailed note here: https://www.facebook.com/notes/pinkesh-patel/impact-of-trust-sentiment-part-ii/10152171907894539



**Low-end devices analysis:** The goal of this analysis is to identify if there is an opportunity with the low end interfaces (Low end Android, Mbasic and Mtouch). Benedict, who is back from bootcamp, did some very quick analysis to scope out the opportunities in low-end interfaces. Main conclusions:

- Content production in Low end Android ~ High End Android.
- Mbasic/Mtouch/Snaptu users have really low reshares/dau. It is not clear why this should happen

We will continue to work on this.

| | | Low End Android* | High End Android | Android Overall | mBasic** | mTouch | Snaptu | Iphone | Web |
|---|---|---|---|---|---|---|---|---|---|
| Content/DAU | Photos | 0.40 | 0.43 | 0.42 | 0.12 | 0.12 | 0.11 | 0.28 | 0.48 |
| | Posts | 0.28 | 0.26 | 0.27 | 0.25 | 0.16 | 0.39 | 0.22 | 0.30 |
| | Reshares | 0.31 | 0.33 | 0.32 | 0.08 | 0.16 | 0.11 | 0.20 | 0.46 |
| | Total Content | 1.02 | 1.07 | 1.05 | 0.46 | 0.48 | 0.63 | 0.73 | 1.34 |

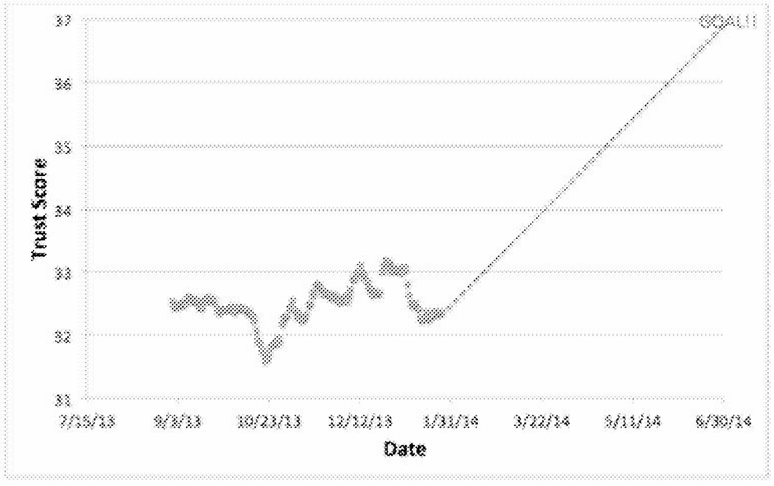
* Low End Android is defined as user's main OS as Gingerbread and below

**Infrastructure:**

- Now tracking WUC changes against the main holdout in the main dash
- Now tracking photo/video upload reliability
- Now tracking photos WUF https://our.intern.facebook.com/intern/argus/view/189904
- WUC, composer conversion rate and upload reliability in deltoid. Please contact Santosh/Kyle to find the categories

**Metrics Update** [Word doc attached]

**Trust**




**Metric:** % Top Two Respondents (7 day avg.)
**Goal:** 37%
**Current Value**: 32.33%
**WOW**: +0.13 (+0.38%) & **MOM**: -0.86 (-2.05%)
**Commentary:** This week we noticed a sharp recovery in all three major countries i.e. U.S. (+1.6% WOW), Brazil (+2.5%) and India (+2%). All these countries were in downward trend last week. The overall topline metric for this week would have been much higher (+1.2% WOW) if not for the change in survey responders

**Content Prod**

| | | Overall | | | | | Web | | | | | Android | | | | | iPhone | | | | | Beta | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | per DAU | WOW % | YOY % | YOY % (Week Ago) | vs Holdout | per DAU | WOW % | YOY % | YOY % (Week Ago) | vs Holdout | per DAU | WOW % | YOY % | YOY % (Week Ago) | vs Holdout | per DAU | WOW % | YOY % | YOY % (Week Ago) | vs Holdout | per DAU | WOW % | YOY % | YOY % (Week Ago) | vs Holdout |
| WUC (Stages) | Overall | 0.74 | 0.73% | -11.89% | -11.46% | -0.22% | 0.67 | 0.73% | -15.04% | -14.67% | -0.14% | 0.90 | 0.99% | 28.69% | 27.95% | 0.26% | 0.68 | 1.42% | -8.28% | -7.94% | -0.18% | 0.87 | 0.33% | -21.92% | -20.61% | -0.17% |
| | power | 0.91 | 1.13% | 0.29% | 0.67% | 0.11% | 0.87 | 1.38% | -0.22% | 0.07% | 0.13% | 0.98 | 1.06% | 46.17% | 46.75% | 0.11% | 0.93 | 1.19% | -0.88% | 0.01% | -0.08% | 1.03 | 1.05% | 29.47% | 31.19% | 0.46% |
| | core | 0.55 | 0.63% | -22.23% | -21.95% | -0.05% | 0.47 | -0.54% | -34.88% | -34.57% | -0.04% | 0.68 | 0.77% | 0.44% | 1.14% | 0.06% | 0.51 | 0.15% | -11.08% | -11.60% | -0.06% | 0.70 | 1.28% | -34.75% | -34.44% | -0.48% |
| | casuals | 0.37 | 0.44% | -5.13% | -4.82% | -0.06% | 0.27 | 1.95% | -39.98% | -39.68% | -0.14% | 0.55 | 0.34% | -10.26% | -10.02% | -0.11% | 0.31 | -1.75% | -12.35% | -12.03% | 0.04% | 0.52 | 1.75% | -5.34% | -5.05% | 0.04% |

**Metric:** WUC
**Goal:** 3% against holdout
**Current Value**: -0.2%
**Commentary:** Very stable week. Main movers
- Overall content production was up in the US (+2.5%) (long weekend + photos), India(-6.1%) and Philippines (+4.5%).
- Mobile links sharing was up (+12% WOW). We will monitor this

We will watch links to see if this continues

**Composer**



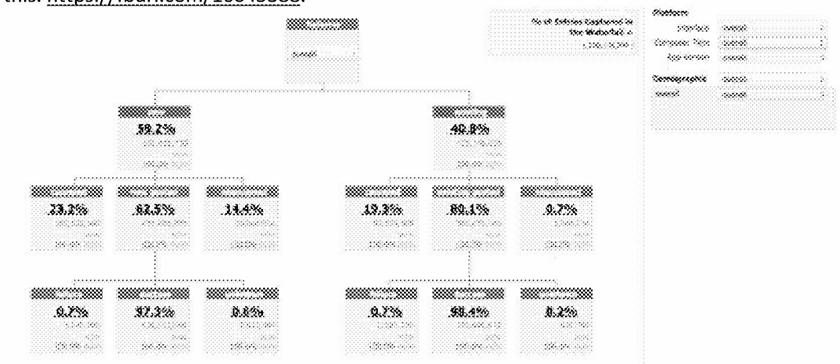
**Metric:** % of opens that lead to a post (Post Rate) x Reliability (7day average)
**Dash:** https://fburl.com/composerdash

**From:** d <sramsrin@fb.com>
**Date:** Wednesday, January 22, 2014 6:13 PM
**To:** Brady Lauback <blauback@fb.com>
**Cc:** Santosh Kumar <ksantosh@fb.com>, Kyle Shiells <kshiells@fb.com>, Benedict Lim <benedictlim@fb.com>, Sandeep Tiwari <stiwari@fb.com>, Pinkesh Patel <pinkesh@fb.com>, Jeremiah Rogers <jeremiah@fb.com>, Nick Tomko <tomko@fb.com>, Aaron Filner <aaronf@fb.com>, Michael Nowak <mnowak@fb.com>, Devin Naquin <devin@fb.com>, Dan Barak <danb@fb.com>, Thai Tran <thai@fb.com>, Kejia Zhu <kzhu@fb.com>, Jason Liao <jliao@fb.com>, Joe Paley <joepaley@fb.com>, Bob Petersen <bobp@fb.com>, Stacy Kerkela <stacyk@fb.com>, Alex Li <alexli@fb.com>, John Maier <jmaier@fb.com>, Linda Xiong <linda.xiong@fb.com>, Chris Luhrs <cluhrs@fb.com>, Spencer Burns <spencerburns@fb.com>, Nathan Borror <nathanborror@fb.com>, Bryan Brandow <bryanb@fb.com>, Jonathan Wehrer <jonw@fb.com>, Raylene Yung <raylene@fb.com>, Blake Barnes <bbarnes@fb.com>, Srinivas Narayanan <srinivas@fb.com>, Rose Yao <rose.yao@fb.com>, Scott Porter <scottp@fb.com>, Bryan Brandow <bryanb@fb.com>, Kevin Wheeler <kevinrw@fb.com>, Charles Gelman <cgelman@fb.com>, Satyendra Nainwal <skn@fb.com>, Tye Rattenbury <tyer@fb.com>, Kelly Mayes <kellymayes@fb.com>, Paul Carduner <pcardune@fb.com>
**Subject:** Re: Sharing Analytics Weekly Update

[Will restrict the weekly update to 3-4 items to make it more readable]

**Photos Needy User Experiment Analysis: (Kyle)** Details here. When users who have not posted photos in the last 2 weeks, posts a photo we boost the user in the feed and drive a feedback to the user. Does the increased feedback increase participation rate? We had seen that overall the test group got 17% more impression, 5% more feedback and this *caused a 0.2% increase in PR*. Kyle dived into the test to see if there were some specific buckets where this had a bigger effect. For users with > 100 friends, the impact is bigger and is 0.40%.

**Composer waterfall dashboard: (Santosh/JonW)** We finally have a clean working, reasonable fast dashboard that tracks composer "cancellation rates" and reliability. This has been in the works for sometime and thanks to Santosh/Jon for finishing this. https://fburl.com/16045388.




The end goal is to have one consolidated view of the composer waterfall and reliability across all Photos, Videos and Composer team.

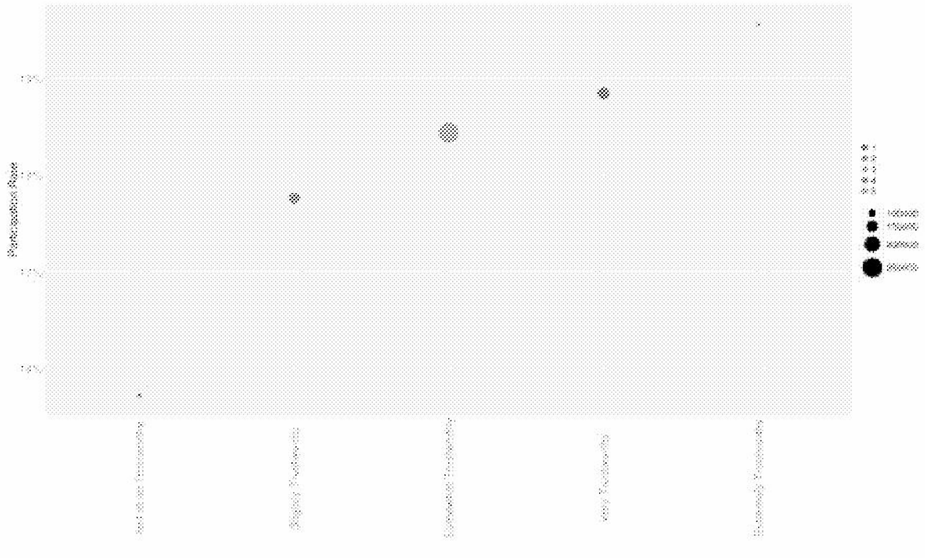
**Trust drop in Brazil: (Sandeep)** Being the second largest country by DAU and by having 10% of contribution to total survey responses, Brazil is a key country from "trust" perspective. Trust in Brazil had been dropping consistently over the last one year with YOY drop of -30% and the very recent drop was particularly alarming (-2% WOW). Sandeep worked on identifying the main buckets where trust had been declining at a faster rate. The summary of my analysis/findings was as follows:

1. We know it from the survey data that android users in general tend to trust us less than the average facebook user. Recently we have seen a surge in android respondents in Brazil whose proportion among total survey respondents had grown from 6.5% in September to 15% as of Jan 15th.
2. Steady decline in trust among users under the age of 25.
3. Continuous decline is trust among users who had been on Facebook for less than a year and a sharp dip in last week among users with vintage of 1-2 years.

