RYOT YAHOO! SPORTS HUFFPOSTI MAKERS Aol. TechCrunch engadget YAHOO! MAIL ① by AOL. YAHOO! tumblr. verizon/ digital media services YAHOO! FINANCE BrightRoll YAHOO! GEMINI

Communicating the Value of Open Source Metrics

Ben Lloyd Pearson

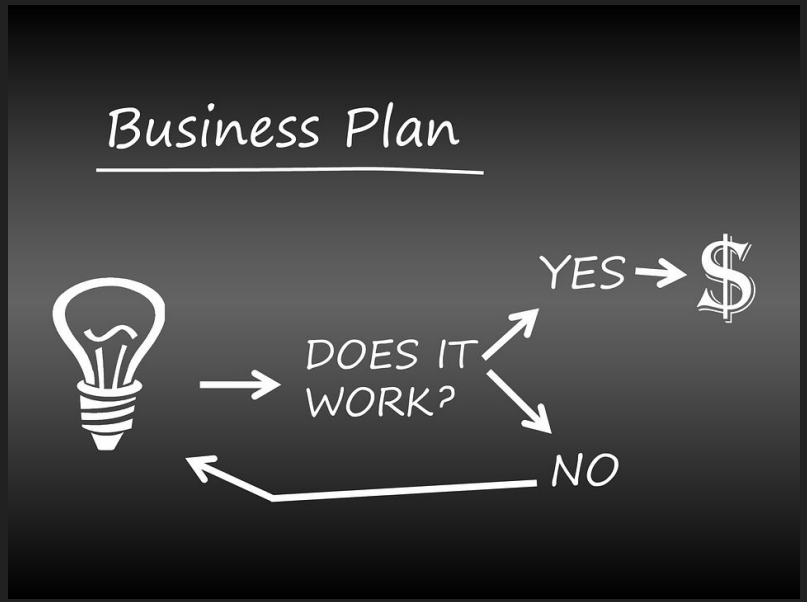
Governor of GitHub @ Oath

Oath:

Metrics are awesome!

Oath:

But they aren’t inherently valuable



Oath:

Focused metric sets can help solve specific problems

(Keep the end in mind)

Oath:

And enable us to better communicate the value of open source efforts

Oath:

We can work together to make this a reality

Oath:

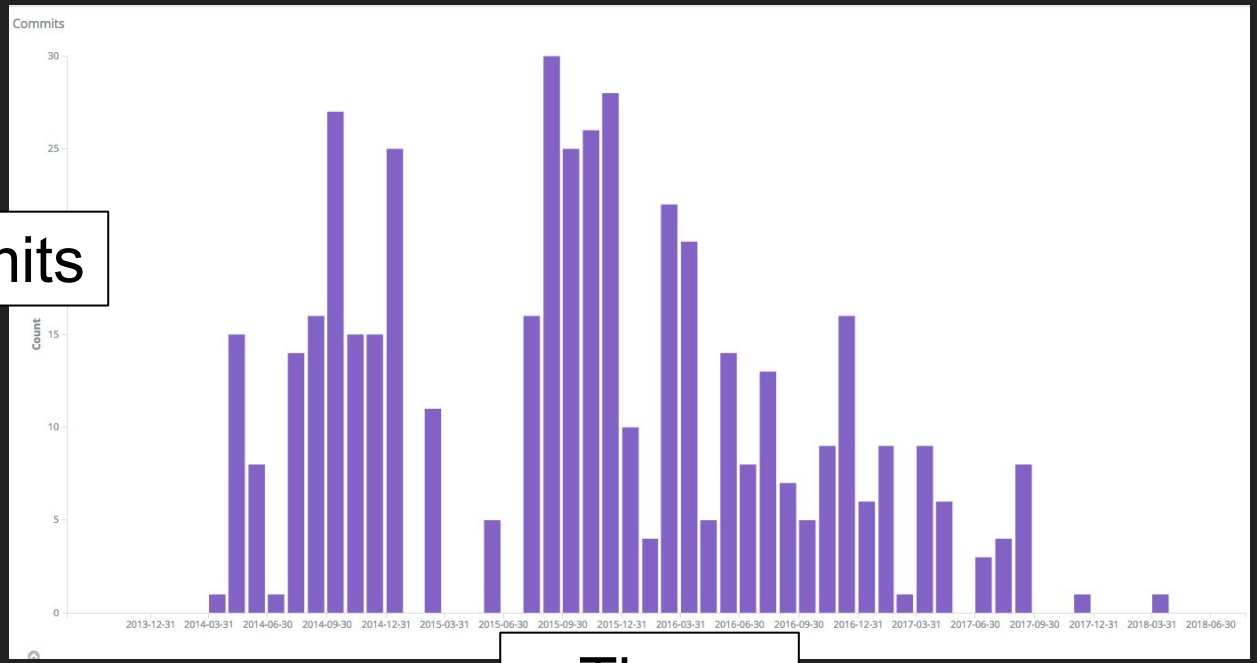
Speaker for the Dead

What can learn from the perspective of React Intl

Oath:

A Slow Decline…

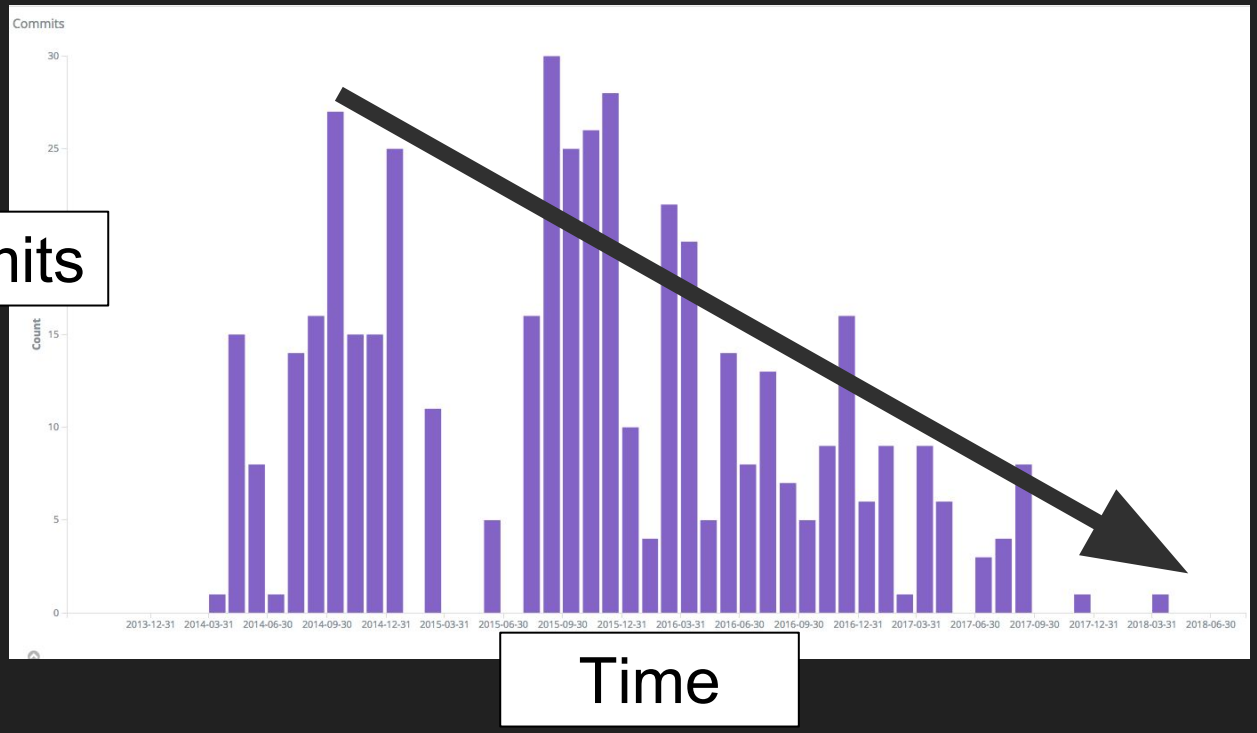
Commits



Time

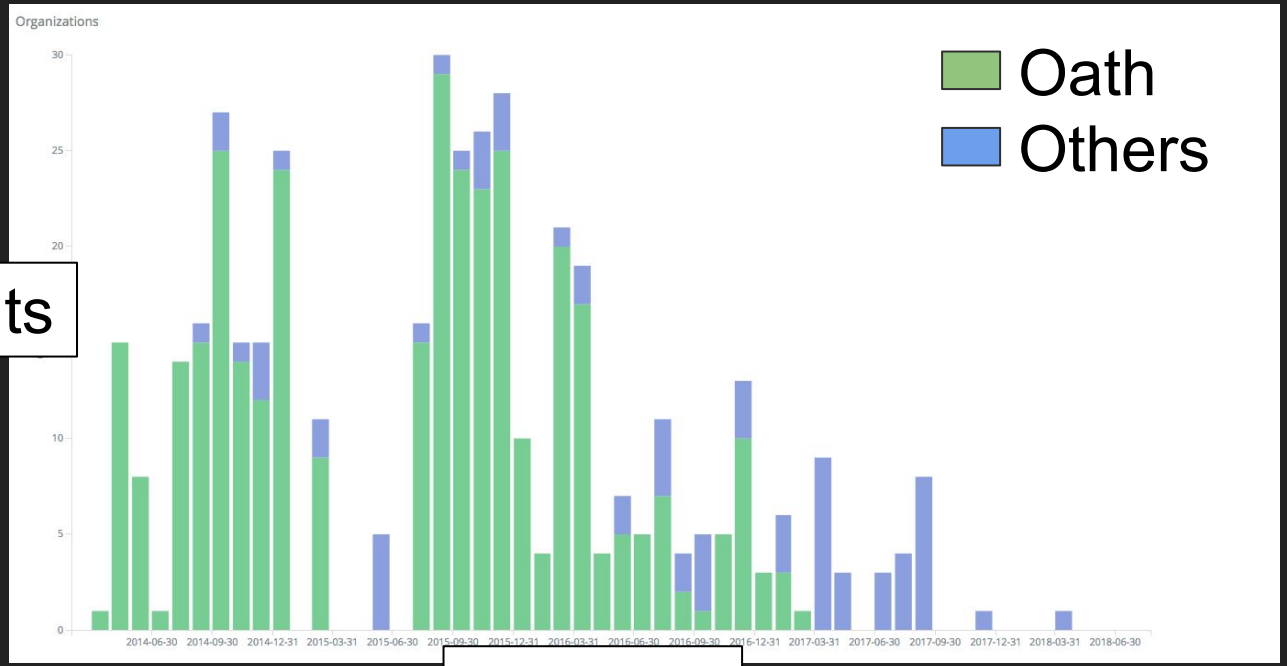
Oath:

A Slow Decline…



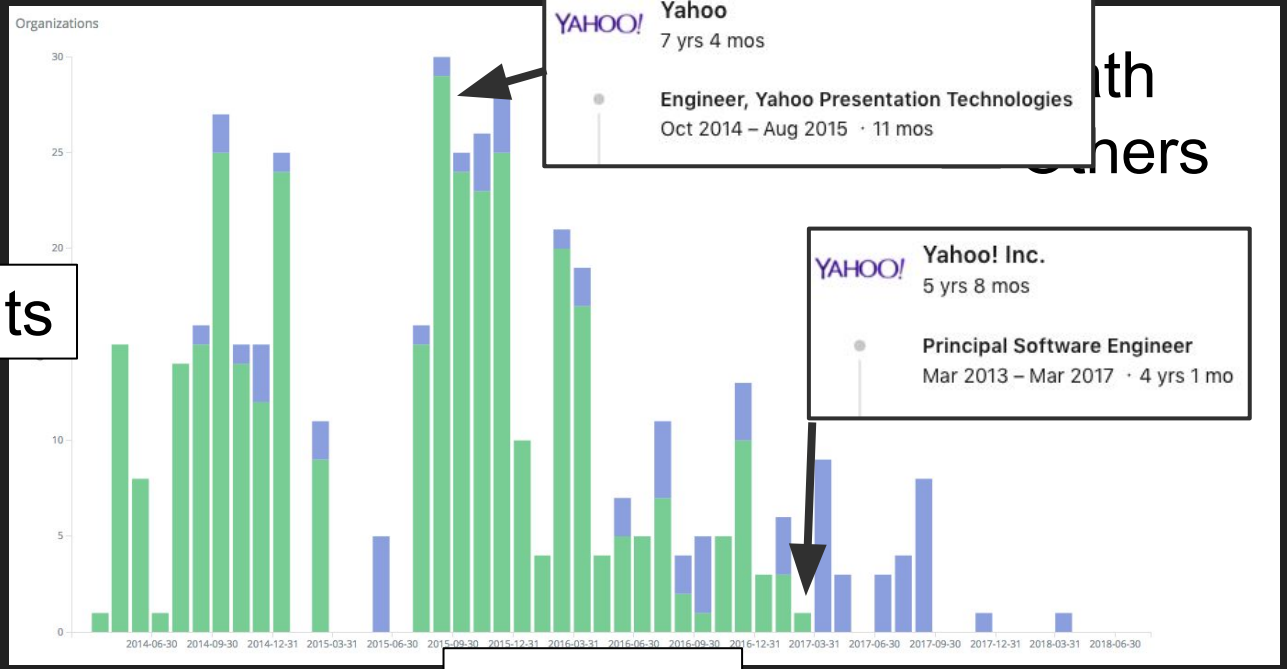
Oath:

Why Did this Project Die?



