Goals

- Status of core metrics
- Identify trends & discuss implications
Agenda

- Overview of core metrics
- Readers
- Contributors
- Key Takeaways
Overview of Core Metrics
Pageviews: ↑ YoY

Since May, pageviews have risen YoY
  ● Reverses previous trend of YoY declines
  ● Pageviews have risen to 2015 & 2016 levels

(Why? Stay tuned... )
Mobile dominates traffic

Mobile web and apps make up over 50% of pageviews...

... as of this year, even on weekdays (the last holdout of desktop domination)
Monthly active editors remain stable...

- Overall, global monthly active editors numbers have remained flat over the past 3 years
- Small but consistent long-term trend 2% YoY growth in active existing editors balances out long-term trends of declines in active first- and second-month editors
... with spikes in new editors due to Wiki Education

YoY new active editors spiked in September as a result of participation in Wiki Education
Readers: Metrics & Insights
In 2017/18, we added a new way to read Wikipedia: Page previews*

- 16.8 billion interactions/month**
  - 15.1B pageviews
  - 1.7B previews

*See appendix for additional details
**Average, May-September 2018, normalized to 30 days/month
Total pageviews: ↑ YoY

Wikimedia pageviews year-over-year comparison, May 2013-November 2018

Pageviews/month (avg, April-September 2018)

<table>
<thead>
<tr>
<th>Category</th>
<th>Pageviews</th>
<th>YoY Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>15.1 billion</td>
<td>+3% YoY</td>
</tr>
<tr>
<td>Desktop</td>
<td>6.6 billion</td>
<td>-7% YoY</td>
</tr>
<tr>
<td>Mobile web</td>
<td>8.3 billion</td>
<td>+12% YoY</td>
</tr>
<tr>
<td>Apps</td>
<td>238 million</td>
<td>+6% YoY</td>
</tr>
</tbody>
</table>

Corrected for artificial IE7 traffic from Pakistan & other Asian countries
Total pageviews: ↑ YoY

Since May, pageviews have risen YoY*

- Reverses previous trend of YoY declines
- Pageviews have risen to 2015 & 2016 levels

... Why?

*For Q3 2017/18 (January-March), we reported a YoY drop of 4% in total pageviews. In Q4 2017/18 (April-June) and Q1 2018/19, we saw a YoY increase of 3%.
Why are pageviews increasing?

We identified several factors that correlate with the increasing pageviews:

- Increased traffic from search
- Accelerated growth on mobile
- Decelerated declines on desktop
- Global trends
Why are pageviews increasing?

Key Factors

- Increased traffic from search engine referrals
Search engine referrals: some background

- **Impression**: User sees a search engine results page that contains link(s) to a Wikipedia site
- **Click**: User clicks on link(s) within search engine results that sends the user to a Wikipedia site
- **Referrals (referred pageviews)**: User clicks on a Wikipedia link in search engine results and arrives at a page on our site
- **Click-through rate (CTR)**: ratio of clicks to impressions

Google provides us with these metrics for a limited timespan. In 2017/18, we began to systematically store them on our side, to enable long-term analysis.

(See appendix for an explanatory example of how impressions, clicks, referrals, and CTR are calculated)
Referrals from search engines increased

Starting in May, we see a negative YoY trend turn into a YoY increase

(See appendix for additional notes)
Search engine referrals

**Google Clicks**

Clicks recorded in Google Search Console (blue), compared to sitewide pageviews from all search engines (grey)

- Trends for clicks reflect pageview trends*

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*Clicks/impressions/CTR are grouped at the site level (multiple pages on one site count as one click/impression). Pageviews are grouped at the page level. See [appendix](#) for an example.

Clicks per week via Google Search Console API; data available from July 2017 - September 2018 (solid line) vs 52 weeks prior (dotted line)
Search engine referrals

Google Impressions

Increase in Google clicks driven by an increase in impressions

Impressions per week via Google Search Console; data available from July 2017 - September 2018 (solid line) vs 52 weeks prior (dotted line)

Week of May 14, 2018
Impressions grew more rapidly than clicks.