Detailed report https://www.facebook.com/pxlcld/kTHT.

**What does trust affect?**

So far: We are seeing that trust seems to impact our major metrics like dau in a minor way. The impact is small and most product changes would have much higher impact. However, trust is significantly correlated with interactions that users have with facebook. If we are asking them to give us permission to install apps (platform apps), then trust is a much bigger driver, comparable to a lot of demographic variables. Now, Pinkesh looked into whether trust is correlated with Socrates (where we ask users to fill in their profile info). *Taking into account most of the demographic variables that we measure, trust is a major driver of Socrates participation and answer rates*.



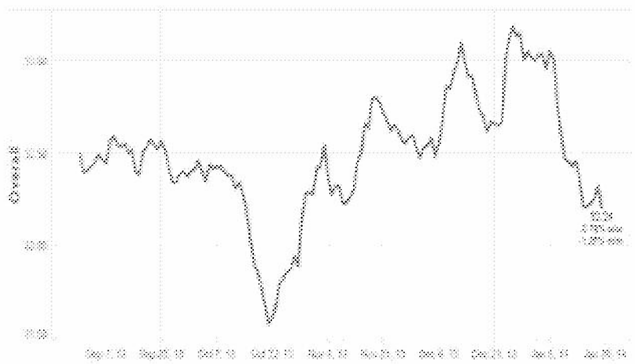
The participation rate is defined as the number of people who answered at least one question on Socrates (in the last 3 months, over our entire data).  he participation rate overall shows a 4% difference between the two extremes overall. Given that Socrates helps us move Profile Completeness numbers by a few percent each half, this is a pretty significant difference.  So the main emerging themes seems to be: We provide a valuable service which supersedes trust concerns when people want to keep in touch with their friends or use our products. But when people interact with us, FB, as an entity, like Socrates/App Install Perms then trust shows up.

## Metrics:

There are still some missing numbers and we are working on getting them filled. We will also add the main video metrics to this report in the next few weeks.

**Date: Jan 12 2014**

Trust (01/19/2014)



**Metric:** % Top Two Respondents (7 day avg.)
**Dash:** https://fburl.com/16043521
**Goal:** 37%
**Value**: 32.46% (WOW: -0.78% & MOM: -1.36%)

**Commentary:**
Majority of drop in trust last week can be attributed to top three countries by DAU i.e. USA (-2.5% WOW), Brazil (-1.7% WOW) and India (-2.6% WOW). Fortunately the impact of the significant drop in these countries was mitigated by sharp recovery in UK (+7.2% WOW) and Germany (+3.23% WOW). While the drop in Brazil has been steep.

We are digging into this further and we should have a coherent picture on what are the main drivers of the drops are. Brazil, we have identified is one main driver (see analysis above).

**Content Prod***

| | Overall | | | | | Web | | | | | Android | | | | | iPhone | | | | | Mobile | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Per DAU | WOW % | YOY% | YOY% (Week Ago) | vs Holdout | Per DAU | WOW % | YOY% | YOY% (Week Ago) | vs Holdout | Per DAU | WOW % | YOY% | YOY% (Week Ago) | vs Holdout | Per DAU | WOW % | YOY% | YOY% (Week Ago) | vs Holdout | Per DAU | WOW % | YOY% | YOY% (Week Ago) | vs Holdout |
| Overall | 0.72 | -2.2% | -14.1% | -13.9% | | 0.59 | -2.2% | -19.7% | -20.7% | | 0.67 | -1.4% | 27.4% | 30.4% | | 3.45 | -2.2% | -10.1% | -9.2% | | 0.45 | -1.7% | -23.1% | -23.1% | |
| photo | 0.28 | -1.9% | -4.1% | -2.8% | | 0.22 | -3.2% | -15.7% | -16.6% | | 0.25 | -0.2% | 44.9% | 48.8% | | 0.21 | -1.6% | -5.6% | -1.6% | | 0.12 | -1.3% | 16.2% | 17.7% | |
| post | 0.33 | -2.7% | -21.8% | -21.1% | | 0.25 | -1.9% | -25.5% | -24.6% | | 0.25 | -3.2% | 0.9% | 3.6% | | 0.19 | -3.0% | -22.1% | -18.5% | | 0.23 | -2.1% | -34.6% | -34.5% | |
| reshare | 0.08 | -0.6% | -4.5% | 6.7% | | 0.06 | -1.9% | -34.6% | -32.9% | | 0.05 | 0.6% | 123.2% | 128.5% | | 0.03 | -0.8% | 141.6% | 161.8% | | 0.02 | 2.4% | 8.5% | 2.9% | |

**Metric:** WUC (text penalty excluded)
**Dash:** https://fburl.com/wucdash
**Goal:** 3% vs. holdout
**Commentary:** Main movers

- Drop in content production on iPhone and Android across both photos and posts. We want to see if this sustains.
- Increase of a 5% YOY on photos x Web. This was around the time last year when we had logging changes on Web and we stopped counting unpublished photos.

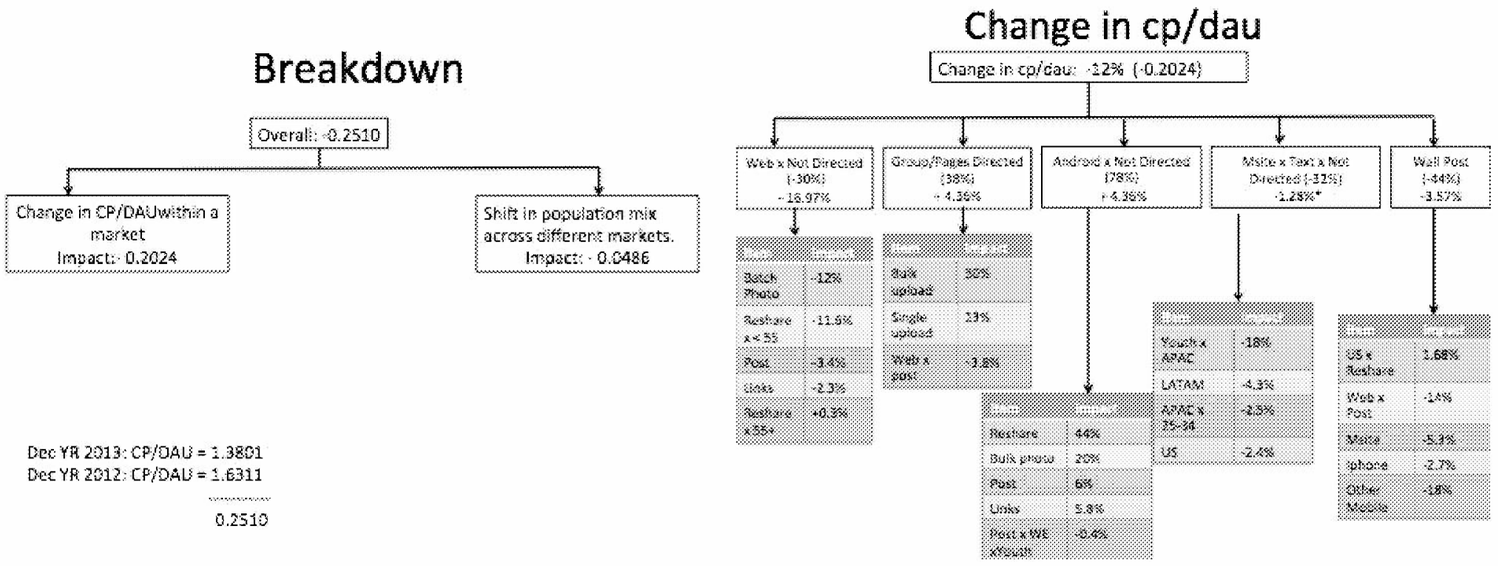
**From:** d <sramsrin@fb.com>
**Date:** Tuesday, January 14, 2014 11:42 PM
**To:** Brady Lauback <blauback@fb.com>
**Cc:** Santosh Kumar <ksantosh@fb.com>, Kyle Shiells <kshiells@fb.com>, Benedict Lim <benedictlim@fb.com>, Sandeep Tiwari <stiwari@fb.com>, Pinkesh Patel <pinkesh@fb.com>, Jeremiah Rogers <jeremiah@fb.com>, Nick Tomko <tomko@fb.com>, Aaron Filner <aaronf@fb.com>, Michael Nowak <mnowak@fb.com>, Devin Naquin <devin@fb.com>, Dan Barak <danb@fb.com>, Thai Tran <thai@fb.com>, Kejia Zhu <kzhu@fb.com>, Jason Liao <jliao@fb.com>, Joe Paley <joepaley@fb.com>, Bob Petersen <bobp@fb.com>, Stacy Kerkela <stacyk@fb.com>, Alex Li <alexli@fb.com>, John Maier <jmaier@fb.com>, Linda Xiong <linda.xiong@fb.com>, Chris Luhrs <cluhrs@fb.com>, Spencer Burns <spencerburns@fb.com>, Nathan Borror <nathanborror@fb.com>, Bryan Brandow <bryanb@fb.com>, Jonathan Wehrer <jonw@fb.com>, Raylene Yung <raylene@fb.com>, Blake Barnes <bbarnes@fb.com>, Srinivas Narayanan <srinivas@fb.com>, Rose Yao <rose.yao@fb.com>, Scott Porter <scottp@fb.com>, Bryan Brandow <bryanb@fb.com>, Kevin Wheeler <kevinrw@fb.com>, Charles Gelman <cgelman@fb.com>, Satyendra Nainwal <skn@fb.com>, Tye Rattenbury <tyer@fb.com>
**Subject:** Re: Sharing Analytics Weekly Update

[With one cleanup]
**Highlights:**

- We have worked on the first version of the sharing metric weekly update. This is extremely rough and is at the end of the email. This is still beta.
- I am off to Kauai for the rest of the week! :D

**Content Production:**

- We had a good Cox review where we presented the final narrative on the main segments that are dropping. Detailed deck here https://www.facebook.com/pxlcld/kST2.The main conclusion was




- We also identified a list of 5 questions that we will next work on. These are in the deck.