Oath:

Why Did this Project Die?



Commits

Time

Oath:

Why Did this Project Die?

Commits

Time

Oath:

Individual metrics can be misleading

Oath:

We need a more holistic approach that provides better context

Oath:

The goal: analytics dashboards that target specific problems

Oath:

This was an Avoidable Death

1. Monitor the Development Pace
    a. Trend lines to identify long term changes
    b. Y-o-Y acceleration/deceleration to identify shorter term changes

Oath:

This was an Avoidable Death

1. Monitor the Development Pace
    a. Trend lines to identify long term changes
    b. Y-o-Y acceleration/deceleration to identify shorter term changes
2. Evaluate the Contributor Distribution
    a. Commit distribution to identify sustainability of developer community
    b. Geographic distribution to identify developer communities

This was an Avoidable Death

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    a. Trend lines to identify long term changes
    b. Y-o-Y acceleration/deceleration to identify shorter term changes
2. Evaluate the Contributor Distribution
    a. Commit distribution to identify sustainability of developer community
    b. Geographic distribution to identify developer communities
3. Evaluate the Organization Distribution
    a. Contributions from other organizations to identify potential partners
    b. External code as percent of total to track success of external outreach

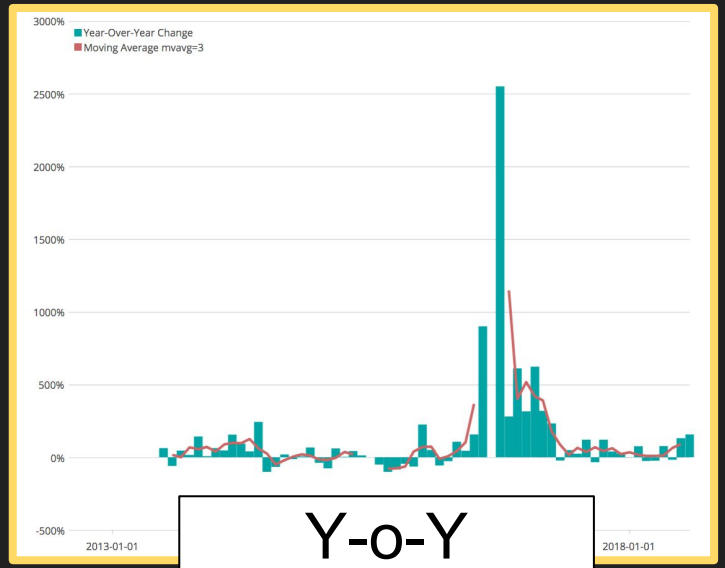
Real World Examples!

Moloch

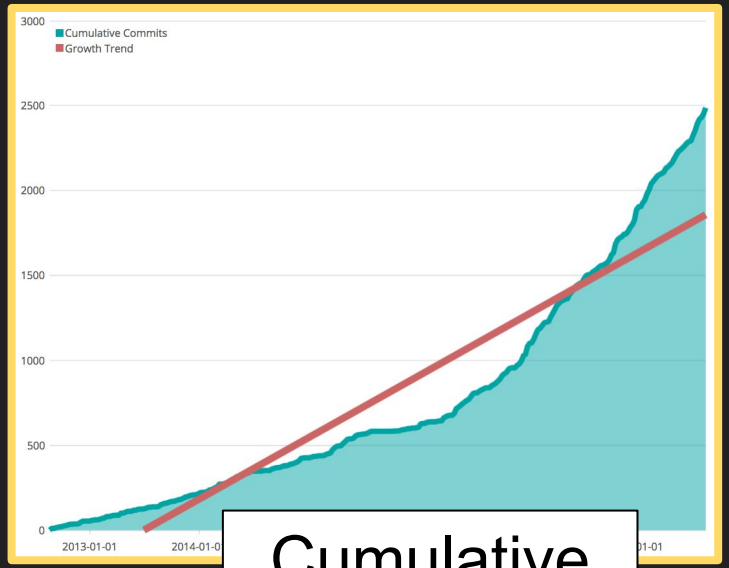
Screwdriver

Development Pace

Monitor Development Pace



Y-o-Y Acceleration

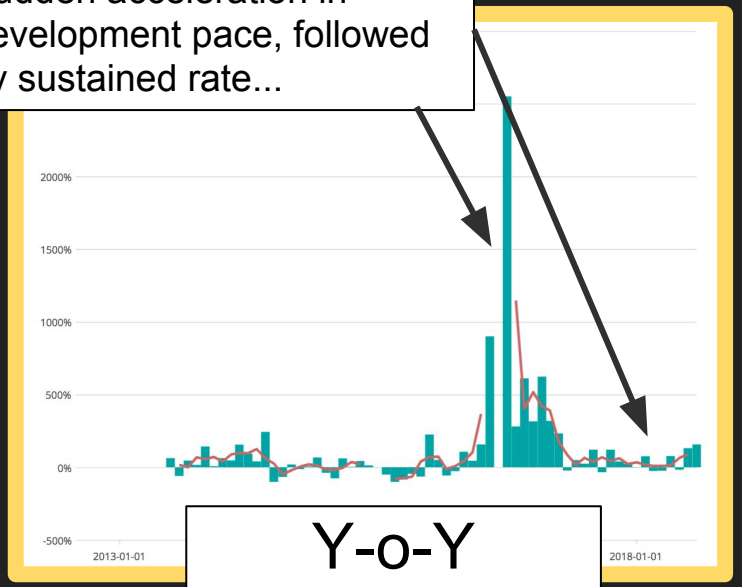


Cumulative

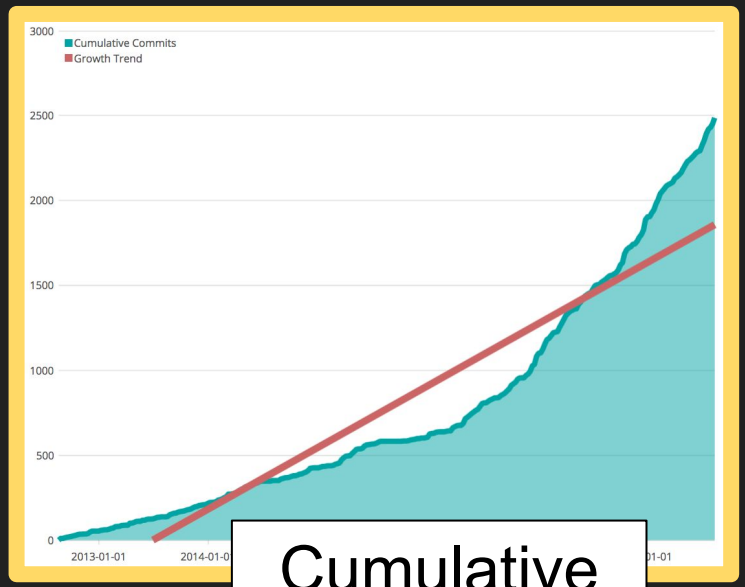
Oath:

Monitor Development Pace

Sudden acceleration in development pace, followed by sustained rate...



Y-o-Y Acceleration

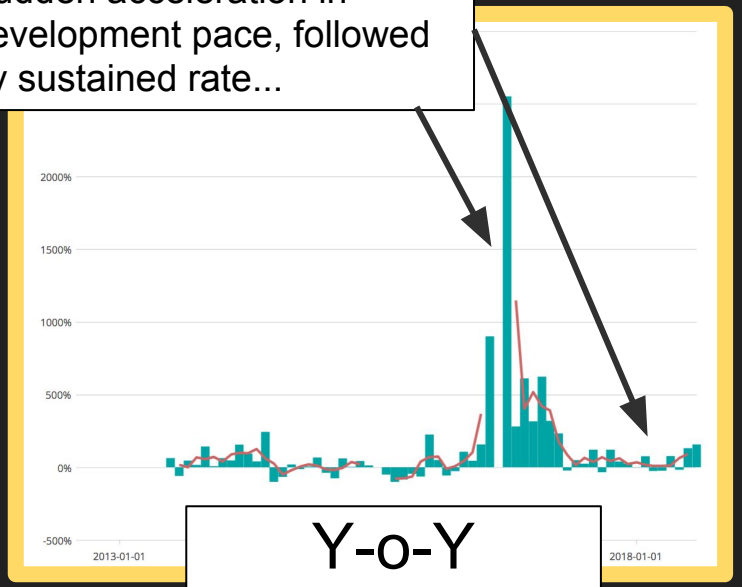


Cumulative

Oath:

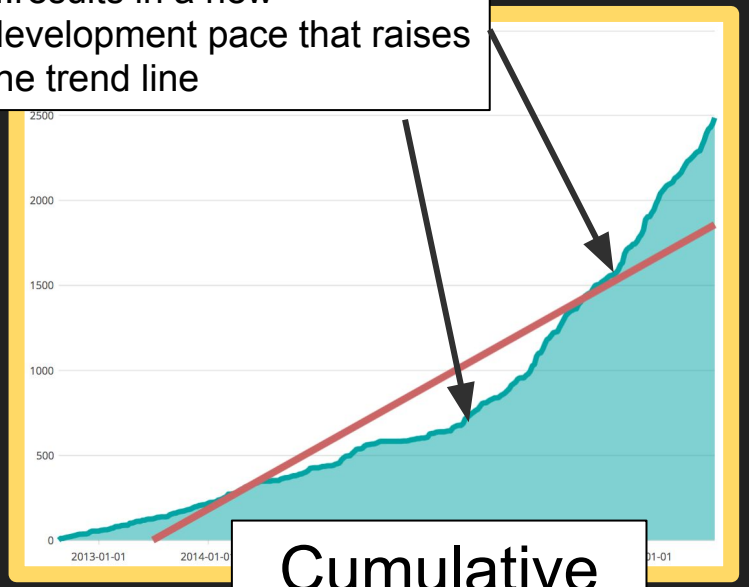
Monitor Development Pace

Sudden acceleration in development pace, followed by sustained rate...