As impressions grew, CTR* fell, even though the absolute number of clicks increased.

*click-through rate, or rate of clicks to impressions

Week of May 14, 2018

CTR per week via Google Search Console; data available from July 2017 to October 2017 - September 2018 (solid line) vs 52 weeks prior (dotted line)
Why are pageviews increasing?

Key Factors

- Increased traffic from search engine referrals
- Accelerated growth in mobile device traffic
Mobile pageviews: ⬆ YoY

WikiMedia mobile pageviews year-over-year comparison, May 2013-November 2018

Monthly mobile pageviews have grown an average of 12% YoY for mobile web and 6% for apps
Mobile pageviews: ↑ YoY

- Mobile pageviews have consistently grown over the past several years
- Mobile growth has accelerated since May of 2018

*See appendix for details about mobile apps*
Why are pageviews increasing?

Key Factors

- Changes from search engine referrals
- Accelerated growth in mobile device traffic
- Declines in desktop traffic have decelerated
Desktop pageviews: (slowing) ↓ YoY

Wikimedia desktop pageviews year-over-year comparison, May 2013-November 2018
Desktop pageviews: *(slowing) \(\downarrow\) YoY*

Desktop continues to shrink, but the YoY decrease has slowed, particularly since June/July of 2018.*

* For January-March 2018 (Q3 FY 2017/18), we reported an 11% YoY decline of monthly desktop pageviews. In April-June 2018 (Q4 FY 2017/18) we saw an 8% YoY decline, and in June-September 2018 (Q1 FY 2018/19) we’ve seen a 5% YoY decline.
Why are pageviews increasing?

**Key Factors**

- Changes from search engine referrals
- Accelerated growth in mobile device traffic
- Declines in desktop traffic have decelerated
- Global trends
Global changes in traffic trends

- Asia & Europe show the largest trend reversals YoY, consistent with overall changes.
- North & South America show a smaller shift from YoY declines to growth.

Week of May 14, 2018
Turkey

Over 1 year since block

- In 2017, Turkey’s block of Wikipedia decreased monthly pageviews by ~200M (40-70M/week)
- May 2017 - April 2017 YoY numbers were ~1% lower due to comping traffic from Turkey that is now blocked
Why are pageviews increasing?

No significant impact

Areas we investigated that showed no significant impact on overall pageviews*:

- Hindi video campaign: no significant increase in pageviews from India
- YouTube linking articles about conspiracy theory topics
- Google Knowledge Panel changed for articles about universities
- Differences between browsers
- Increases driven by specific countries
- Internally referred pageviews

*see appendix for details, and also the Q3 metrics presentation for previous investigations
Wikipedia Zero shutdown:

Back in 2016, up to 2% of global pageviews came from WP0. In several Global South countries, it has been contributing the majority of traffic.

With the program’s gradual shutdown (now almost complete), do people continue to read Wikipedia, now using paid data instead?
WP0 deactivated for Unitel Angola on June 29

Caused traffic for the entire country to drop from ~20 million to ~4 million views/month

Some other countries saw smaller or no drop
In contrast, readers in Kuwait seem to have continued to use Wikipedia at roughly the same rate after the (official) end of the program.
Longterm Trends
Pageviews: longterm trends

- Traffic has been declining since 2013 (-2% yearly)
- Mobile has been increasing (+18% yearly) as desktop has been declining (-13% yearly)
- Mobile makes up >50% of traffic on weekdays, >60% of traffic on weekends*

*See appendix for a closer look at traffic by weekday
Unique devices & reading time
Unique devices

More details about unique devices and how this metric is calculated in the [appendix](#).
Reading Time

- New metric under development
- Based on page dwell time*

Every month, people spend ~60,000 years reading Wikipedia articles.