**Composer:**
ailures.

- **Outliers:** Brazil has a very high failure rates among all countries. This seems related to networks issues as failures persist across interface (iphone/android), app_versions, device_os_versions etc. More investigation is underway to identify if this is well-known and if so, what's the underlying cause of this. Details here: https://www.facebook.com/pxlcld/kST4
- **Failure Classification:** In attempts to classify errors, it was found that compose_post_failure event is quite useful as it's fired in ~90% of failure events on Android and ~60% of events on iPhone/iPad. However, its fields are ***not*** properly populated on iOS (<5% times non-null fields). On Android non-null fields are found 60% times. Based on this follow error type classification has been established:

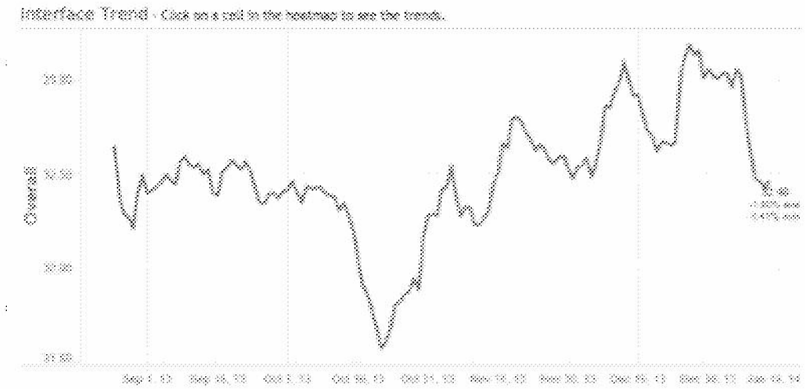
| Android Failure Classification | |
|---|---|
| connection failure | 43% |
| http 500 error | 13% |
| http 400 error | 1% |
| api error | 1% |
| Others | 1% |
| null error_code | 29% |
| No event found | 12% |

**Photos Production:**
This week Kyle worked on the Android experiment testing the unshared photo reminders (previously launched by accident) started last Thursday. The impact in the experiment was only a 2% increase in PR, not the 6% increase we expected, so unless the difference is due to the end of the holidays or the imperfect control we're still looking for a cause for the 3.9 improvement. Based on a detailed analysis, it was found that the photo reminders was more effective for inactive photos users and for users who are either completely new or long-time users of the site.

**Metric Update:** This is very much Work In Progress.

## Date: Jan 12 2014

## Trust




**Metric:** % Top two responders (7day average)

**Dash:** www.fburl.com/trustdash

**Goal:** 39%

**Metric:** 32.46% (w.w -1.8%)

**Commentary:** The WOW drop was mainly due to a correction from the holiday high. We believe the trust scores were high during the holidays because of a shift in the composition of responders and not because users trust us more. Specifically, survey representation from US and Brazil, countries that consistently rate us low, dropped by 4.8% and 11%, respectively. Further, if we restrict only to the US the trust score is flat and shows no holiday effect.

## Content Prod*

| | Overall | | | | | Web | | | | | Android | | | | | iPhone | | | | | Mobile | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Per DAU | WOW % | YOY% | YOY% (Week Ago) | US Readout | Per DAU | WOW % | YOY% | YOY% (Week Ago) | US Readout | Per DAU | WOW % | YOY% | YOY% (Week Ago) | US Readout | Per DAU | WOW % | YOY% | YOY% (Week Ago) | US Readout | Per DAU | WOW % | YOY% | YOY% (Week Ago) | US Readout |
| Overall | 0.73 | -14.5% | -13.8% | -13.8% | | 0.60 | -15.7% | -28.7% | -29.9% | | 0.56 | -18.0% | 38.4% | 38.2% | | 0.46 | -20.6% | -6.2% | -6.6% | | 0.45 | -18.7% | -21.1% | -21.5% | |
| photo | 0.29 | -29.6% | -2.9% | -4.7% | | 0.23 | -22.3% | -18.6% | -18.5% | | 0.26 | -31.8% | 46.8% | 44.8% | | 0.21 | -28.8% | -1.0% | -0.8% | | 0.12 | -11.0% | 17.7% | 14.0% | |
| post | 0.34 | -10.6% | -21.1% | -18.2% | | 0.25 | -10.5% | -24.4% | -22.1% | | 0.26 | -16.6% | 9.4% | 11.9% | | 0.29 | -17.9% | -19.9% | -17.5% | | 0.30 | -12.1% | -24.6% | -21.2% | |
| reshare | 0.08 | 12.3% | -5.7% | -10.4% | | 0.07 | 8.5% | -22.9% | -28.9% | | 0.05 | 34.3% | 123.6% | 132.3% | | 0.03 | 38.9% | 143.3% | 142.3% | | 0.02 | 7.3% | 2.0% | -1.4% | |

Metric: WUC (text penalty excluded)*

Overall WUC YOY has not changed significantly from week ago. However, there are some significant movers[1].

- Reshare: The biggest mover is reshares. 12% increases WOW. Looking at the trends the growth does not seem normal and we need to investigate.
- Photos: YOY changed from -4.7% to -3% and is primarily driven by gain on Android and Msite.
- Posts: YOU changed from -18% to -21%.

[1] Going forward we will have a more detailed narrative around content production movements.

* Metric excludes the "No Text" penalty. We started logging this only in November 2013. Including this will mess up the YOY

**From:** d <sramsrin@fb.com>
**Date:** Thursday, January 9, 2014 6:01 AM
**To:** Brady Lauback <blauback@fb.com>
**Cc:** Santosh Kumar <ksantosh@fb.com>, Kyle Shiells <kshiells@fb.com>, Benedict Lim <benedictlim@fb.com>, Sandeep Tiwari <stiwari@fb.com>, Pinkesh Patel <pinkesh@fb.com>, Jeremiah Rogers <jeremiah@fb.com>, Nick Tomko <tomko@fb.com>, Aaron Filner <aaronf@fb.com>, Michael Nowak <mnowak@fb.com>, Devin Naquin <devin@fb.com>, Dan Barak <danb@fb.com>, Thai Tran <thai@fb.com>, Kejia Zhu <kzhu@fb.com>, Jason Liao <jliao@fb.com>, Joe Paley <joepaley@fb.com>, Bob Petersen <bobp@fb.com>, Stacy Kerkela <stacyk@fb.com>, Alex Li <alexli@fb.com>, John Maier <jmaier@fb.com>, Linda Xiong <linda.xiong@fb.com>, Chris Luhrs <cluhrs@fb.com>, Spencer Burns <spencerburns@fb.com>, Nathan Borror <nathanborror@fb.com>, Bryan Brandow <bryanb@fb.com>, Jonathan Wehrer <jonw@fb.com>, Raylene Yung <raylene@fb.com>, Blake Barnes <bbarnes@fb.com>, Srinivas Narayanan <srinivas@fb.com>, Rose Yao <rose.yao@fb.com>, Scott Porter <scottp@fb.com>, Bryan Brandow <bryanb@fb.com>, Kevin Wheeler <kevinrw@fb.com>, Charles Gelman <cgelman@fb.com>, Satyendra Nainwal <skn@fb.com>, Tye Rattenbury <tyer@fb.com>
**Subject:** Re: Sharing Analytics Weekly Update

**Highlights:**

- 
- Really glad to see the cadence at whichSandeep [Trust] and BI team [

**Quarter Goals**
Working with the XFN, we now have very clear quarterly goals for each analyst. We have committed to a set of standard operational goals and a set of research questions that we will answer by the end of the quarter. Details here: https://www.facebook.com/pxlcld/kSbT  This is an objective way to evaluate how we are performing as a team.

**Content Production [BI + Ram]:**

- Dash: https://our.intern.facebook.com/intern/data/portal/sharing/weighted_user_content We have a minimum viable dash up with correct and upto data. This was a massive effort and required multiple iterations.  Really proud of the speed on this dash.
- WUC 2.0:
    - We recomputed the weights of WUC  after fixing (a) The way we accounted for bulk uploads (b) Including minutiae. he results where much more intuitive. Details here https://www.facebook.com/pxlcld/kSbW
        - Single upload earlier had no additional weights. It now gets a weight of 0.60.
        - Bulk uploads, independent of the size, had the same weights. In this run, they nicely and evenly spread out.
        - Minutae has a positive weight.

      We have now changed the WUC formula to reflect these weights.

    - The weights are steady over time. Here we computed the weights from data from non-overlapping intervals. https://www.facebook.com/pxlcld/kSbV
    - We computed three variations:

        - When we split out people tags into xy tags, with tags and mentions we observed that the weights for the three we in the same range. Therefore, xy tags, with tags and mentions are equally effective in driving feedback
        - Sarah Tolman (Distribution team) tried investigated the effect of audience size on weights. We did this in two ways:
            - Friend count to the model (credit Sarah Tolman), it had a significant impact in the weights.  Photos and videos become more valuable, and re-shares become less valuable.
            - Regressing against WUF/VPV instead of WUF. WUF/VPV is a much better indicator of quality than WUF.

      A clear take away is that audience size does have a significant effect. Photos/Videos become more valuable and reshares less valuable. To avoid churn, we will account for audience size when we do WUC 3.0 (og actions edition)

**Trust [Sandeep + Bryan]**

- Sandeep has been doing really good work in building some basic data infrastructure. We know have a shiny new dash (amazing visualization by Bryan). He is iterating to get in the right metrics. Link here: https://our.intern.facebook.com/intern/data/portal/sharing/trust Again I believe we have a minimum viable dash and we will keep iterating till it reaches steady state
- Weighted Survey Scores: Due to variation in response tendencies to surveys among different demographics and other factors, raw aggregates of survey results are almost always biased. To account for this we use a weighted score. Sandeep has been working on getting in two types of weights.
    - Weight calculated by Dean Eckles using logistic net on numerous parameters such as country, engagement level, interface, cohort, gender etc.
    - As simple approach using just country and interface as parameters.

**Photos Production [Kyle]**

- *Android Uptick in PR towards the end of the year:* We have seen Android PR YOY change by 10% towards the end of the year. Kyle, did a cohort analysis, between 3.9 and 3.8 to show that the 3.9 clearly increased PR by 10%. This analysis is pretty crucial because we were not sure if we really hit the goals for H2 2013 or if the increase was "seasonal". With this we are sure, it is changes rolled out in 3.9 that caused the uptick.
- *Needy User Experiment Analysis*: To understand whether driving feedback to occasional photo up loaders will drive more content production we ran an experiment where we boosted a set of users in the newsfeed. Kyle found that there was a small but statistically significant increase in photos PR (0.2%) for needy users who had their photos boosted. Furthermore, that increase appeared despite only a 1.4% increase in the feedback over test over control and a 7% increase in impression for the test over control. The next step is to figure out if we can do anything to drive more traffic to these users and see if the 0.2% increases to something more meaningful.
- *Simple Picker Experiment Analysis:* In the A/B test, Simple picker has shown a drop in total number of uploads. Kyle has been working to figure out what exactly is happening. So far he has disproved the initial hypothesis that the issue is with multi-photo posts, since single-photo posts are down more in the test group.

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**From:** d <sramsrin@fb.com>
**Date:** Thursday, December 19, 2013 9:46 AM
**To:** Brady Lauback <blauback@fb.com>
**Cc:** Santosh Kumar <ksantosh@fb.com>, Kyle Shiells <kshiells@fb.com>, Benedict Lim <benedictlim@fb.com>, Sandeep Tiwari <stiwari@fb.com>, Pinkesh Patel <pinkesh@fb.com>, Jeremiah Rogers <jeremiah@fb.com>, Nick Tomko <tomko@fb.com>, Aaron Filner <aaronf@fb.com>, Michael Nowak <mnowak@fb.com>, Devin Naquin <devin@fb.com>, Dan Barak <danb@fb.com>, Thai Tran <thai@fb.com>, Kejia Zhu <kzhu@fb.com>, Jason Liao <jliao@fb.com>, Joe Paley <joepaley@fb.com>, Bob Petersen <bobp@fb.com>, Stacy Kerkela <stacyk@fb.com>, Alex Li <alexli@fb.com>, John Maier <jmaier@fb.com>, Linda Xiong <linda.xiong@fb.com>, Chris Luhrs <cluhrs@fb.com>, Spencer Burns <spencerburns@fb.com>, Nathan Borror <nathanborror@fb.com>, Bryan Brandow <bryanb@fb.com>, Jonathan Wehrer <jonw@fb.com>, Raylene Yung <raylene@fb.com>, Blake Barnes <bbarnes@fb.com>, Srinivas Narayanan <srinivas@fb.com>, Rose Yao <rose.yao@fb.com>, Scott Porter <scottp@fb.com>
**Subject:** RE: Sharing Analytics Weekly Update

**Highlights:** None. Slow week. And things in progress.

**Content Production [BI + Ram]:** The focus is on being ready for H1 2014 by Jan 1st. We should be ready by then. This involves:

- Clean and correct data in the dashboard
- Tracking WUC for the holdout
- WUC in Deltoid

We hit some blocks but we will continue to iterate. We should be in a good place by the end of this week

**Photos Production [Kyle]:** We noticed an uptick in Android PR. Kyle has been investigating this. We are pretty certain this has to do with Android 3.9 but not sure what specifically in the app. Kyle is working on a cohort analysis to confirm this. See here for a plot https://www.facebook.com/pxlcld/kQX0

**Photos Consumption [Jeremiah]:** Photo specific WUF is in deltoid by interface. The next step is to track Photos WUF against the holdout.