Y-o-Y Acceleration

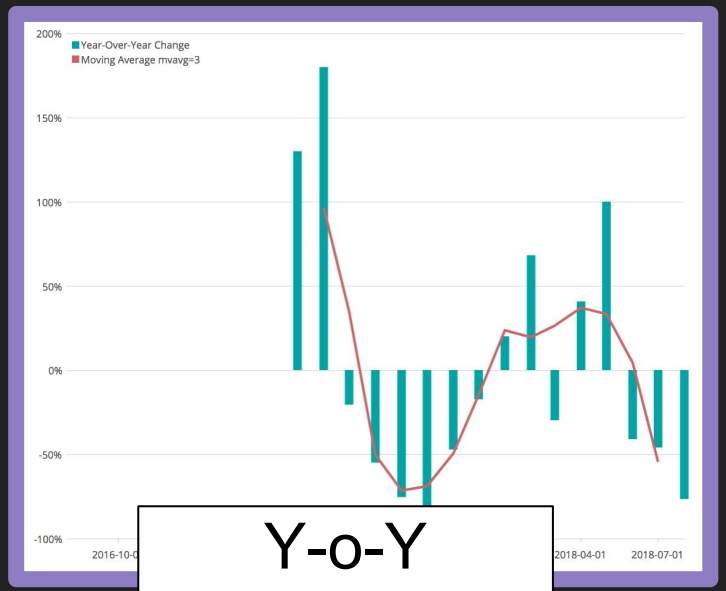
...results in a new development pace that raises the trend line



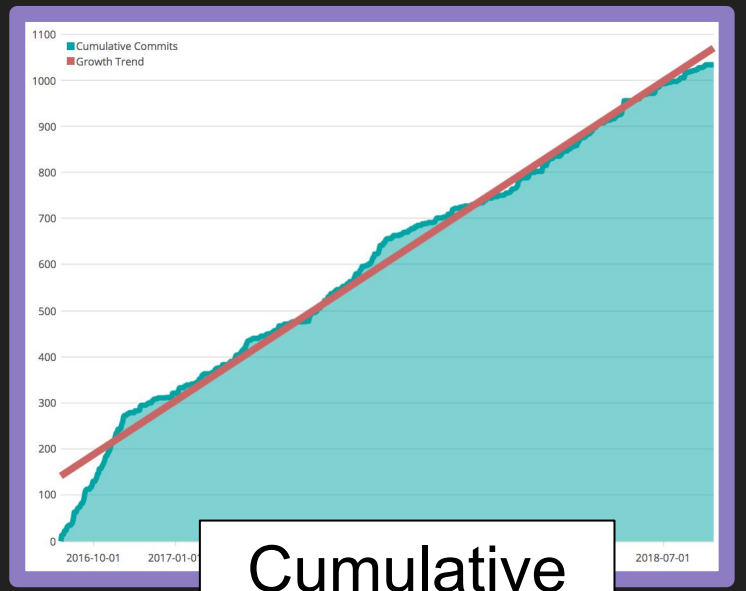
Cumulative

Oath:

Monitor Development Pace



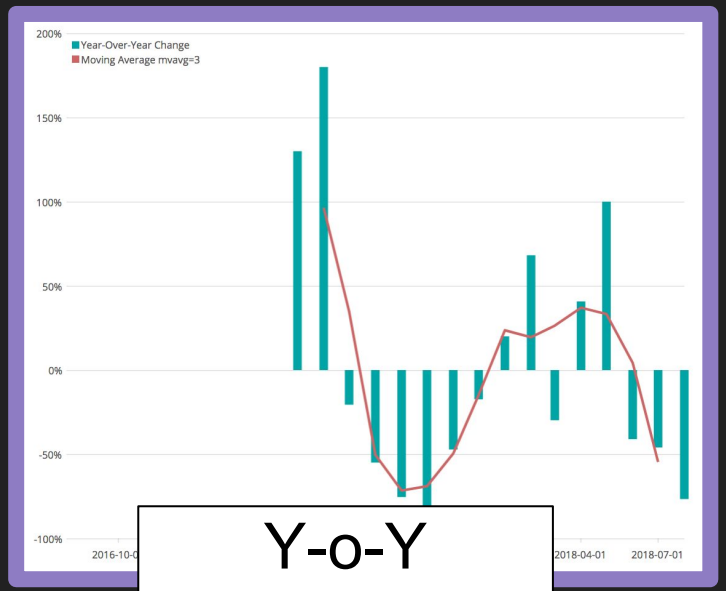
Y-o-Y Acceleration



Cumulative

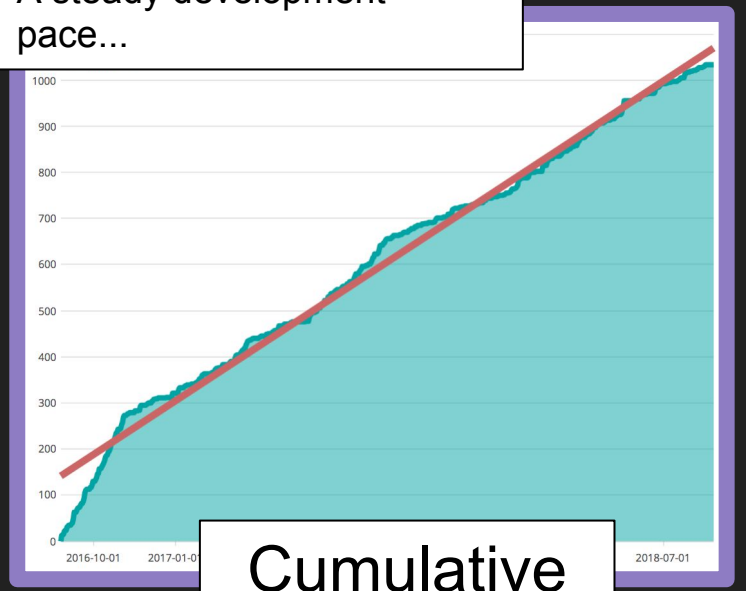
Oath:

Monitor Development Pace



Y-o-Y Acceleration

A steady development pace...

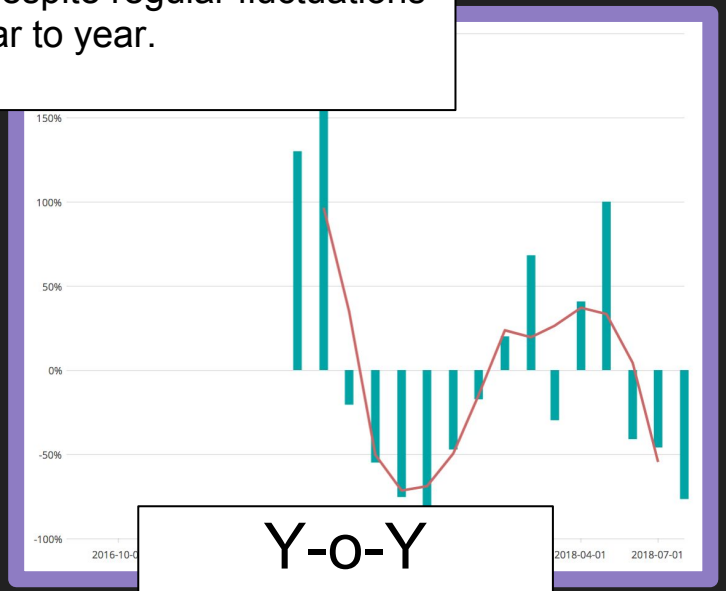


Cumulative

Oath:

Monitor Development Pace

...despite regular fluctuations year to year.



Y-o-Y Acceleration

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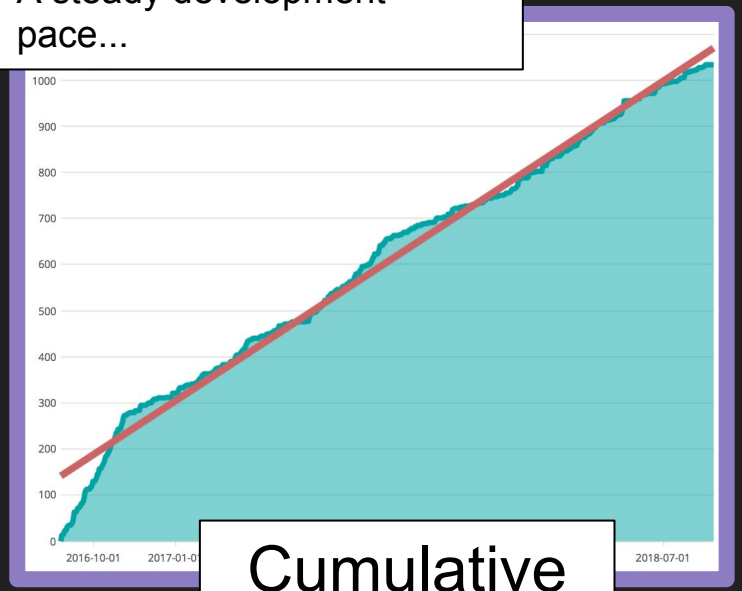
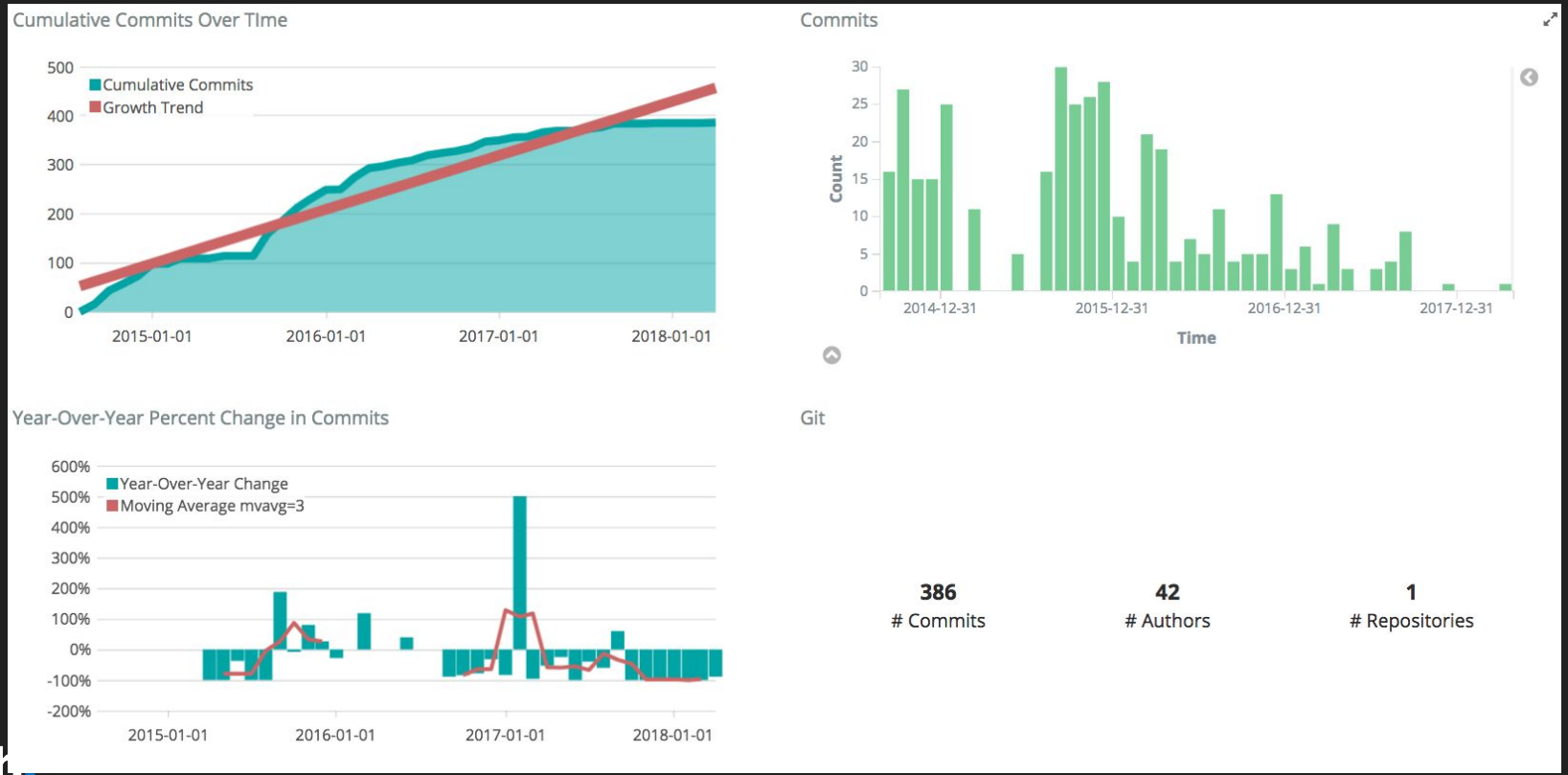