*seconds between page load & user closing browser/tab, minus time during which the tab was hidden
Contributors: Metrics & Insights
Counting contributors
## Activity groups

<table>
<thead>
<tr>
<th>editors</th>
<th>active editors</th>
<th>very active editors</th>
</tr>
</thead>
<tbody>
<tr>
<td>monthly edits</td>
<td>1+</td>
<td>5+</td>
</tr>
<tr>
<td>type of edits</td>
<td>any</td>
<td>content</td>
</tr>
</tbody>
</table>

We define three main levels of contributors, based on their monthly edit counts, so that we can measure both the core and the long-tail of the contributor community.
In an average month, we have:

- **13,000 very active editors**
- **82,000 active editors**
- **290,000 editors**
The trends are similar...

Overall, global editors numbers have remained flat over the past 4 years.

While we discuss sub-trends, keep in mind the high-level picture: things are not changing very much. This is both good news (Wikimedia is not dying!) and bad news (Wikimedia is not growing!).
...but not identical

When we zoom in on the top half of the previous graph, remove the nested groups (e.g. very active editors from active editors), and look at the yearly average, we can see some slight but meaningful trends: editors and very active editors are increasing, active editors are decreasing.
We also define three main levels of contributor tenure, based on their month of registration, so that we can focus on new editors as a metrics for our recruitment indicators and hopefully a leading indicator of future trends in existing editors.

<table>
<thead>
<tr>
<th>Tenure groups</th>
<th>New</th>
<th>Second-month</th>
<th>Existing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration date</td>
<td>This month</td>
<td>Last month</td>
<td>Before last month</td>
</tr>
</tbody>
</table>
Editor tenure in an average month

The higher the activity level, the lower the proportion of new editors.
## Tenure and activity groups

<table>
<thead>
<tr>
<th></th>
<th>new</th>
<th>second-month</th>
<th>existing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>editors</strong></td>
<td>new editors</td>
<td>second-month editors</td>
<td>existing editors</td>
</tr>
<tr>
<td><strong>active editors</strong></td>
<td>new active editors</td>
<td>second-month active editors</td>
<td>existing active editors</td>
</tr>
<tr>
<td><strong>very active editors</strong></td>
<td>new very active editors</td>
<td>second-month very active editors</td>
<td>existing very active editors</td>
</tr>
</tbody>
</table>

If we combine our tenure and activity groups, we get a complex array of composite groups. These can be confusing, but are important tools for analyzing our contributor community.
### Group size in an average month

<table>
<thead>
<tr>
<th></th>
<th>new</th>
<th>second-month</th>
<th>existing</th>
</tr>
</thead>
<tbody>
<tr>
<td>editors</td>
<td>109,000</td>
<td>13,000</td>
<td>165,000</td>
</tr>
<tr>
<td>active editors</td>
<td>16,000</td>
<td>4,000</td>
<td>62,000</td>
</tr>
<tr>
<td>very active editors</td>
<td>300</td>
<td>300</td>
<td>13,000</td>
</tr>
</tbody>
</table>

One thing worth noting: while there’s a big drop-off between new and second-month among editors and active editors, there’s not one among very active editors. This is good to see: anyone who makes at least 100 edits during their first month is very likely to stick around.
Existing editors
Small but consistent long-term trend of 2% year-over-year growth in existing active editors.
The clearest growth is happening at Commons and Wikidata, but there are subtle trends in other projects too.