**Trust [Sandeep]:** Working on operationalizing the weighted scores. The diff is out and we should be in a good place by end of this week.

-Ram

**From:** Ram Srinivasan
**Sent:** Thursday, December 12, 2013 10:37 AM
**To:** Brady Lauback
**Cc:** Santosh Kumar; Kyle Shiells; Benedict Lim; Sandeep Tiwari; Pinkesh Patel; Jeremiah Rogers; Nick Tomko; Aaron Filner; Michael Nowak; Devin Naquin; Dan Barak; Thai Tran; Kejia Zhu; Jason Liao; Joe Paley; Bob Petersen; Stacy Kerkela; Alex Li; John Maier; Linda Xiong; Chris Luhrs; Spencer Burns; Nathan Borror; Bryan Brandow; Jonathan Wehrer; Raylene Yung; Blake Barnes; Srinivas Narayanan; Rose Yao; Scott Porter
**Subject:** RE: Sharing Analytics Weekly Update

**Organizational:**

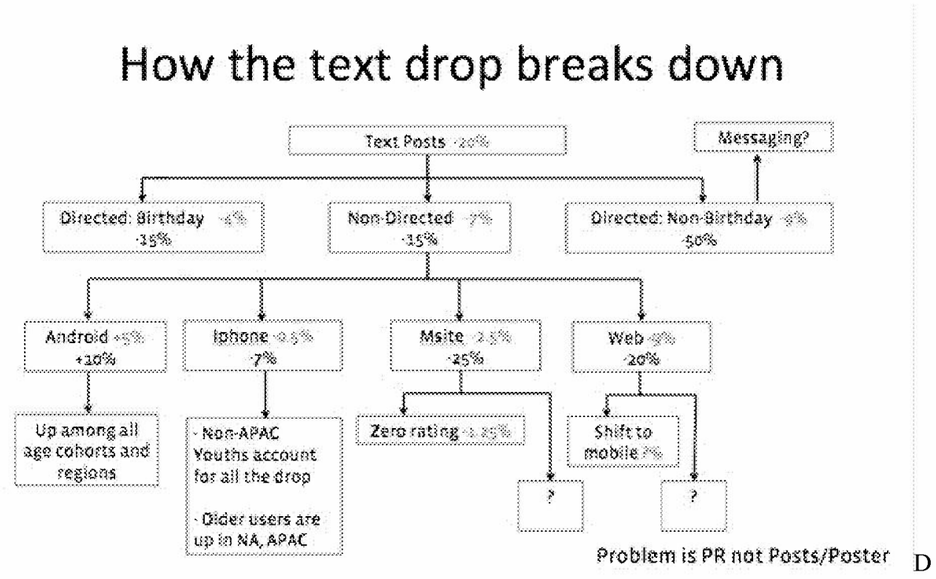
- Benedict is joining full time! He will be in engineering boot camp starting next week.
- Sandeep and Kyle are in data camp. They complete this week.

**Highlights:** Work on

- Content Production
- Tagging.

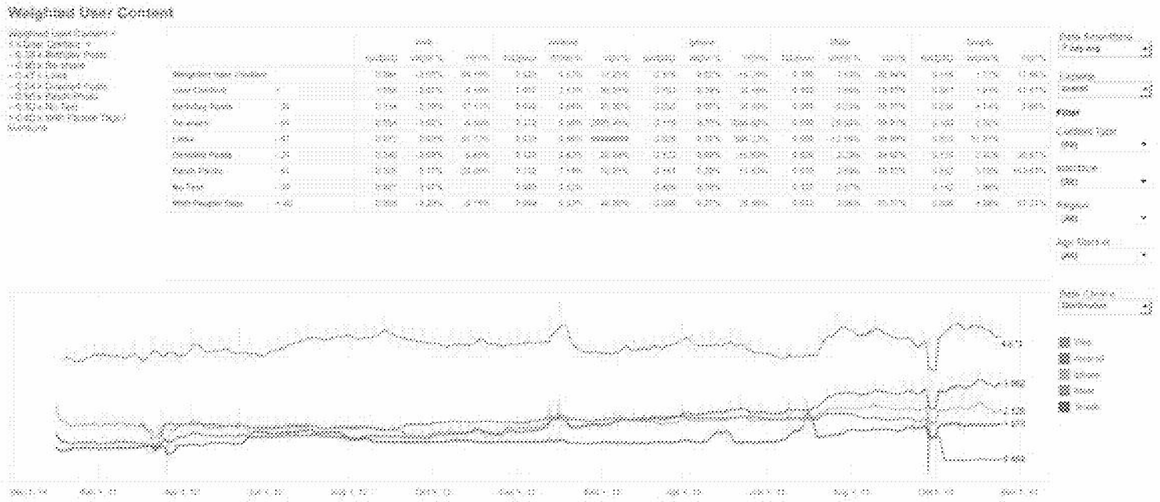
**Content Production [Ram]:**
We had a Cox Review to set our H1 goals and also present our early findings on explaining the trends in content production. Detailed deck here https://www.facebook.com/pxlcld/kPXq Main highlights

- We agreed to set a target goal of +3% WUC above projection for H1 2014. We agreed that we can change the goal as we start to understand the ecosystem better — but only up into the middle of January, after which we should consider the goal locked down.
- Overall WUC is down 13%. The biggest contributor is text posts (down 20%) which contributes 6%. Detailed breakdown of text posts here



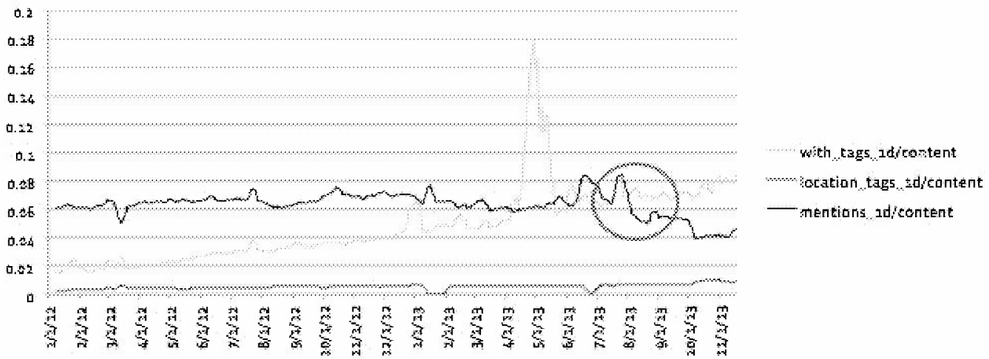
D

- We now have an brand new shiny dashboard that tracks WUC!https://tableau.thefacebook.com/views/WeightedUserContent/Dash thank to awesome work by Jon.




**Tagging [Benedict]:**
"State of the union on tagging ecosytsem" We have made very good progress in understanding the lay of the land in the overall tagging ecosystem. We are preparing a detailed deck. There are numerous insights. Here are two:

- We saw a step change fall (~50%) of mentions/post on Web in mid-July 2013 that was not seen on other mobile interfaces. Our initial hypothesis points towards a bug on WWW with the typeahead;




- On the Web, Mentions/FB_PHOTO reshares has been falling the past year (~30%) while mentions/FB_VIDEO reshares has been increasing over the past year (~44%). Deeper analysis of this trend shows that there is a step change fall (~21%) in the absolute number of FB_PHOTO reshares in mid-May that also deserves to be investigated
- Across all content and interfaces, use of multiple types of tags on the same content is very rare

**Photos Production [Kyle]:**
*" How often and why do users churn/resurrect on photos?"*

- Last week we saw that among users active across months the actual number of uploaders goes down. This week we looked at this in some specific markets. Churn is highest and most extreme for the feature phone and desktop interfaces, and in the Brazil and Japan markets. The deficit in Brazil is particularly troubling, since that country currently has a high photos PR.

*"Needy users" A/B Test analysis:*

- The test was set up horribly wrong. This sucked a bunch of time.

**Photos Consumption [Jeremiah]:** Jeremiah has started working with Thai in understanding more about the photo consumption metrics. Report in progress here. https://www.facebook.com/pxlcld/kPXp

**Composer [Santosh]:** As a part of the composer waterfall understand, we investigated cancellations and precisely tried to quantify cancellations that are not real opportunities. We removed cancellations that fell into the following buckets:

a. Canceled the post in <5 sec?
b. Did not show intent, i.e., did not write at least 5 chars and/or attached a photo/checkin etc.
c. Posted in next 1 hour?

We estimated 35% *real* opportunity in Canceled Posts. +10% Overall Increase in Posting Possible.

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**From:** Ram Srinivasan
**Sent:** Thursday, December 05, 2013 11:02 AM
**To:** Brady Lauback
**Cc:** Santosh Kumar; Kyle Shiells; Benedict Lim; Sandeep Tiwari; Pinkesh Patel; Jeremiah Rogers; Aaron Filner; Michael Nowak; Devin Naquin; Dan Barak; Thai Tran; Kejia Zhu; Jason Liao; Joe Paley; Bob Petersen; Alex Li; John Maier; Linda Xiong; Chris Luhrs; Spencer Burns; Nathan Borror; Bryan Brandow
**Subject:** RE: Sharing Analytics Weekly Update

**Organizational:**

- Nick Tomko joins the team and has started bootcamp. Once he graduates, he will work on content production and/or trust.
- Jeremiah is back from his vacation and is working on Consumption.
- Sandeep has joined the team on trust and has already managed to make himself useful. He is off to data camp this week.
- Delyan from BI rocked thanksgiving by backpopulating years of content prod data!
- Interesting snippets in red.

**Photos Production [Kyle]:**
*" How often and why do users churn/resurrect on photos?" [Kyle]* This week we started by getting the basic growth accounting #s. 23% of uploaders in a given month churn next month!

- MAU(t) = MAU(t-28) + resurrect + new - churn
- 103 = 100 (base) + 29 (resurrect) + 1 (new) - 27 (churn)

We broke the churn and resurrect numbers down further to distinguish churn and resurrection for just photos versus all Facebook.

- 29 (resurrect) = 23 (active) + 6 (inactive)
- 27 (churn) = 24 (active) + 3 (inactive)

Here Resurrected active = Use was MAU on T-28 and T, and photo resurrected and Churn active = Use was MAU on T-28 and T, and photo churned. Among active Facebook users, churn is actually higher than resurrection, meaning that *photos is shrinking among users who are active in the period T-56, T*. This week, we will be digging into these numbers to understand what causes users to resurrect and churn. This is a continuous month long process.

**Composer [Santosh]:**

*"What are the opportunities in the composer waterfall?" [Santosh]*

- Goals, Metrics & Roadmap: We spent a lot of time using our understanding of composer to develop the H1 goals, metrics & roadmap which we then presented to Chris Cox. We used the following methodology:

  a. Define the Composer Formula as Entries (E) * Posts (P) * Successes (S) * Weights (W)
  b. Identified the above factors that will be impacted by each of our efforts such as offline postings, server hardening etc.
  c. Quantified the impact based on data collected. Also, applied discounts for risk factors such as resource constraints etc.
  d. Finally, combined it together to come with our overall goals and priorities for H1.