Cumulative

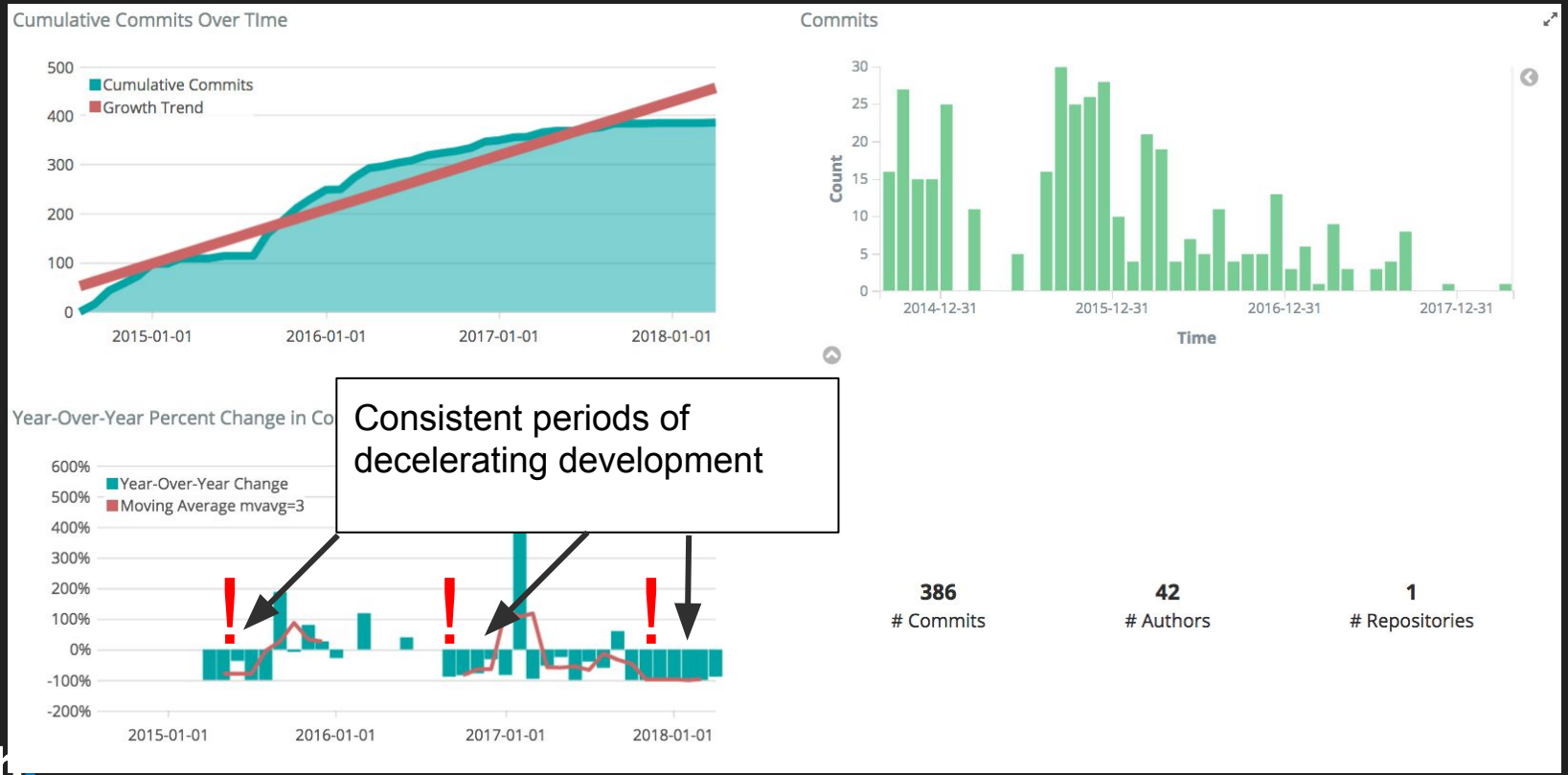
Oath:

React Intl: Development Pace



Oath

React Intl: Development Pace



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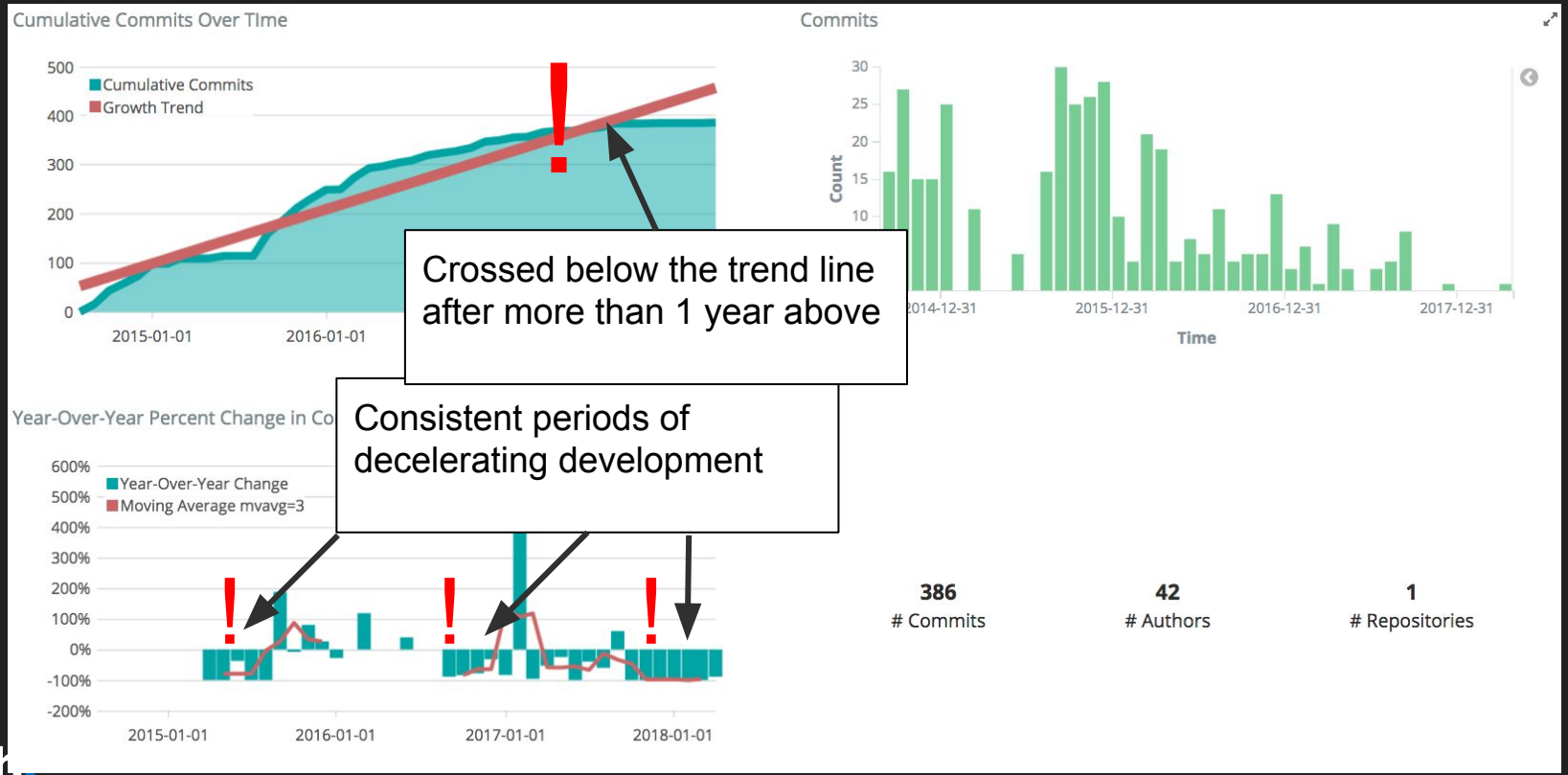
React Intl: Development Pace



Oath

React Intl - Development Pace

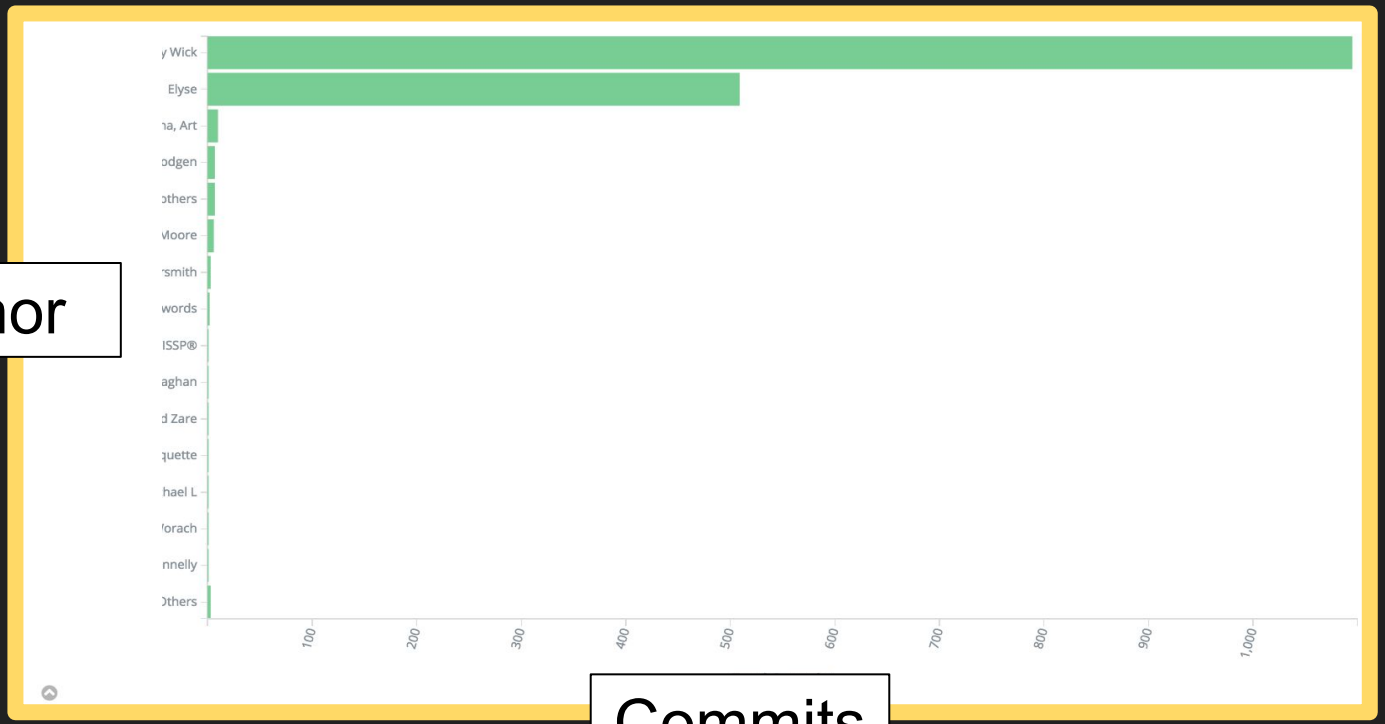
Consistent development deceleration across project history should have triggered alarms for further analysis

The cumulative commits dropping below the long term trend line should have triggered a much bigger alarm

Oath:

Contributor Distribution

Author Distribution: Commits

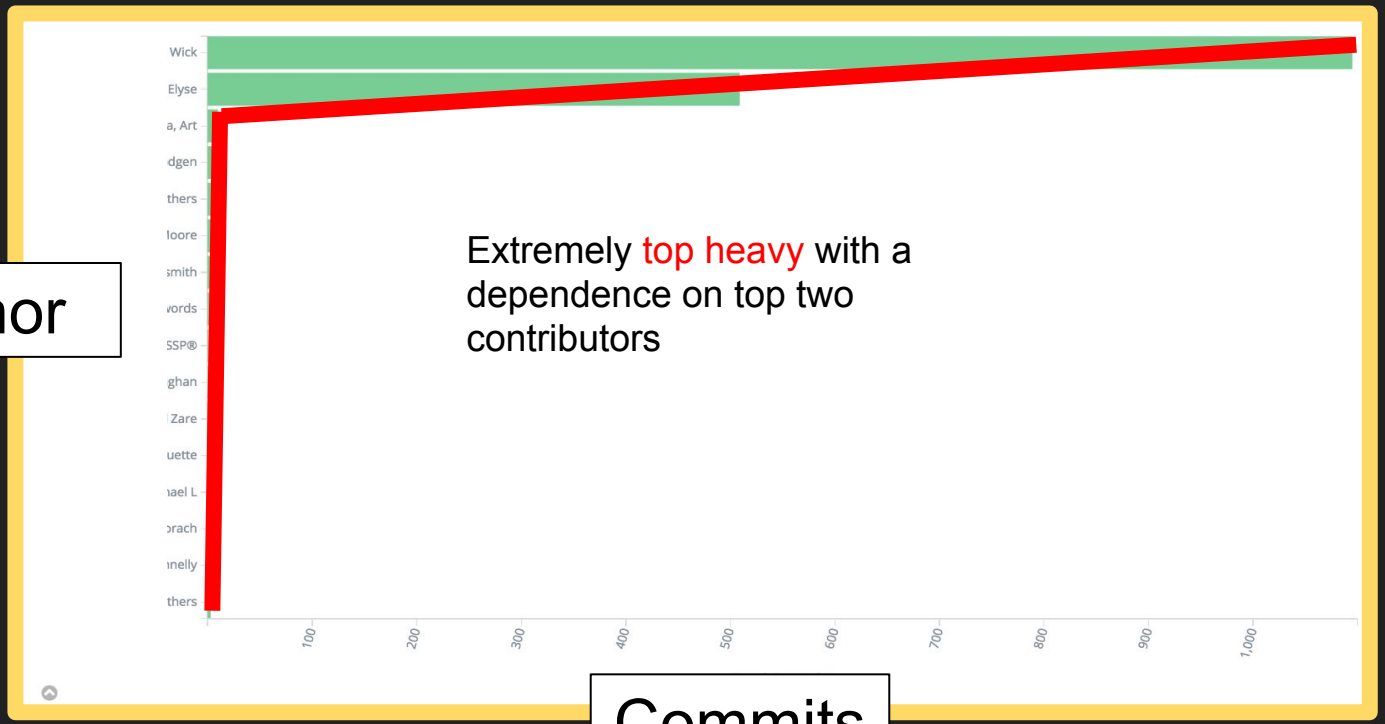


Author

Commits

Oath:

Author Distribution: Commits



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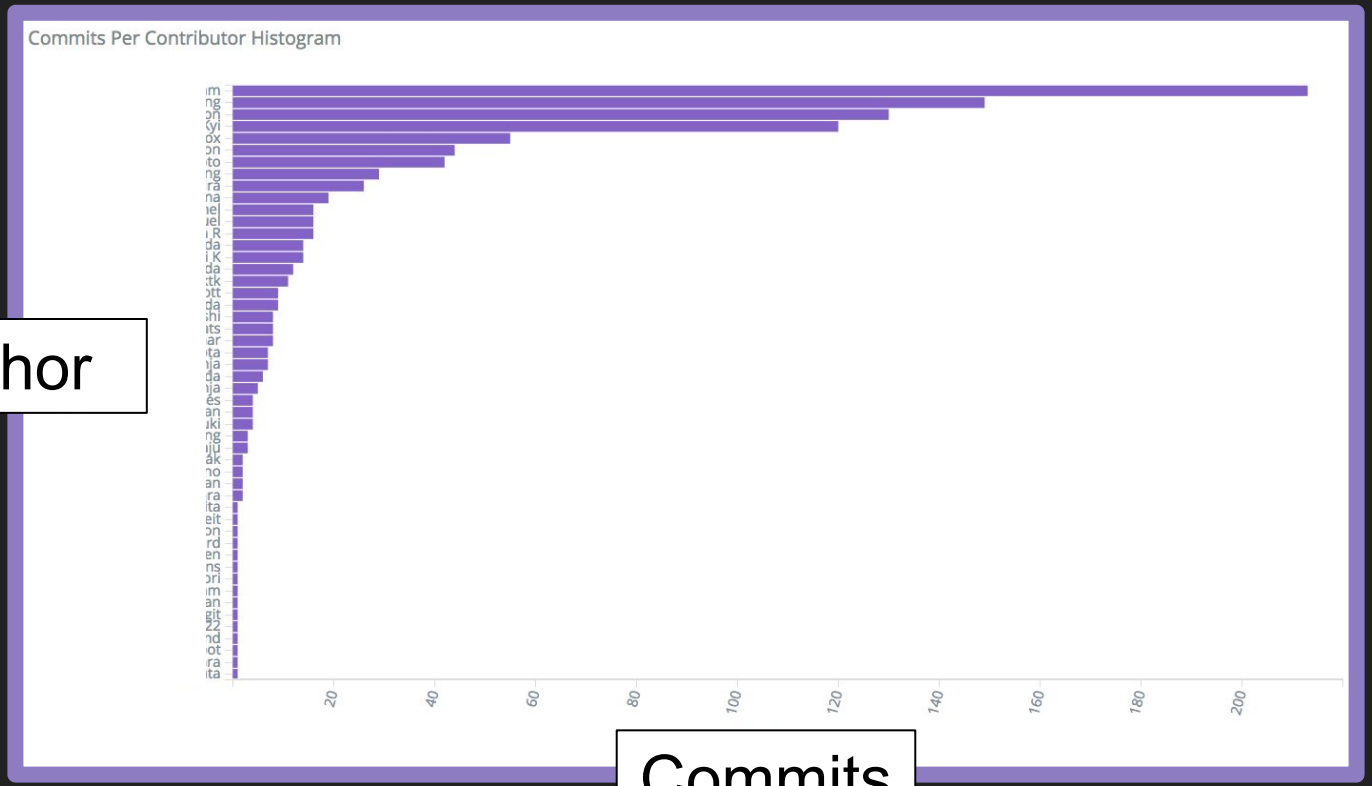

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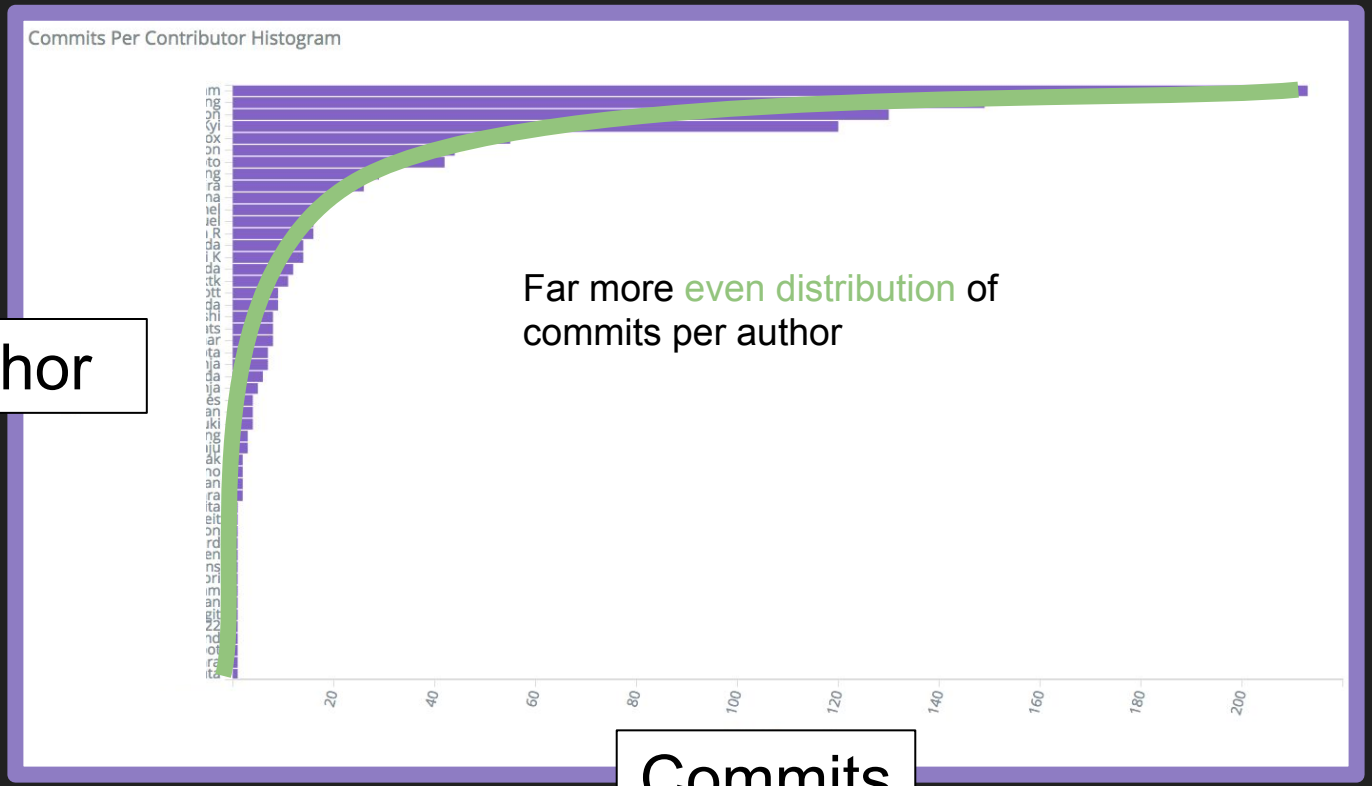

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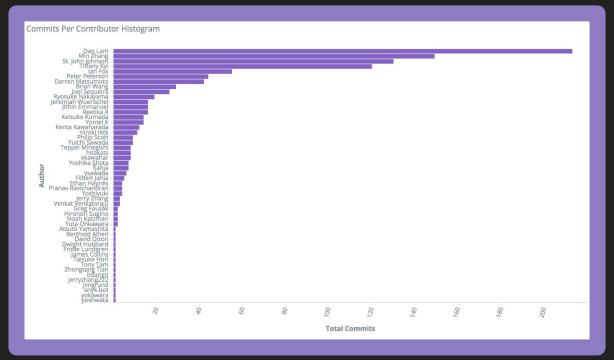
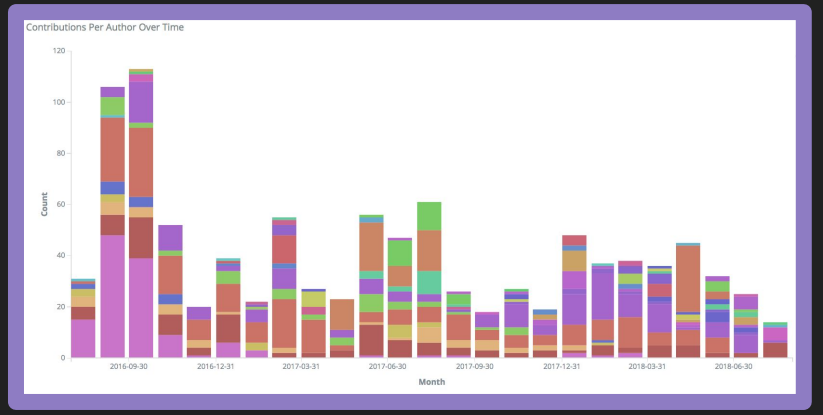
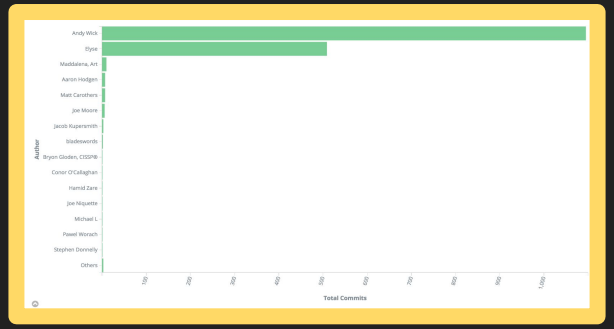
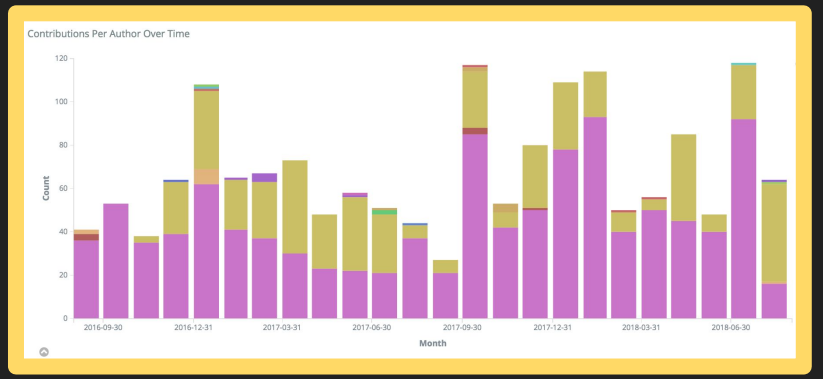