The “next 10” Wikipedias are defined using a ranking that combines editing community size and readership. They are:

2. Spanish
3. German
4. Japanese
5. French
6. Russian
7. Italian
8. Mandarin Chinese
9. Portuguese
10. Polish
11. Dutch
Very active editors

Small but consistent long-term trend of 3% YoY growth in very active editors.
Very active editors by project

Most of the growth seems to be taking place at Commons and Wikidata.
New editors
New active editors continue to decline, at about 7% per year. An unexpectedly large jump in September 2018 bucked that trend, which we will discuss later.
New editors have been declining more gradually at about 3% each year.
At a high level, we’re seeing more volatility in new editor retention although the overall trend is slightly positive.
The volatility in new editor retention is coming mainly from increasingly strong seasonal spikes on the English Wikipedia, centered in January and September.
The reason: Wiki Education
(one specific organization that does wiki education!)
Wiki Education works with professors in the US and Canada to incorporate contributing to Wikipedia in their classes.
English Wikipedia new active editors in an average month

1,750 Wiki Edu participants (19%)

9,250 total
New editor retention on English Wikipedia
New editor retention on English Wikipedia

% of new editors retained vs. month after registration

- Others
- Wiki Ed participants

- 56.4% at 2 months
- 5.4% at 3 months
- 2.1% at 5 months
- 1.0% at 6 months
Edits
This includes bot edits and Wikidata edits (which include a lot of mass edits not tagged as bots), so the main driver is increased mass edits on Wikidata.
This appears to be due to the increase of mass editing.
Key Takeaways
Key takeaways

- A longterm trend of declines in pageviews reversed in May, correlated with an increase in Google impressions
- We continue to see growth in mobile readership, which accelerated in May of 2018 compared to previous years’ growth
- As Wikipedia Zero partnerships are shut down, we see some reductions in traffic
- Monthly active editors remain flat: a small but consistent long-term trend 2% YoY growth in active existing editors balances out long-term trends of declines in active first- and second-month editors
- Education programs bring in new editors with high second-month retention but low sixth-month retention
Questions?

Product Analytics Team: product-analytics@wikimedia.org, [mw:Product_Analytics]

Kate Zimmerman, Head of Product Analytics: kzzimmerman@wikimedia.org
THANK YOU!
Appendix
Page Previews

- Page previews: mouseover popups with an excerpt of the linked article
  - The page previews feature rolled out gradually starting summer 2017, fully live & tracked April 2018
  - Although the feature had been live on most Wikipedias before, we only started to measure its usage consistently around April 2018.
- Previews are designed to save the cost of exploring a link by surfacing key information in a hover card. A/B tests indicate that previews reduced pageviews by 3-5% per session. However:
  - The feature was designed to save readers some clicks, so a decrease in pageviews was intentional
  - Previews are an important way readers can interact with content (hence our move to reporting on “interactions”)
  - Previews are used 50-60 million times/day
- More on previews A/B test: [https://www.mediawiki.org/wiki/Page_Previews/2017-18_A/B_Tests](https://www.mediawiki.org/wiki/Page_Previews/2017-18_A/B_Tests)

(Linked from *Slide 11: Interactions: Pageviews+Previews*)
A user searches on Google for “es.wikipedia”

- Impressions:
  - 1 for es.wikipedia.org
  - 1 for en.wikipedia.org

The user clicks on the first link (https://es.wikipedia.org/wiki/Wikipedia:Portada) and arrives on Wikipedia. Then the user returns to search results and clicks on the third link (https://es.wikipedia.org/wiki/Wikipedia_en_español)

- Clicks:
  - 1 for es.wikipedia.org
  - 0 for en.wikipedia.org

- Click-through rate (CTR):
  - 100% for es.wikipedia.org
  - 0% for en.wikipedia.org

- Referrals (pageviews referred via Google):
  - 2
Search engine referrals

Referred Pageviews: Notes

- We checked this change is not confined to a particular country or browser (or to only mobile/desktop). This makes it likelier that it was a change on Google’s side.
- On the other hand, there is no clear match to the timing of publicly known Google algorithm updates.
- Search engine referrals account for ~7 billion pageviews/month, which is:
  - ~45% of our total pageviews (~16 billion/month) (those total pageviews include entrances/referrals, in addition to internal navigation)
  - Nearly 70% of entrances (traffic referred from external websites, search engines, or direct entrances; this excludes pageviews from internal navigation)