  Based on this we identified the our priorities for H1 (in bold in the slide below):

**Trust:**
*"What happens when users loose trust? How does it matter?" [Pinkesh]*
Last week Pinkesh looked at how trust scores affect "deactivations" and Pinkesh showed that there was a correlation. Next he investigated platform apps installs. These are apps which require you to give some sort of permission to the app in order for them to function on your account. These are all sorts of apps, ranging from games to sports related to pages. We looked at how many platform apps did a person install in 3 months following a survey.

- We found that trust has a powerful correlation with the number of apps being installed. https://www.facebook.com/pxlcld/kMR9 This shows a clear trend with "sentiment" and specifically trust.
- We also did a breakdown by App type and we found that a similar trend exists in all app types - https://www.facebook.com/pxlcld/kMRf
- We also did a breakup in app installs by interface and country and we found an interesting split between the high-GDP countries and low-GDP countries. This might possibly be due to feature phone usage (but restricting to people who have mobile_l28 = 0) preserves the trends. https://www.facebook.com/pxlcld/kMRc

  In conclusion trust does seem to impact platform app installs. Users who trust FB less install fewer apps. (caveat here is being another factor that impacts both, but it does not seem to be any of the usual demographic variables, delineating this is ongoing work). Also there seem to be country level differences in that trust means different things to different people.

**Content production:**

*"How is content production/WUC trending and why is it trending that way?"* We are constructing a complete story on how WUC has been changing, identifying opportunities.

- We have WUC calculated for the last two years. Full plot here https://www.facebook.com/pxlcld/kP4n. Overall WUC is down 13%.
- We are starting our understand roadmap with "text posts". Main results: Text posts is dropping at -15%. This contributes to a 6% drop in overall WUC. We are still working on and refining our understanding, and this is Wl

| | Posts/DAU | Post/DAU YOY (Nov) |
|---|---|---|
| Overall | 0.40 | -17.5% |
| Web | 0.35 | -17.5% |
| Android | 0.27 | 15% |
| Iphone | 0.23 | -12.5% |
| Msite | 0.35 | -27.5% |

Web

- Steady drop in both Posts/Producer (~5% YOY) and Producer/DAU (~15% YOY)
- LATAM > APAC = NA > 1.2 x WE. Steady decline across regions.

Android

- Dropping till October 2012. Since then roughly flat till Septmeber 2013. Then sharp growth. Content/Producer and PR are relatively flat from Oct 2012 to Sep 2013. Step change after that is drive by.
- Trends are similar across countries. NA > LATAM > APAC > WE
- All the age brackets including youth's are increasing

Iphone

- Drop from 2012 Jan to 2012 Aug. Step change up in Aug 2012 from Wilde. Steady drop since then. Both PR and Posts/Poster are dropping equally and have the same pattern
- It is consistent across all regions. The effect seems to be mild on APAC (which is actually up YOY after IOS6/Harrison release). NA > LATAM = APAM > WE
- Almost all the drops are on 13-18 and 18-24. In fact, the other age brackets are increasing!

Msite

- Msite in 2012 had a Posts/DAU that was close to 2 X Web! (Logging?)
- Very steady decline in Posters/DAU. Posts/Poster was steady till Aug 2013 and then started declining
- NA > LATAM > APAC > WE
- Youths have 2 X the Content/DAU on Msite compared to every other age bracket in every other interface!
- There is a small and gradual decline across all age brackets and country. But, the big dive happens around July 2013 for youths in APAC! Zero rating?

**From:** Ram Srinivasan
**Sent:** Wednesday, November 20, 2013 10:38 PM
**To:** Brady Lauback
**Cc:** Santosh Kumar; Kyle Shiells; Benedict Lim; Sandeep Tiwari; Pinkesh Patel; Jeremiah Rogers; Aaron Filner; Michael Nowak; Devin Naquin; Dan Barak; Thai Tran; Kejia Zhu; Jason Liao; Joe Paley; Bob Petersen; Alex Li; John Maier; Linda Xiong; Chris Luhrs; Spencer Burns
**Subject:** Re: Sharing Analytics Weekly Update

Really good ppf with a lot of interesting analyses. I recommend a complete read, or at least the text in italics and red.

**Organizational:**

- Kyle is out of bootcamp since Monday and has started working on Photos production.
- Sandeep joins the team. He will work on trust analytics along with Pinkesh. Nick Tomko, who was scheduled to join last Monday, could not join because of VISA issues. His current estimated join data is December 2, 2013. And then bootcamp.
- Jeremiah was on PTO last week and will continue to be out. I will be out most of next week. There will be no update next week.

**Photos Tagging:**

New Metric: *The goal of the XY tagging team is to get every person in a photo tagged. Our aim was to identify a metric that better captures this than xy tags/upload.* We wanted to:

- *Change numerator from XY Tags => Non-spam XY Tags:* Spam is a big problem for tags. 22% (16 M) of our tags are on photos > 15 tags. These photos have only 1 M faces in them. 78% (56 M) of our tags are on photos < 15 tags. These photos have 70 M faces. To identify spam tags, we used a simple heuristic. If a photo has 5 tags more than the number of faces in it we will classify all the tags on that photo as spam. Using this heuristic we classified ~20% of all the tags as spam and removed them from the metric. We could clearly identify spikes that were spam attacks. See here: https://www.facebook.com/pxlcld/kMDq. However, it did not make a material difference to the overall trends.
- *Change denominator from Uploads to Faces:* We effectively had to calculate faces/upload over the last 1 year. Since our face recognition system had changed significantly over the last 1 year, we ran a sampled set of photos through facer again to get a trends of the faces/photo. Contrary to what we expected, faces/photo is not a constant but changing significantly. It has increased by more than 20% on Android YOY and dropped by 6% on Web. See here. https://www.facebook.com/pxlcld/kMDx
- Very pretty dashboard with new metric: https://our.intern.facebook.com/intern/data/portal/photos/trends?tab=TagsSummary
- Where are we net? While the exact YOY has changed, the narrative on what has happened this half has not changed. We will discuss this with the tagging team tomorrow.

| | Type | H2 Start | 11/17 |
|---|---|---|---|
| **All Mobile** | XY tags / upload | -33% | ~0% |
| | Good XY tags / Faces | -43% | -10% |

**Composer:**

Santosh has been spending a lot of time in building a framework for the composer metrics and getting some exact numbers. This is what we will use to set the goals. We will have a global holdout (1%) and measure our performance against that set.

Composer Waterfall: We now have some more pieces of the puzzle. We will continue to fill in the blanks below. There are three steps in the waterfall.

- Composer Opens
  - 70% of the traffic comes from feed. 20% of the traffic is from timeline.
  - When users come from feed, they are more likely to hit the "Photo" button than when they come from timeline.
- Open => Post
  - Case 1: Reshares: 7% cancellation rate.
    - When you "reshare" the content is pre filled and we only need 2/3 additional clicks to complete. For other types, it is 6/10 steps.
    - Max Opportunity: O(5%)
  - Case 2: Composer and added an attachment (photo/checkin/tag): 7.5% cancellation rate
    - User has shown a lot of intent and has progressed through a lot of steps. So clearly these are not accidental clicks
    - Max Opportunity: O(3%)
      - We have removed cancels where the user comes back and posts with the next 1 hour
  - Case 3: Composer and NOT added an attachment (photo/checkin/tag): 44% cancellation rate
    - Max Opportunity: O(15%)*

        - 50% of cancels that have happened in less than 5 seconds
        - 50% of users who cancel comes back and posts within the next 1 hour.
- Post => Post to Success
    - Case 1: Reshares: Failure rate of 0.5%.
        - For 3.5%, we don't know if they were failures or successes
        - Max Opportunity: Depends on what the 3.5% is
    - Case 2 and 3: Composer w/without attachment: Failure rate is 0.5%.
        - For 1.5% we don't know if they were failures or successes
        - Max Opportunity: Depends on what the 1.5% is

*: Tenative. We are working on a more accurate number

**Trust:**
*"What happens when users loose trust? How does it matter?"*
Pinkesh is focussed on answering the question. Based on the current activation/deactivation status of all survey respondents from 2012-09-01 to 2013-11-01. In the survey, we ask questions around trust, satisfaction and usefulness of FB.

- We see that people who consider FB less trustworthy deactivate at a much higher rate (with one exception)
    - See here.

      https://www.facebook.com/pxlcld/kMFj Here the g

      reen line is the Average Deactivation rate for survey respondents. 1 – Not at all trustworthy and 5 – extremely trustworthy

    - The unexplained part is the bump in deactivation rate for users who have trust score of 5. We have ruled out the theory that t

      hese are people who click all top responses/These are people who quickly finish.

    - This is true when we cut by tenure, age, country and the month of joining.
- We also see that people who find FB less useful and less satisfying also deactivate at a much higher rate. See here: https://www.facebook.com/pxlcld/kMFm
    - One exception is "Do you find FB useful to connect to celebrities?" and this confirms the intuition that FB is not a service used for connecting with celebs.

**Content Production:**
*How are we doing on content production?".*
We have just started the analysis and we are already learning some new things. This is tentative (please do not share widely) and needs to be confirmed.

- (Android, Iphone, Msite) x (Text post, photos, reshares) constitute 85% of all content. We will only focus on this segment. If we understand what is happening here, we will understand the important parts of the ecosystem.
- CP/DAU: YOY we are down ~ -20%
- Photos:
    - Producers/DAU: YOY we are flat. Since users have a camera at all times shouldn't we be higher? We have answered this at the beginning of the half. I will include a summary as a part of the complete story next week.
    - CP/DAU: YOY we are down ~ 14% . This is where it gets interesting.
        - Uploads in batches > 5: Contributes to 7% of the 14% drop.
        - Single Photo Uploads: Contributes to 8% of the 14% drop. We are receiving 20% YOY fewer single uploads across all platforms.
    - Just the shift from bulk uploading on web to sharing smaller batches on mobile does not explain the drop in Photos/DAU. We are also receiving fewer single upload YOY.

| | % YOY Impact | % Change YOY |
|---|---|---|
| Single Uploads | -8.1% | -20% |
| 1-5 Uploads | 1.1% | 7% |
| 5-20 Uploads | -6.3% | -27% |
| 20+ Uploads | -0.7% | -4% |

**From:** d <sramsrin@fb.com>
**Date:** Thursday, November 14, 2013 1:09 PM
**To:** Brady Lauback <blauback@fb.com>
**Cc:** Benedict Lim <benedictlim@fb.com>, Stephan Goupille <stephang@fb.com>, Alec Sadewhite <alec@fb.com>, Stephen DeLucia <delucia@fb.com>, Jeremiah Rogers <jeremiah@fb.com>, Rose Yao <rose.yao@fb.com>, Srinivas Narayanan <srinivas@fb.com>, Scott McKinney <mckinney@fb.com>, Kyle Shiells <kshiells@fb.com>, Blake Barnes <bbarnes@fb.com>, Raylene Yung <raylene@fb.com>, John Maier <jmaier@fb.com>, Santosh Kumar <ksantosh@fb.com>, Linda Xiong <linda.xiong@fb.com>, Pinkesh Patel <pinkesh@fb.com>, Chris Luhrs <cluhrs@fb.com>, Spencer Burns <spencerburns@fb.com>, Joe Paley <joepaley@fb.com>, Nathan Borror <nathanborror@fb.com>, Dan Barak <danb@fb.com>, Bob Petersen <bobp@fb.com>, Kejia Zhu <kzhu@fb.com>, Thai Tran <thai@fb.com>, Jason Liao <jliao@fb.com>, Alex Li <alexli@fb.com>
**Subject:** Re: Sharing Analytics PPF

(Short ppf. Does not include Privacy/Trust. Everything else condensed. Will return to elaborate starting next week.)