(Linked from Slide 17: Search engine referrals: Referred Pageviews)
Google dominates search engine referrals

- Google’s share among all our search engine referrals: 91-93%
- Google’s share among all our external referrals: 85-90%

(Additional discussion relating to Search engine referrals section)
Readers: Pageview Investigations
Global traffic trends (monthly, YoY)

- Asia & Europe show the largest trend reversals YoY, consistent with overall changes
- North & South America show a smaller shift from YoY declines to growth

(This is a monthly version of weekly global data in pageviews discussion)
Global traffic trends (monthly %s)

- Shows shifting % of overall traffic, with Asia increasing

(Supplementary monthly contribution trends, related to global data in pageviews discussion)
Pageviews: Impact from desktop page previews feature

- A/B tests indicate that previews reduced pageviews by 3-5% per session. However:
  - The feature was designed to save readers some clicks, so a decrease in pageviews was intentional
  - Previews are an important way readers can interact with content (hence our move to reporting on “interactions”)
  - Previews are used 50-60 million times/day

(Additional discussion relating to Interactions: Pageviews+Previews)
YouTube Conspiracy Links

No significant impact on total pageviews

Small number of articles overall; not a significant impact on traffic

Top referred articles in October (all enwiki):
- **Global warming** 39512
- **Federal Emergency Management Agency**
- **MMR vaccine** 314
- **Dulce Base** 295
- **Kecksburg UFO incident** 24
On April 3, 2018, we published and promoted the Ektara video on YouTube and Facebook targeting Hindi internet users in Madhya Pradesh, India, which was live for 3 weeks. On May 27, a second TV push happened during a major Cricket event targeting the whole country.

The online promotion resulted in approximately 1,200 clickthroughs/day on average during the campaign period, but we didn’t see a significant change in the overall pageviews to Hindi Wikipedia from Madhya Pradesh. After the TV promotion, we saw no significant increase in pageviews, number of unique devices, nor first-time visit devices from India.
Traffic from India: ↑ YoY

- YoY growth from India accelerated starting in May, but this is consistent with overall global patterns for 2018.
- Device patterns are consistent with overall patterns (mobile is where we see growth).
Readers: Pageviews by Device & Access Method
Pageviews by Access Method

Total Wikimedia pageviews, by access method

Percentage of mobile Wikimedia pageviews (web+apps)
Mobile vs desktop traffic by day

- Mobile device traffic spikes around weekends
  - Peaks on Sundays
  - Declines through workweek
  - Troughs on Fridays

- Desktop traffic spikes on Mondays
  - Remains high through workweek
  - Falls off on Saturday & Sunday

- September 2017: mobile traffic dominated weekends while desktop traffic dominated during the workweek

- September 2018: mobile traffic dominated desktop traffic all week

(Linked from Slide 35: Pageviews: longterm trends)
**Unique devices**

<table>
<thead>
<tr>
<th>Monthly unique devices</th>
<th>Average April-September</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wikipedia (all languages)</td>
<td>1.5 billion +8% y-o-y</td>
</tr>
</tbody>
</table>

*Unique devices* visiting any Wikipedia project during a given month

- Useful for overall ballpark numbers
- Increases over time could be an artifact of cookies & changing technology (issues shared by other major websites)

*(Linked from Slide 37: Unique devices)*
Readers: Mobile Apps
iOS app usage

<table>
<thead>
<tr>
<th></th>
<th>Q4</th>
<th>Q1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly pageviews</td>
<td>79M (YoY: N/A*)</td>
<td>82M (YoY: N/A*)</td>
</tr>
<tr>
<td>Daily downloads</td>
<td>3K (YoY: -30.2%)</td>
<td>3.7K (YoY: -31.3%)</td>
</tr>
</tbody>
</table>

- Pageviews on iOS app continue to increase in Q4 2017-18 & Q1 2018-19, with more pageviews in the summer attributed to school schedules.
- The downloads of the iOS app keep decreasing, with 30% fewer downloads compared to the previous year (higher levels in the previous year were likely linked to high levels advertising in the app store).