**Organizational:**
Based on feedback from both the analytics team and the XFN team we have decided to get much more organized. With Kyle joining, we feel we have critical mass to allocate an analyst to an area. The plan going forward for the rest of the half and next half is

- Tagging: Benedict (PM: Dan)
- Consumption: Jeremiah (PM: Thai)
- Production: Kyle Shiells (PM: Jason + Kejia)
- Web team + Adhoc: Kyle Shiells/Ram

We had a lot of chopping and changing on this but this is a good and final end state. This is now set in stone and we will not be making any more changes. Thanks to both the analysts and the XFN team for being patient through the process. I have personally learnt a lot through this process.
**Photos Production:**

- We worked with Rose, Srinivas and Hannah in framing the opportunity on photos. Specifically, we focussed on IG + FB opportunity, and cross checking some of the numbers using Shoebox number.
- Continued work on the Android Upload Reliability script. It's mostly done, but we keep needing to make small changes. https://phabricator.fb.com/D1046703
- Jeremiah will be on PTO. Kyle will come in and start executing on the production that Jeremiah decided on with the EM/PM team

**Photos Tagging:**

- Benedict has gone above and beyond what was expected to really nail the new metric. We are working on a deck to present to the Tagging team. This is done (finally). Big shootout to Benedict for operating on fire mode over the last week to get this done.

**Composer :**

- Understand roadmap: We have successfully completed the first week of this and presented to the team. We will continue to execute and make progress on this.

**Content Production:**

- We have completed the weights for content prod. We are moving to the next phase. The focus here is to understand YOY trends and set an appropriate goal.

**From:** d <sramsrin@fb.com>
**Date:** Thursday, November 7, 2013 9:13 AM
**To:** Brady Lauback <blauback@fb.com>
**Cc:** Benedict Lim <benedictlim@fb.com>, Stephan Goupille <stephang@fb.com>, Alec Sadewhite <alec@fb.com>, Stephen DeLucia <delucia@fb.com>, Jeremiah Rogers <jeremiah@fb.com>, Rose Yao <rose.yao@fb.com>, Srinivas Narayanan <srinivas@fb.com>, Peter Deng <peter@instagram.com>, Scott McKinney <mckinney@fb.com>, Kyle Shiells <kshiells@fb.com>, Blake Barnes <bbarnes@fb.com>, Raylene Yung <raylene@fb.com>, John Maier <jmaier@fb.com>, Santosh Kumar

<ksantosh@fb.com>, Linda Xiong <linda.xiong@fb.com>, Pinkesh Patel <pinkesh@fb.com>, Chris Luhrs <cluhrs@fb.com>, Spencer Burns <spencerburns@fb.com>
**Subject:** Sharing Analytics PPF

## Highlights

- Highlight of this week was the first pass of the weights.

**Photos Production:**

- Photos opportunity: To understand how mobile photo taking habits have improved/changed Jeremiah used Shoebox users who have been active in the month of Jan and in the month of September. The main result was:
  - From Jan1-October 23, the photo taking frequency for these users have increased by 24%
  - From Jan1-October 23, the # photo taken for these users have increased by 11%

Next we intend to compare this with the % of photos shared on FB to see how this has trended.

- Roadmap: Really excited that Jeremiah is putting together an analytics roadmap for the rest of the half on production. Rough plans:
  - Build as dashboard to track photos PR and contributions to PR. Understand how each interface is contributing / hurting the goal (some interfaces are down). Build a dashboard to help us hit goal.
  - Finish diff on upload reliabilty.
  - Get a basic waterfall in place for each interface (# of users opening photo composer, # of final uploaders, understand the falloff by interface).
  - Longer than next week (still specing this out): See if we can understand the relationship between feedback and upload rate, or understand how many photos users take between uploads (using camera roll logging).

**Photos Tagging:**

- With-Tag conversion analysis:
  - The question we wanted to answer was why we are only getting a ~4% lift in xy-tags compared to ~30% expected lift?
  - The 30% expected lift was calculated based on the number of faces in photos that were not xy-tagged but with tagged.
  - While 50% of photo tagging sessions using the product have at least one face in it, but we were making suggestions for only ~21% of the sessions. We are making limited suggestions because of the time considerations for facial recognition and recognition confidence. We are not fully realizing the potential of the lift in xy-tags because we are not suggesting enough users to tag.
- Fraction of faces tagged
  - We are working really hard on the final few steps before we wrap up the project.
  - We will close this out shortly

**Composer:**
Santosh is ramping up on the composer.

- On the operational side, Santosh has been helping the team put metrics into pocket Deltoid, build some basic dashboards and argus reports
- We have kicked off a "Composer Understand Rodmap". There are 4 steps:
  - **Step 1:** Build a complete high level waterfall (per interface).
  - **Step 2:** Define "conversion rate". Instead of just looking at #opens/#success, we want to weed out accidental clicks, users who cancel out but post within the next few minutes etc.
  - **Step 3:** What is correlated with low conversion rate?
    - Context: Device, OS, Interface, Wifi/Carried,
    - Actions: Opens checkins, attaches photos etc
  - **Step 4:** What user demographics is correlated with low conversion rate? Who are the users who are repeatedly failing?

We have our first checkin today with the team.

**Defining Weighted User Content**

All content are not equal. For example, the photo in a single photo upload is clearly more valuable the 101st photo in an album. We want the team to focus on driving "quality" content. We have define "valuable" content as content that receives feedback and identified key characteristics of content (e.g., has tags. has text, audience is friends) that is associated with high value content. We built a detailed modeled for Prob(Content receives feedback) as a function of a 25 features of the content. The model has a accuracy of 68% in predicting whether a piece of content will receive feedback (random guessing is 50%). Accuracy at an aggregate level. We then simplified the model based on the impact of different features to the top line metric to arrive at the Weighted User Content metric. Detailed deck here.

**From:** d <sramsrin@fb.com>
**Date:** Thursday, October 31, 2013 10:04 AM
**To:** Brady Lauback <blauback@fb.com>
**Cc:** Benedict Lim <benedictlim@fb.com>, Stephan Goupille <stephang@fb.com>, Alec Sadewhite <alec@fb.com>, Pam Costa <pamcosta@fb.com>, Stephen DeLucia <delucia@fb.com>, Jeremiah Rogers <jeremiah@fb.com>, Rose Yao <rose.yao@fb.com>, Srinivas Narayanan <srinivas@fb.com>, Peter Deng <peter@instagram.com>, Scott McKinney <mckinney@fb.com>, Kyle Shiells <kshiells@fb.com>, Blake Barnes <bbarnes@fb.com>, Raylene Yung <raylene@fb.com>, John Maier <jmaier@fb.com>, Rodrigo Schmidt <rodrigo@instagram.com>, Santosh Kumar <ksantosh@fb.com>
**Subject:** Re: Photos and Instagram Analytics PPF

## Highlights

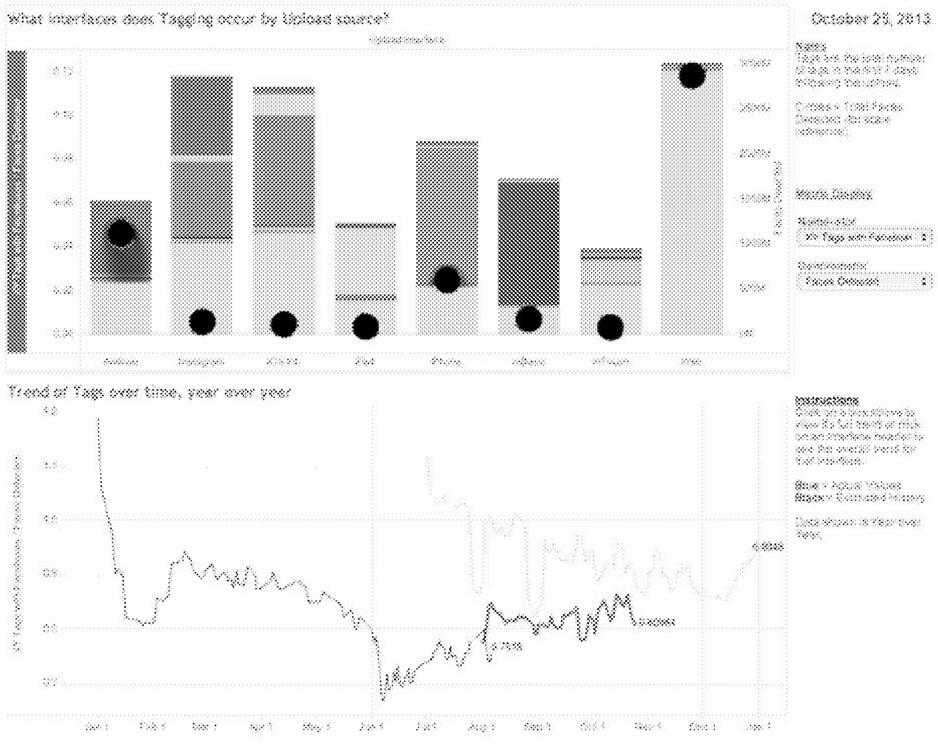
- Solid week where we made progress on a few fronts
- Great progress on the new tagging metric.
- Great progress on the "quality" of content
- Good progress on the "brand identification" for Instagram
- More personnel changes. Hopefully this is the last of it. Santosh, who just finished data camp, joins the team to work on composer. I will continue to work with Scott on the brand identifications problem for Instagram.

## Photos

**Photos Production:** Second slow week on photos production. Most of Jeremiah's time was spent with the drop in ads consumption revenue and fixing the dashboard. We have better things planned for next week including (a) Deep dive on waterfall (b) Identifying overall photos production trends using shoebox data.

**Photos Tagging:** We have made a lot of progress in developing the new metric and building the data infrastructure (pipelines/dashboards) to track it. Link here. The next step is to really analyze this data and figure out how it relates to the other metric we are tracking. Some observations:

- Only 10% of the faces that are uploaded are tagged.
- It is approximately down 20%-30%. We are working on getting a better understanding of this drop.
- Web is an important place for faces being tagged. Even if the photos are uploaded elsewhere.
- Instagram photos and photos from IOS Integration have very high tag rates even though there is no production tagging for them.
- Even though 80% of the tags on a photo uploaded on an interface happens on the same interface, this drops to 50% of the faces tagged. This tells us that a larger % of "consumption" tagging is on faces compared to production tagging.




## Sharing and Composer

**Defining Weighted User Content**

All content are not equal. For example, the photo in a single photo upload is clearly more valuable the 101st photo in an album. We want the team to focus on driving "quality" content. We have define "valuable" content as content that receives feedback and identified key characteristics of content (e.g., has tags. has text, audience is friends) that is associated with high value content. Towards thus, we modeled the Prob(Content receives feedback) as a function of content type (photo or text post or reshare), audience (friends, public etc.). The model has a accuracy of 68% in predicting whether a piece of content will receive feedback (random guessing is 50%). Even though accuracy at a content level is not very high, the accuracy at an aggregate level is very good. For example:

- The model estimated the probability that an "Text Post with Tags" will receive feedback as 0.90. In the out of sample, it is 0.88.
- The model estimated the probability that link shared through platform will received feedback as 0.13. In the out of sample, it is 0.10

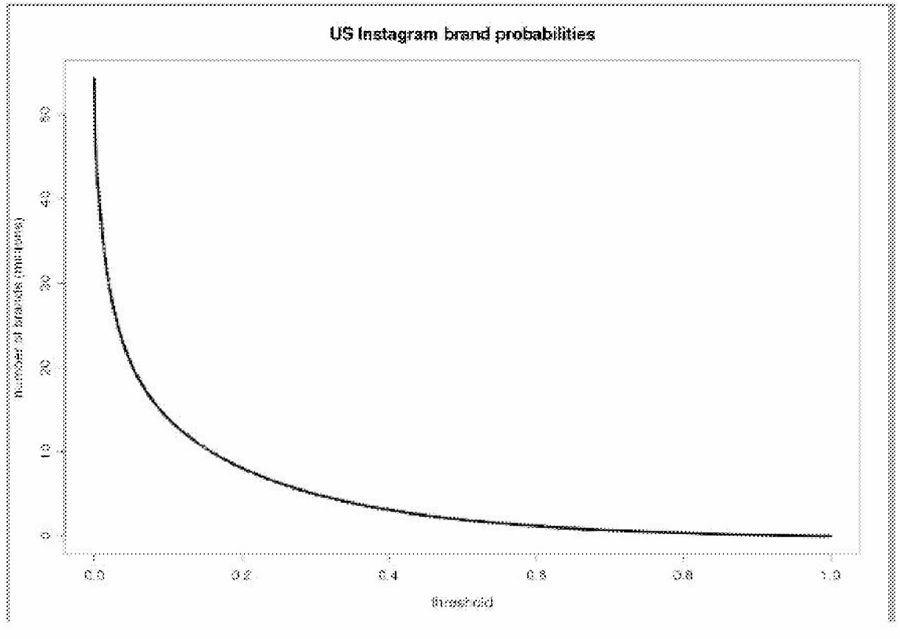
Based on this we can now estimate the *relative value* of different class of contents.

- Photos = Text Posts = 1
- Reshares: 0.75
- Platform Links: 0.15
- A Photo in a batch of photos: 0.5

We are working on refining these estimates. So please consider these weights as preliminary.

## Special Projects

**Brand Identification on Instagram:** We now have a label ("User", "Not User") for every account on Instagram in hive for US here. Out of the 50 M US users, we have identified 360 K accounts that are brands (if threshold is 0.8). If we use a threshold of 0.5, then we get close to 1 Million brands. Recall, that we have seen very promising results in the out of sample tests. However, we need to get UO to manually vet some of the results to be completely confident in the numbers.




**RAPID:** Recall that RAPID allows you to run regression on hive tables directly. This weekeend, the progress was to rewrite the AUC and ROC curves that are used to evaluate the performance of classifiers. Next up is Random Forests (likely in the next two weeks).

-Ram

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**Subject:** Re: Photos and Instagram Analytics PPF

## Highlights

- When I sat down to write the PPF I thought it would be empty. But, looks like we have made some useful contributions this week.
- Last week on Instagram! I will continue to be actively involved and helping the team along as a part-time IC. I will continue to work with Scott on the brand identification problem.
- Kyle joins the Photos team. He is in bootcamp now.

**RAPID:** Built RAPID this weekend :). RAPID stands for *R and Presto Integration for DataAnalysis.* You can find it here: http://dev349.prn1.facebook.com:8100/ This is something I am really proud of .

- If you have a hive table, and you want to run regression, RAPID is a simple UI that lets you do it. This is just a simple UI layer than pipes data from hive into R, runs the regressions and then pipes the results back.
- This should remove friction and help analysts go above and beyond just using "X versus Y" correlations to understand how a set of variable X1,…Xn affects Y. I feel like this has the potential to become something like fast drill.
- I intend to use this very soon to understand how different features of the content (has_text, is_photos, is_tagged) predicts the quality (measured using WUF) of content.

- Sean has earned the distinction of being the first to stress testing it and bringing it down :)

## Instagram

**Product Understand:** (Sean/Ram) We have been working on the two high-pri fires

- What is happening with photo uploads/dau? In addition to what we already knew,
  - The only additional thing that we have uncovered is that and there is a good chance the drop started much earlier than June and just accelerated after June
  - We are redoing a lot of the earlier analysis to ensure there were no mistakes
- What is happening to Instagram growth?
  - Since August 22nd, month over month Instagram MAU growth has dropped from 6% to 3%. However, we have some very good explanations on what is happening.
  - Please see the deck here. https://www.facebook.com/pxlcld/kHL3
  - This is preliminary and it would be better to not distribute the results more widely

**Earnings Call:** (Scott/Ram) This is complete. Unfortunately, we can't discuss the results till the earnings call.

**Identifying Brands:**(Scott) We are working on productionizing the brand identification model. We should have **predictions** on which account is a brand in hive by the end of this week! This is a pretty big deal.

## Photos

**Photos Production** (Jeremiah)**:** Slow week. The main output was a better understanding of IG + FB ecosystem. The goal is to form an opinion on the current and future of the photos ecosystem. Jeremiah, Bryan and me put together this awesome dashboard that gives a clear understanding of the ecosystem. Link here:
https://our.intern.facebook.com/intern/data/portal/photos/trends?=igfb

- Overall
  - Uploads on IG = 33% x Uploads on FB
  - Participation Rate on IG = 3 x Participation on FB. This makes sense since Instagram is primarily a photo app and FB is more.
- Looking at some leading indicators, it is not unlikely that Instagram and Facebook will eventually have the same number of uploads.
  - On Iphone, Instagram ~ 70% x Uploads on FB
  - In the US, Uploads on Instagram ~ 70-75% x Uploads on FB
  - In the Middle East, Uploads on Instagram = Uploads on FB
- With such massive growth predicted for Instagram, it is important to get users on Instagram share back to FB. Currently it is very low and present a huge opportunity.
  - 70% of Instagram users are FB connected
  - Only 6% of FB connected IG users share back to Facebook and they share 20% of their photo uploads.
  - The fact that 6% of the users share 20% indicates *that there are some FB connected users who share back everything and some who share back nothing!*

**Photos Consumption:** What gets measured gets managed. We have finally started measuring likes on photos. I am really excited to have Kyle look into this when he is done with bootcamp. The new dash is here.
https://our.intern.facebook.com/intern/data/portal/photos/trends?tab=Engagement A simple insight from this

- Close to 90% of the likes on photos are on photos that are less than 2 days old
- Android and Web have much higher likes/dau than iPhone. Mbasic/Mtouch are the worst

**Photos Tagging:** As usual Benedict has been working really hard but it has been a frustrating week for him due to various bugs. We are lagging behind on both

- Back-populating the new metric
- Identifying the value of tags

## Sharing

We did a quick content production 101 to get going.

# Summary

*Content Rate*

- Web = 2 X Mobile
- Content Type
  - Mobile: Photos = Posts = 33%. Reshares = 25%
  - Web: Photos = Reshares = 33%. Posts = 25%
  - Platform:  Photos = 40%. Links = 33%. Posts = 17%

*Participation Rate*

- Different from Content Rate
- Web = 1.25 x Mobile
- Content Type
  - Mobile: Photos = Shares ~ 33%. Posts ~ 60% of all producers
  - Web: Posts ~ 50%. Photos ~ 40%. Shares ~ 30% of all producers

Numbers vary by interface

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**Subject:** Re: Photos and Instagram Analytics PPF

## Highlights

Slow week.  Sean and I have been on PTO's.

- Hyan Park is joining the Instagram team.
- I expect next week to be a better week. We have started on a couple of things on Monday (a) Understanding content prod (b) Revisiting the photos/dau (c) FB+IG universe.

## Instagram

**Earnings Call:** (Scott/Ram)  The model seems to indicate that there is a drop in US Teen FB DAU. We have been working on tracing the DAU for the combined services (FB+IG) US Teen DAU. Are we catching the teens that we are dropping from FB on IG? If we look at US teens only over the last 2 months, we can see that the total usage on Instagram is increasing. We are working on doing this over the longer term for (FB+IG). See here https://www.facebook.com/pxlcld/kGHh

**Identifying Brands:**(Scott)  We had to suspend this because of the earning call work. We briefly did some work in vetting the model and that showed some promising results.

**Product Understand Roadmap:** (Sean) We are focussed on answering 3 follow up questions.

- Is connecting to the address book as good as connecting to Facebook?  [From last week]
  - Following users in your address book is almost as good as following users on Facebook.
- What types of day 1 follows are best?
  - If you follow users with lower follower count (likely, people you know) There's some benefit towards improving first day retention See here.  https://www.facebook.com/pxlcld/kGHn

- This seems trivial, but there is a significant trend that shows that following users who are active has a benefit to first day retention. See here.https://www.facebook.com/pxlcld/kGHl

## FB Photos

**Photos Production** (Jeremiah)**:**

- IOS Photos Drop:
  - Since August iOS photo participation rate is -13% vs –4% for all interfaces combined. We dug into this and found that 1/3 of the drop was due to iOS 7 / FB 6.5 and 2/3 of the drop was expected seasonality. As a result we are no longer alarmed.

- Shoebox MAU:
  - Fixed the Shoebox dashboard to include MAU. Right not we aren't doing a lot with shoebox but we recognize it as a big opportunity and may look into it more once our photos vs instagram business analysis is done. https://our.intern.facebook.com/intern/data/shoebox

**Photos Tagging** (Benedict)**:**

- Analysis of Android post-post tagging
  - The feature works very very well when there is only 1 face inside, and increased xy self tags by ~14% . The improvement reduces with increased number of faces.
  - Deletions: We observed very high Android xy-tag deletion rates in Deltoid (~+45%), and dug deeper to analyze the cause of these delete. Increased deletions come mainly from taggers deleting tags of themselves or others – the increased deletions on average occur within 10
- Value of a XY-Tag: The goal here is to identify the "value" of a xy-tag in terms of

1. Value to the uploader (likes/comments on tagged photo):
   - Using the Post-Post tagging experiment, we found that though # of xy-tags/photo was consistently higher for photos with 7 or less tags, engagement metrics (likes/photos and comments/photo) was not consistently higher in the control group compared to the test group. This indicates that higher tagging results *does not result* in more feedback. Since this is counter intuitive we want to verify this more.
2. Value to the person tagged
3. Value to the tagger

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**Subject:** Photos and Instagram Analytics PPF

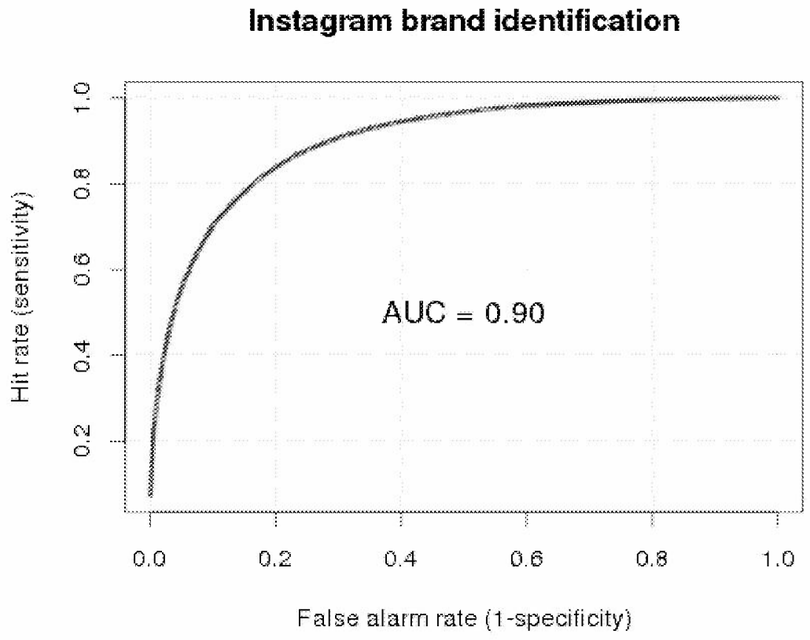
## Highlights

Overall not a bad week.

- Scott's promising initial results on identifying brands on Instagram
- Photos consumption team is now "unblocked"

## Instagram

**Identifying Brands:** (Scott) The goal of this project is to classify users into businesses versus users. Scott used IG accounts connected to FB pages as a training set and built a Random Forest classifier. The results are promising. So far, our classifier has displayed respectable results, shown in the chart below. The red curve depicts the tradeoff between the rate of true positive brand identification ("hits") and the rate of spurious brand identification ("false alarms"). For example, if you're willing to tolerate a false alarm rate of 20%, this classifier can correctly identify about 85% of brands. The next step involves "vetting" the performance more by manually looking at some accounts. This is pretty promising.