Pageviews normalized to 30 days/month
*Includes a small correction for the remaining effects of a [pageview-affecting bug](#) that arose in December 2016, which also (together with another bug from Q2016/17) makes year-over-year comparisons unreliable.
## Android

### Usage & user acquisition

<table>
<thead>
<tr>
<th></th>
<th>Q4</th>
<th>Q1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly pageviews*</td>
<td>157.8M</td>
<td>156.5M</td>
</tr>
<tr>
<td>YOY: -1.8%</td>
<td>-0.68%</td>
<td></td>
</tr>
<tr>
<td>Monthly users</td>
<td>4.94M</td>
<td>4.74M</td>
</tr>
<tr>
<td>YOY: -14.9%</td>
<td>-15.3%</td>
<td></td>
</tr>
<tr>
<td>Average daily users</td>
<td>0.97M</td>
<td>0.94M</td>
</tr>
<tr>
<td>YOY: -7.5%</td>
<td>-6.77%</td>
<td></td>
</tr>
<tr>
<td>Average installs / day</td>
<td>16.5 K</td>
<td>14.1 K</td>
</tr>
<tr>
<td>YOY: -14.3%</td>
<td>-6.51%</td>
<td></td>
</tr>
</tbody>
</table>

*Pageviews normalized to 30 days/month

More on next slide
Installs/day has been **decreasing over time** since Sep 2015, and so has the **number of active devices with the app installed** since Sep 2016 because our focus has *not* been on user acquisition.

Perhaps it should be after we’ve improved in-app editing.
Editors
## New active editors: top gains & declines

<table>
<thead>
<tr>
<th>Project</th>
<th>Four-year change in monthly new active editors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wikidata</td>
<td>↑ 434 ↑ 122%</td>
</tr>
<tr>
<td>Persian Wikipedia</td>
<td>↑ 114 ↑ 44%</td>
</tr>
<tr>
<td>French Wikipedia</td>
<td>↑ 63  ↑ 8%</td>
</tr>
<tr>
<td>Japanese Wikipedia</td>
<td>↑ 40  ↑ 6%</td>
</tr>
<tr>
<td>Hindi Wikipedia</td>
<td>↑ 27  ↑ 151%</td>
</tr>
<tr>
<td>Marathi Wikipedia</td>
<td>↑ 24  ↑ 481%</td>
</tr>
<tr>
<td>Estonian Wikipedia</td>
<td>↑ 20  ↑ 82%</td>
</tr>
<tr>
<td>Indonesian Wikipedia</td>
<td>↑ 19  ↑ 11%</td>
</tr>
<tr>
<td>Bangla Wikipedia</td>
<td>↑ 19  ↑ 53%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project</th>
<th>Four-year change in monthly new active editors</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Wikipedia</td>
<td>↓ 2 528 ↓ 32%</td>
</tr>
<tr>
<td>Spanish Wikipedia</td>
<td>↓ 412  ↓ 28%</td>
</tr>
<tr>
<td>Turkish Wikipedia</td>
<td>↓ 248  ↓ 88%</td>
</tr>
<tr>
<td>Wikimedia Commons</td>
<td>↓ 239  ↓ 10%</td>
</tr>
<tr>
<td>German Wikipedia</td>
<td>↓ 191  ↓ 29%</td>
</tr>
<tr>
<td>Russian Wikipedia</td>
<td>↓ 163  ↓ 26%</td>
</tr>
<tr>
<td>Portuguese Wikipedia</td>
<td>↓ 144  ↓ 30%</td>
</tr>
<tr>
<td>Korean Wikipedia</td>
<td>↓ 89   ↓ 34%</td>
</tr>
<tr>
<td>Italian Wikipedia</td>
<td>↓ 84   ↓ 20%</td>
</tr>
</tbody>
</table>