**Product Understand Roadmap:** (Sean) On the basis of analysis that Sean did the Instagram team has decided to kick off a P0 project called "Project Day One". This will focus on reducing first day churn by redesigning the NUX. We are focussed on answering 3 follow up questions. We have an answer for the 1st one.
+ Is connecting to the address book as good as connecting to Facebook?
+ Following users in your address book is almost as good as following users on Facebook.

- The churn rate for users who FB Follow is 9% regardless of address book follows
- The churn rate for users who Address book follow is 11% regardless of Facebook follows
- Users who follow contacts in both the address book and Facebook practically have the same churn rate as those who ONLY following Facebook or ONLY address book.

**Account Insights:** (Ram) While we did no actual work we figured out how to build the account insights real-time. The plan is to use PUMA that is built on top of ptail + scribeh.

## FB Photos

**Photos Production** (Jeremiah)**:**

- iOS Photos Drop:
  - Since August iOS photo participation rate is -13% vs -4% for all interfaces. This is a fairly big drop with iOS PR falling from 11.4% to 9.9%. So far we've figured out that the change is driven by fewer uploads (not fewer DAU) and that 1/3 of the drop is due to iOS 7. The rest of the drop appears to be fairly uniform across iOS app versions and across regions. No silver bullet yet but I'm continuing to dig in.

- Photos uploaded by interface:
  - Our goal is to increase mobile participation rate and I'm looking for the biggest opportunities. This week I published a quick analysis showing that our best efforts could be focused on mBasic instead of mTouch because mBasic has dramatically higher DAU (https://www.facebook.com/photo.php?fbid=10101995086786943&set=gm.569961063052513&type=1). Our gameplan going forward is to try to rule out any easy wins, specifically devices or browsers that have suspiciously low participation rates.

**Photos Consumption** (Ram)**:** Photos team is now officially unblocked on the consumption tests!

- Jeremiah added new deltoid photos_feedback category. Our coverage of photos feedback now includes feedback on multi-photo status updates.

**Photos Tagging** (Benedict)**:**

- Value of a XY-Tag: The goal here is to identify the "value" of a xy-tag in terms of
    1. Value to the person tagged
    2. Value to the uploader (likes/comments on tagged photo)
    3. Value to the tagger (if different from uploader)

We have started with (1). We have some initial results that we are vetting.

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**Subject:** Photos and Instagram Analytics PPF

## Highlights

Overall good week

- On Photos where we finished two long-running projects, Tracking all 'photo' related consumption metrics and evaluating the "fraction of faces tagged".
- On Instagram, Sean's NUX analysis was very well received and some actionable product recommendations/ideas have come out. These will likely get prioritized.
- Dev will be transitioning into a different analytics team.
- We have upgraded to Scott, the intern! The pervious version (Benedict) was buggy :) Welcome Scott! Scott will be working on Instagram in predicting age/gender, identifying brands on the graph.

## Instagram

**Product Understand Roadmap:** (Sean)

- This week we presented the results to the immediate team. It was very well received. Next. We will present it to the broader Instagram team.
- We have started working on the next steps:
    - How many users drop out before they complete registration?
    - Does it matter who you follow on the first day?
    - Is connecting to Address book as good as connecting to FB?

**Monetization:** (Dev)

- We started tracking why users deactivate their accounts. https://our.intern.facebook.com/intern/argus/view/184374
    - 'Privacy Concerns' is a close third. Once we start showing ads, we would want to see how this changes.
    - 'Too Busy' and 'Second Account' are the most given reasons for deleting an Instagram accounts
- User Sentiment survey
    - We have done the prep-work for this. Its being launched today.
    - https://our.intern.facebook.com/intern/argus/view/184382

**Ad hoc Analyses:** (Sean/Ram)

- We had a much better Stats Flash/Weekly report where we managed to explain the metric movements. We used Fast Drill!
- IOS 7 Impact: Confirmed that the impact of IOS7 on Uploads/DAU ~ 4% by redoing the cohort analysis for a longer period.

## FB Photos

**Photos Production:** (Jeremiah) J is back!

- Photos metrics in "Core": Added mobile photo uploads and xy-tagging to the deltoid "core" suite. The goal for the team is to have mobile PR at +10% YoY and mobile tagging at +20% YoY, so we don't want any experiments to drop this.
- Working on identifying opportunities on Mtouch
- Impact of IOS 7.0.2 and 6.5.1 We have set up the cohorts and we should have the impact tomorrow

**Photos Consumption** (Ram)**:**

- We are officially now tracking feedback on **all** photo related content (albums, photos and multi-photo stories). We finally have the relevant data backfilled, the jobs running and the dashboard up. This was an extremely painful process. It started with Sean taking it to 33%, Dev taking it to 80% and then me wrapping it up.
- Added unlikes and comment deletes to the deltoid photos suite. This is for the double-tap to like test where we think users might accidentally like photos and later unlike them.

**Photos Tagging** (Benedict)**:**

- Fraction of faces tagged: The first part of this is done! We know now that –50% YOY in terms of fraction of faces tagged. Further, we found out that this matched very closely with the "Tags/Upload". We have decided to "mid-pri" the next steps in view of this:
    - Understanding the YOY by interface
    - Productioniz-ing this and adding the metric to the dash

-Ram

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**Subject:** Photos and Instagram Analytics PPF

A character-building week where almost everything that we attempted to do was hampered by data quality and/or lack of logging. Special shout out to Sean for iterating again and again on the NUX analysis till we have fixed the data quality and we finally have insights that we believe in. Jeremiah is on PTO. Excited to have Jonathan Medwig from BI on load to revamp our photos data infrastructure.

## Instagram

**Product Understand Roadmap:** (Sean)
We finally have a fairly deep, and more importantly, correct understanding. Here are the highlights!

- First day churn (weekly) is a problem
    - 30% of all new users churn on the 1st day. Another 20% new users churn on Day 2-7. When a new user churns, he/she is lost for ever. Only ~2% return again.
- Following, FB Connecting and Uploading are correlated with churn.
    - Every action (Following, FB Connecting and Uploading) your perform reduces first day churn by 1/2. If you do none, churn is 50%. If you do one action it is ~20%. If you do two actions it is 10%. if you do all three it is 5%.
    - Being followed, country, interface, feedback received, feedback given, being private don't matter. This is either because very few people do it or it is not correlated with churn

- Following and New User Churn.
  - Following in NUX is valuable but under-utilized by our users.
  - How many you follow matters up to 10-15 follows. Who you follow does not matter [tentative]
- Next steps
  - Understanding the next lever: FB Connected.

**Adhoc Analyses:** (Cynthia/Ram)

- IOS7 Impact: The estimated impact of IOS7 on Instagram Upload Rate is 5%. Likely because of permission issues.

**Monetization:** (Dev)

- We wanted to track # User Deactivations by reason and # FB Disconnects.
  - # User deactivations: 25 K users deactivate every day. We are getting the logging done to understand why they deactivate
  - # FB Disconnects: Close to ~140 K users seem to disconnect and not connect back on the same day. We have confirmed all these are not user-initiated and some percentage of them is because of FB invalidating the auth token. *This seems like an opportunity for FB Photos to drive Participartion Rate.*

## FB Photos

**Photos Production:** (Jeremiah) On PTO this week. I am covering with help from Cynthia.

- IOS7 and FB4IOS Impact:
  - The first estimates for impact of IOS7 and FB4IOS. ~ 3.5% drop in Photo Paticipation Rate and 7% in Tags/DAU. The likely reasons are IOS7 Permissions, Harrisson and a bug on profile photos.
- Photos Data Infrastrucure Revamp: (Medwig/Max)
  - Context: Since the entire infrastructure was put together in a hurry by me, it is not well designed, hard to understand and often breaks. We have now called in the experts (BI) to build some clean infrastructure. .
  - Progress: This journey 10% complete!

**Photos Consumption:** (Ram)
No progress :(

**Photos Tagging:** (Benedict)

- Fraction of faces tagged:
  - Progress: A nasty bug has delayed us finishing this. We hope to wrap this up this week.
  - Context: Since we did not have face boxes on mobile (till recently) we need to estimate how many of the N XY tags on a photo with K faces are actually of people in the photo. We need this to understand where we stand YoY.

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**Subject:** Photos and Instagram Analytics PPF

**Instagram:**

**# [Ram] Drop in Uploads/DAU:** We continued to investigate this and we have added a few more pieces to the puzzle (in blue). Here is the complete deck

- Uploads/dau has dropped ~ 15% since June 15. The drop is primarily driven by a drop in Participation Rate. The drop is primarily driven by users who used to upload 2-5 times a week now uploading 1-3 times. Only about 30% of the drop can be accounted for by users who completely stop uploading.
- The drop is across the board. We see it for new/old IG users, private/public, fb connected/not connected, age brackets, regions and interface
- There are two specific dates of interest
    - Drop starts July 20: Though the timing coincides with the launch of the videos product we have found no evidence for this hypothesis.
        - We have verified that users are not uploading videos instead of photos
        - We have verified that users on the old app version also see the drop (3.X)
        - We have verified that the UI change on the "Photo" tab did not cause the drop by tracking the conversion rate for users who start the upload flow.
    - Drop accelerates on August 15:
        - We strongly suspect this acceleration is seasonal. This is based on what we see for FB Photos where we have 2011-2013 trends. Evidence in the deck.
- While we can't rule this out completely, we did some checks to see if the drop in Uploads/DAU is because of an increase in DAU (like background pinging etc.)

**# [Sean/Cynthia] Bug in the way we accounted for deactivated/activated users:** While we thought we had despammed properly, Sean and Cynthia found a bug in the code where count some deactivated users as active. Net impact of this is:

- We were over-counting WAU by ~1 M (< 1%)
- We were over-counting weekly new user registration by ~ 1 M (~ 20%)
- This explains the WoW swings O(20%) in Android and Russia signups

**# [Sean] NUX studies** A consequence of the above bug is that Sean's will need to redo his NUX studies (spread over 3 weeks) to ensure that the insights are still valid. We are already seeing some different results. We will have the complete story by next week.

- 50% (was 33% earlier) of the users do not follow, post a photo or give feedback
- Receiving feedback is correlated to retention. Earlier. We had showed that it was not.

**Photos:**

**# [Dev/Bryan] Photos Feedback metrics:** For the first time ever we have started tracking photos feedback. We have just 7 days of data. Dev worked on this as his ramp up project and this is just the first step. Dev will now transition into Instagram and I will take over this.

- Dash: https://our.intern.facebook.com/intern/data/portal/photos/trends?tab=Engagement
- Some preliminary insights here. https://www.facebook.com/pxlcld/kBLM

**# [Benedict] Fraction of faces tagged:** Since we did not have face boxes on mobile (till recently) we need to estimate how many of the N XY tags on a photo with K faces are actually of people in the photo. We need this to understand where we stand YoY. We are making good progress on this and we expect to wrap this up by middle of next week. The key steps here are:

1. ~~Run facer for 1 M photos everyday in August 2013.~~
2. ~~Collect the number of tags from face boxes and num tags for these photos.~~
3. ~~Build a model *Num XY Tags On Faces = f(Num XY Tags, Num Faces)*~~
4. Run facer for 1 M photos everyday for the last 1 year.
5. Use the fitted function to estimate the "Number of XY Tags on Faces" over the last 1 year and get the YoY change in "Fraction of faces tagged"

**# [Jeremiah]** Ramping up on photos. He will start by understanding the photo upload behavior of our Mbasic and Mtouch user base.

-Ram