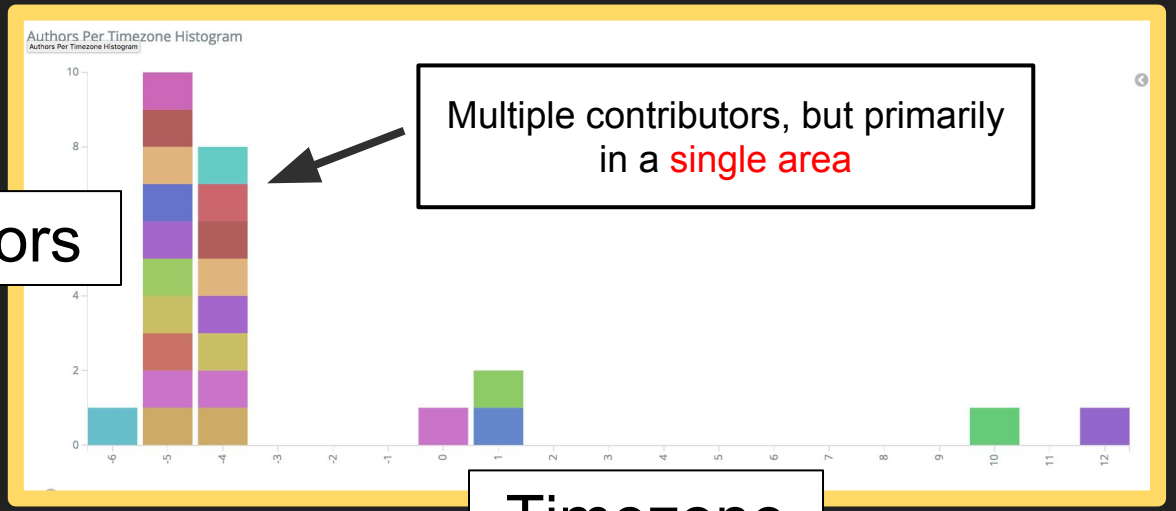






Oath:

Author Distribution: Timezone



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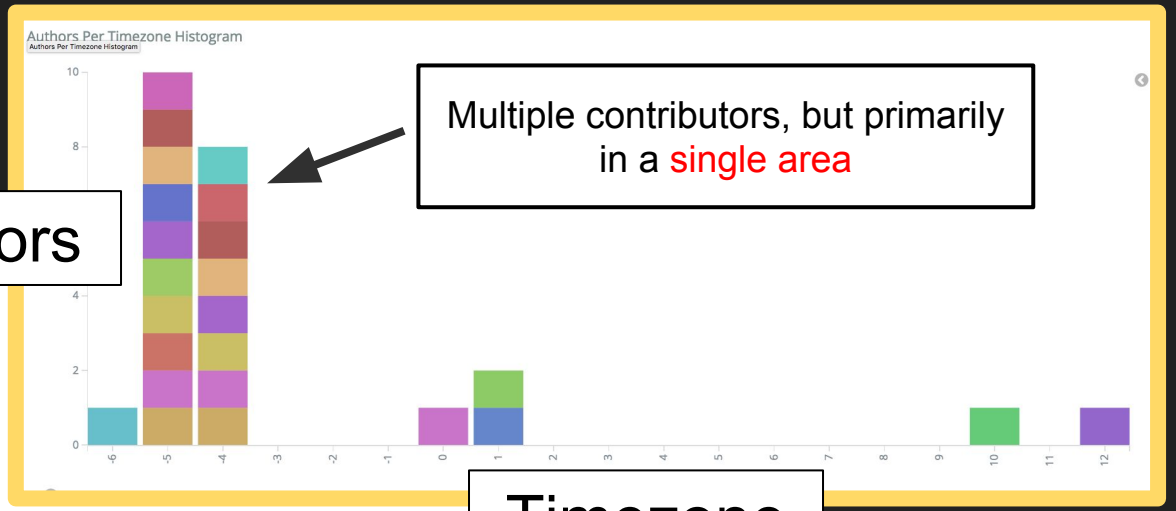
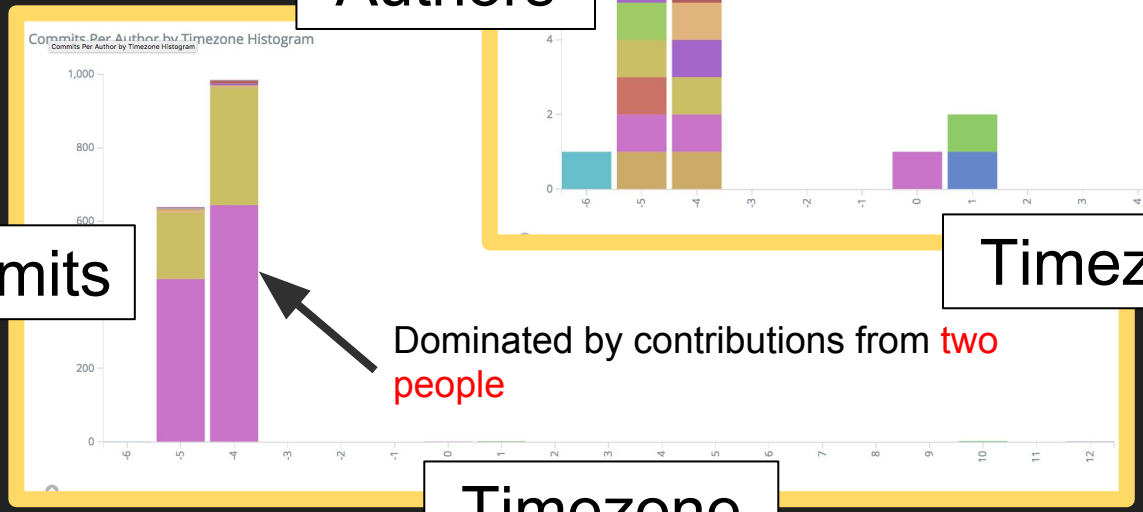


Multiple contributors, but primarily in a single area

Authors

Timezone



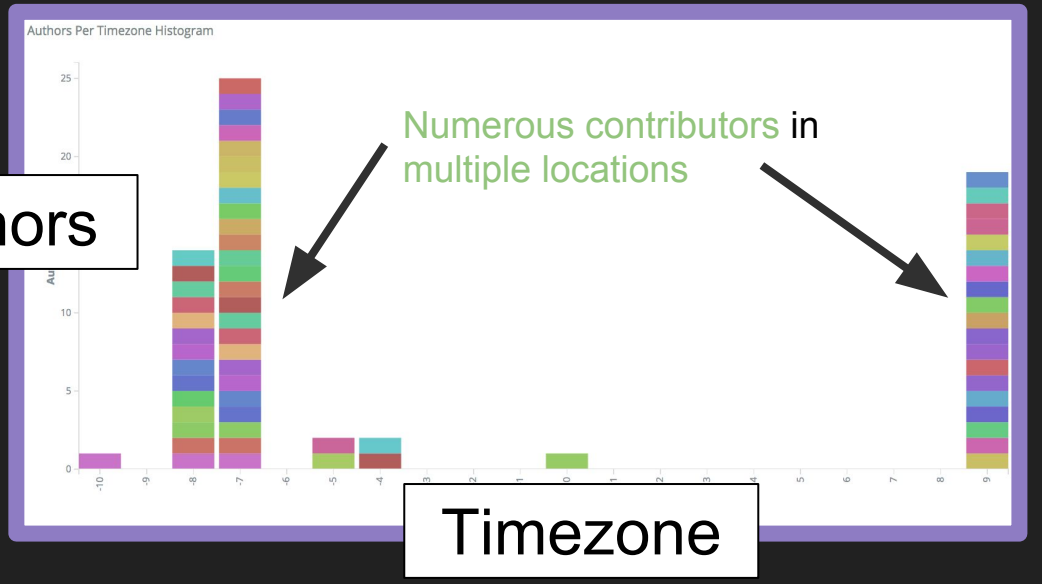
Commits

Dominated by contributions from two people

Timezone

Oath:

Author Distribution: Timezone



Oath:

Author Distribution: Timezone

React Intl: Contributor Distribution

Oath:

React Intl: Contributor Distribution

Regular participation from community members

Oath:

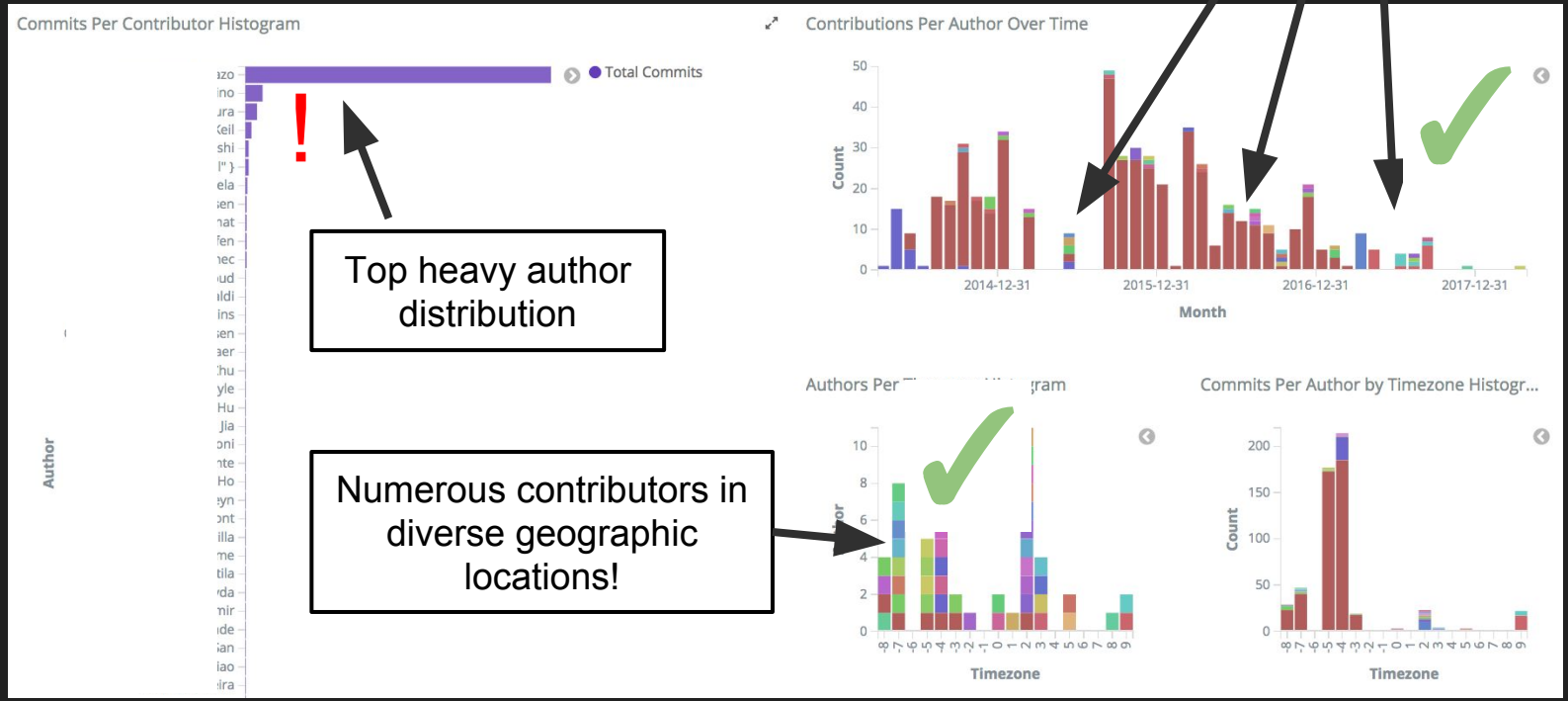
React Intl: Contributor Distribution

Regular participation from external community

Oath:

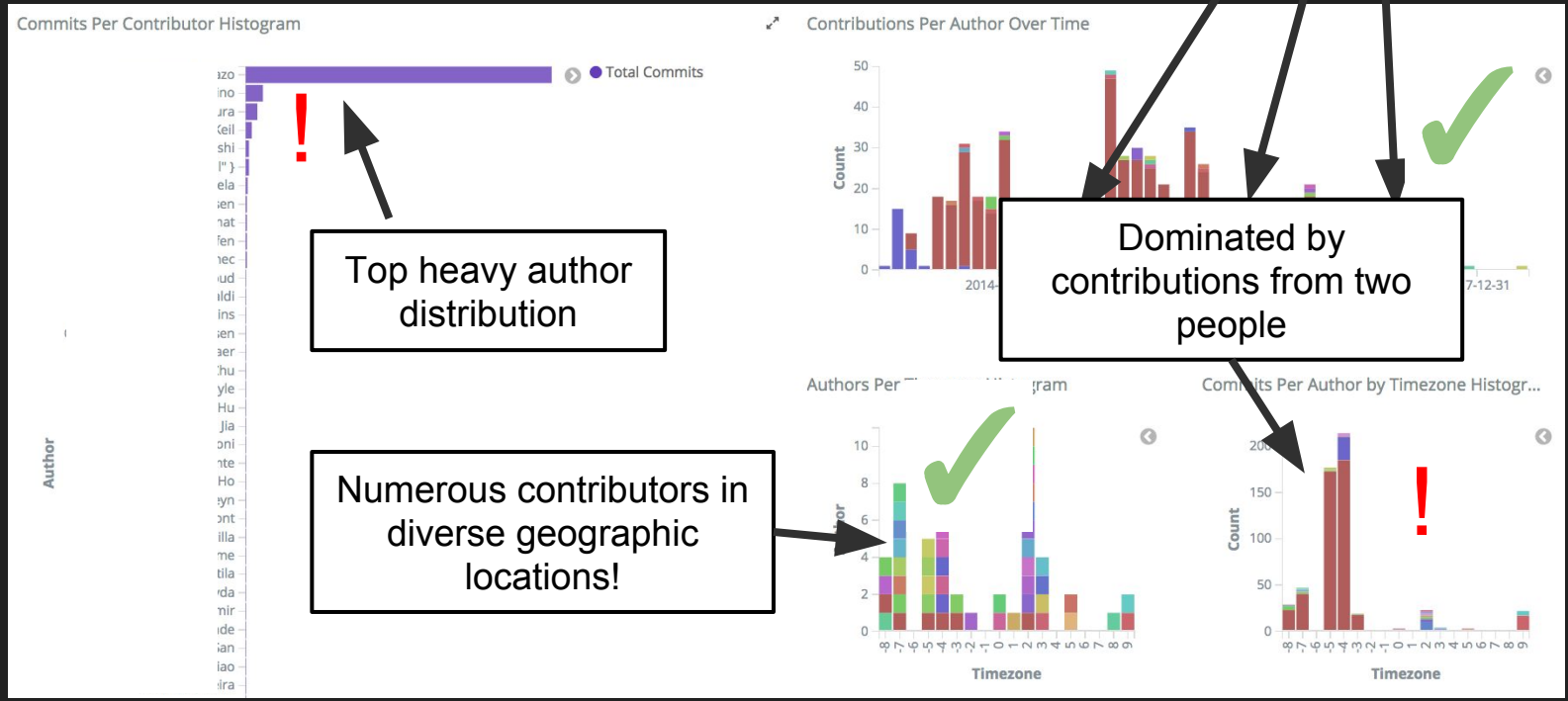
React Intl: Contributor Distribution

Regular participation from external community



Oath:

React Intl: Contributor Distribution



Oath:

React Intl: Contributor Distribution

React Intl has a history of contributions from a diverse developer community

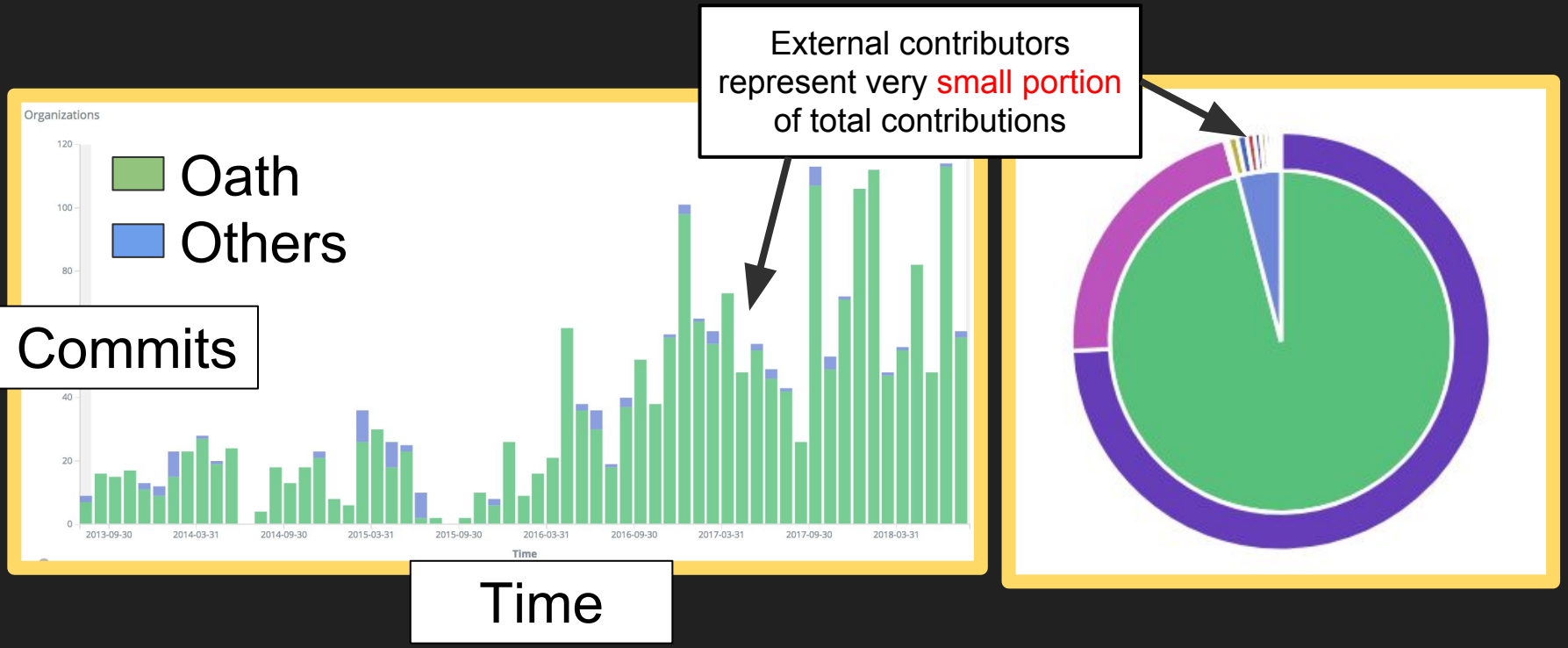
However, most people never made more than 1 contribution

Oath:

Organizational Distribution

Oath:

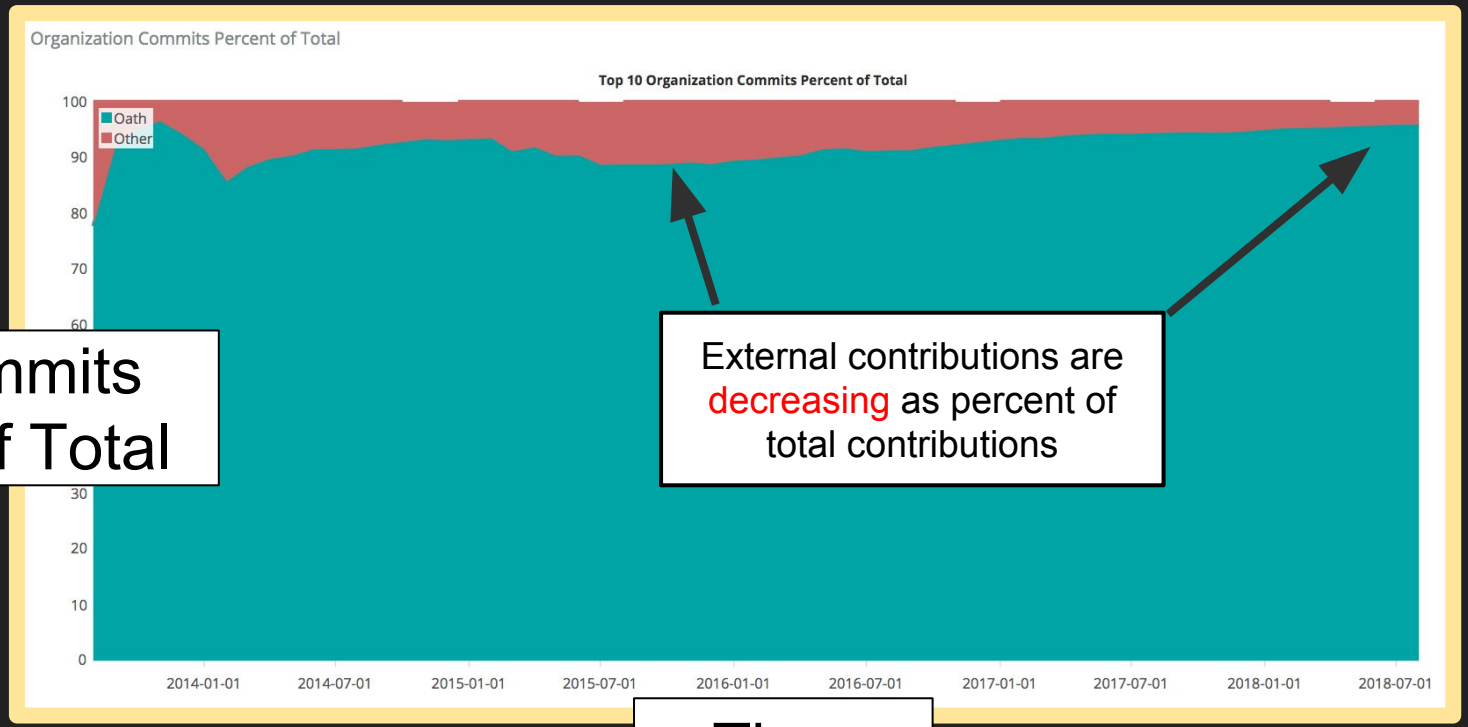
Organization Commits



Oath:

Organizational Diversity Over Time

Oath
Others



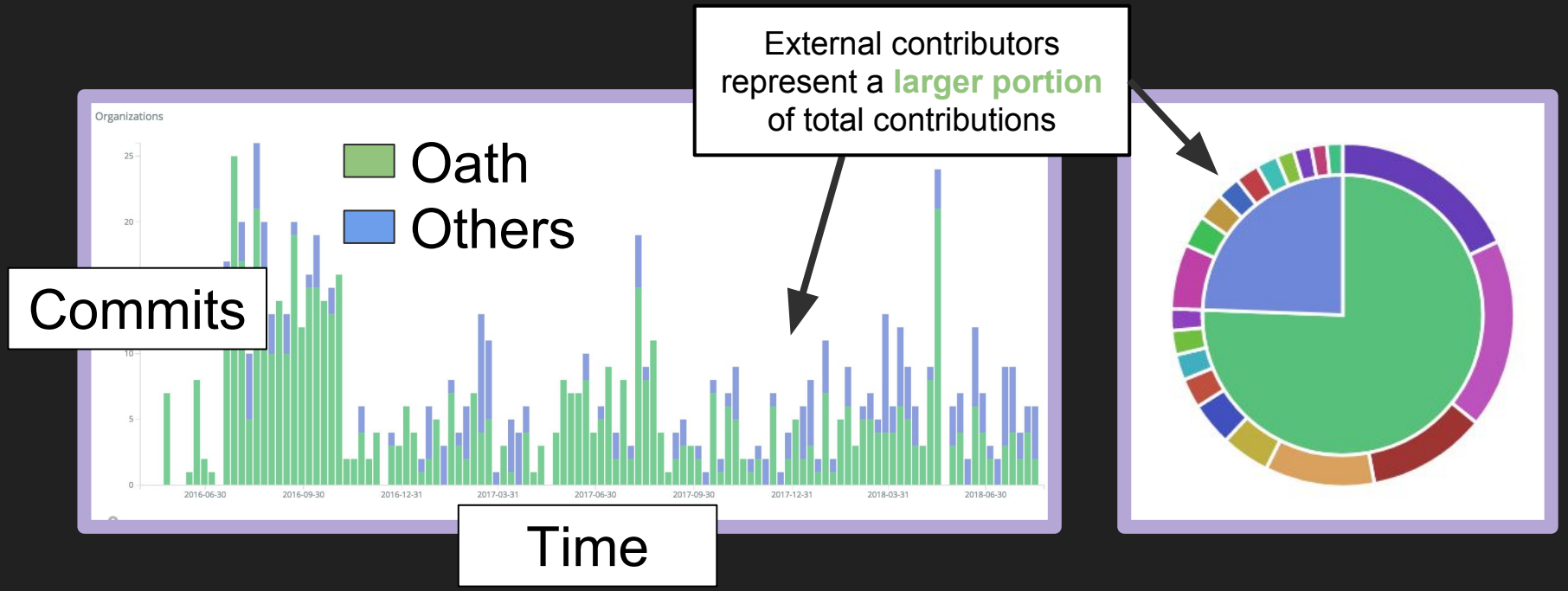
Commits (% of Total

External contributions are decreasing as percent of total contributions

Time

Oath:

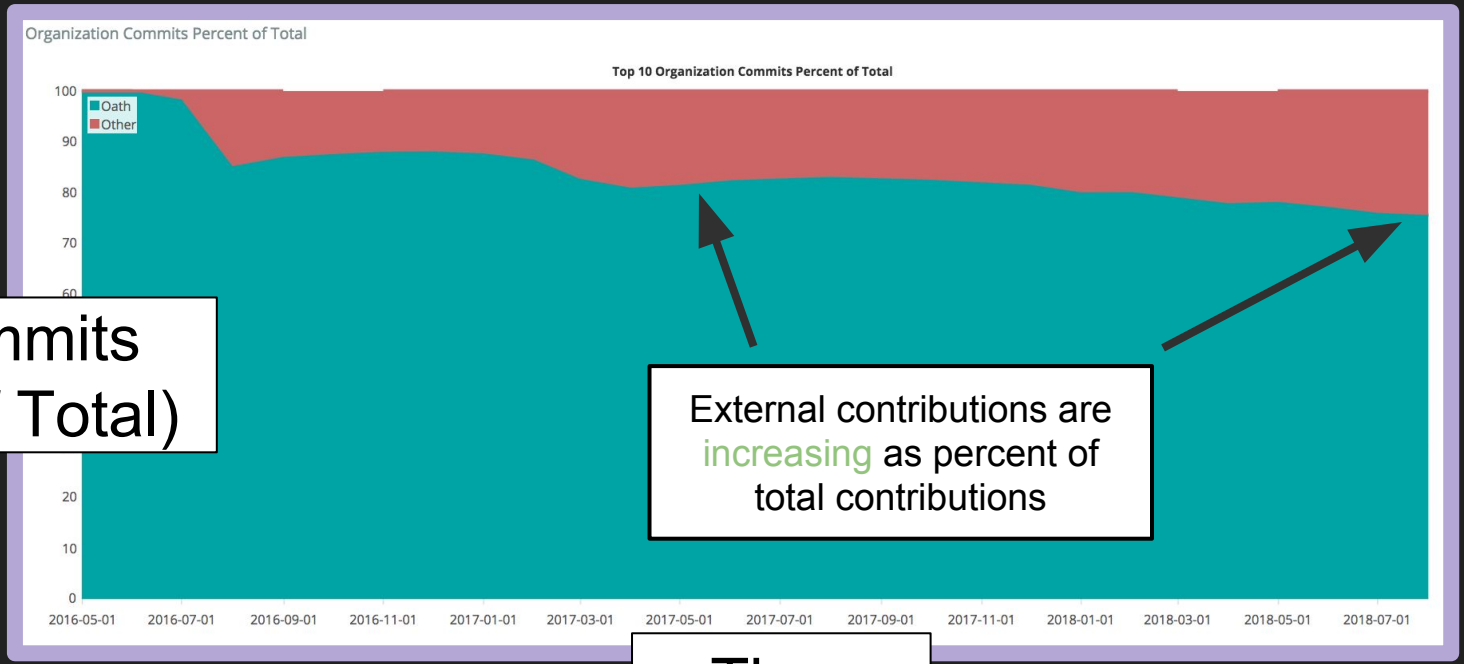
Organization Commits



Oath:

Organizational Diversity Over Time

Oath
Others



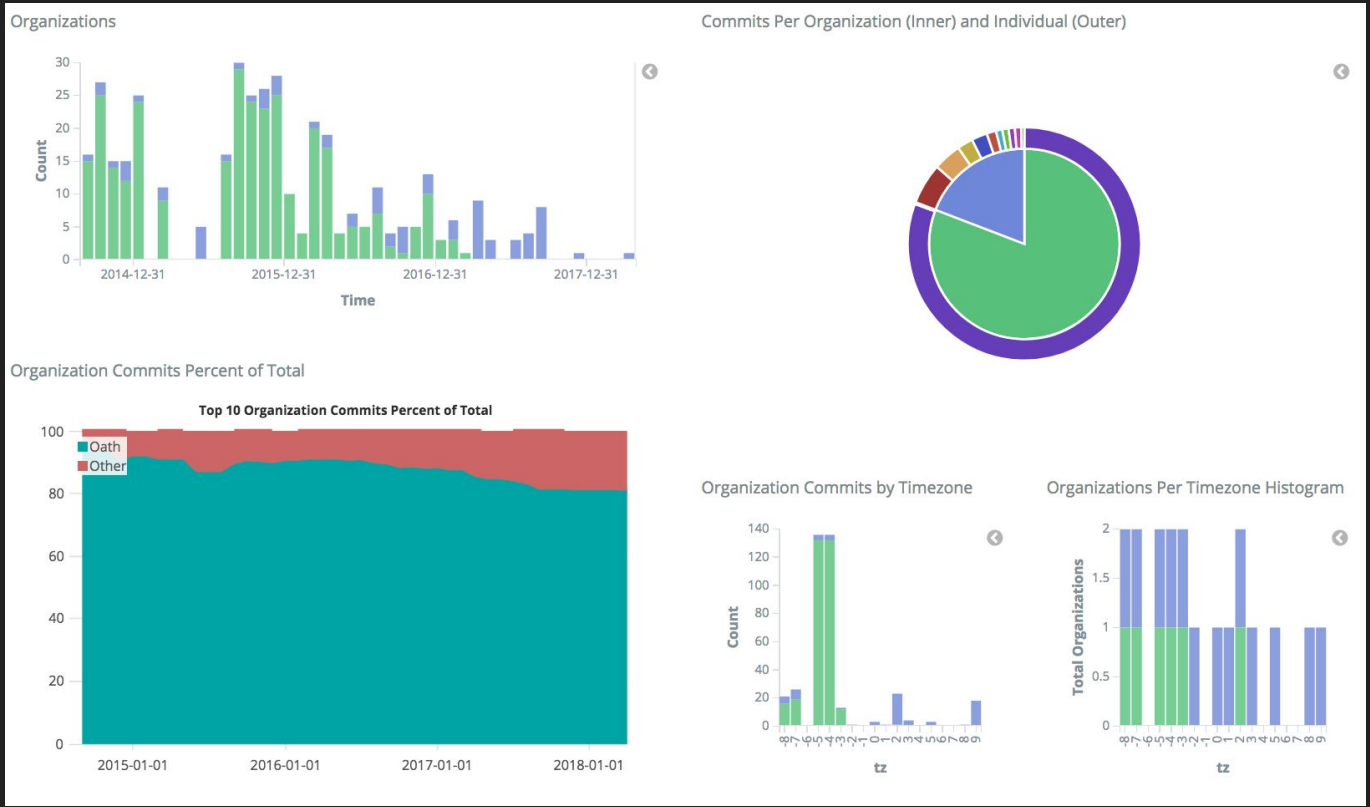
Commits
(% of Total)

External contributions are increasing as percent of total contributions

Time

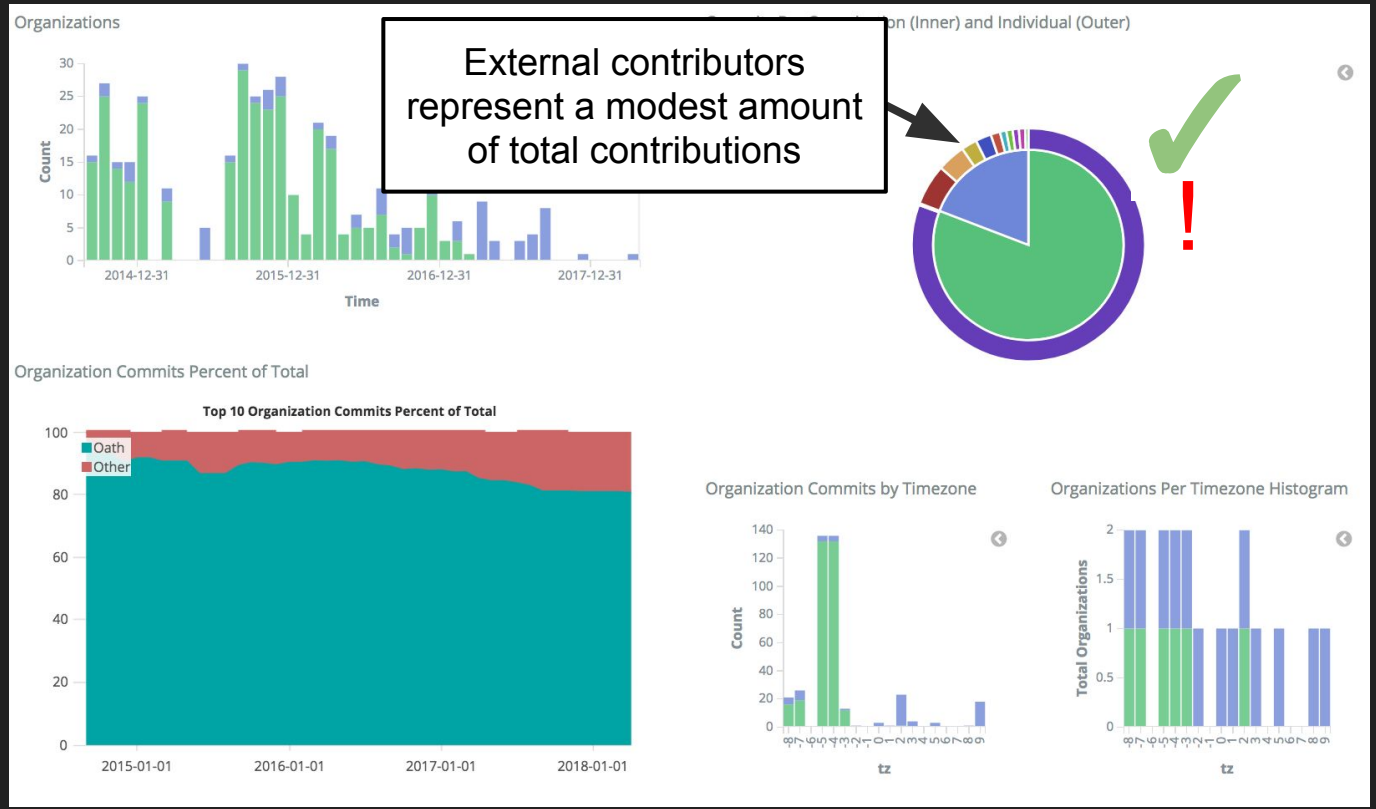
Oath:

React Intl: Organizational Diversity



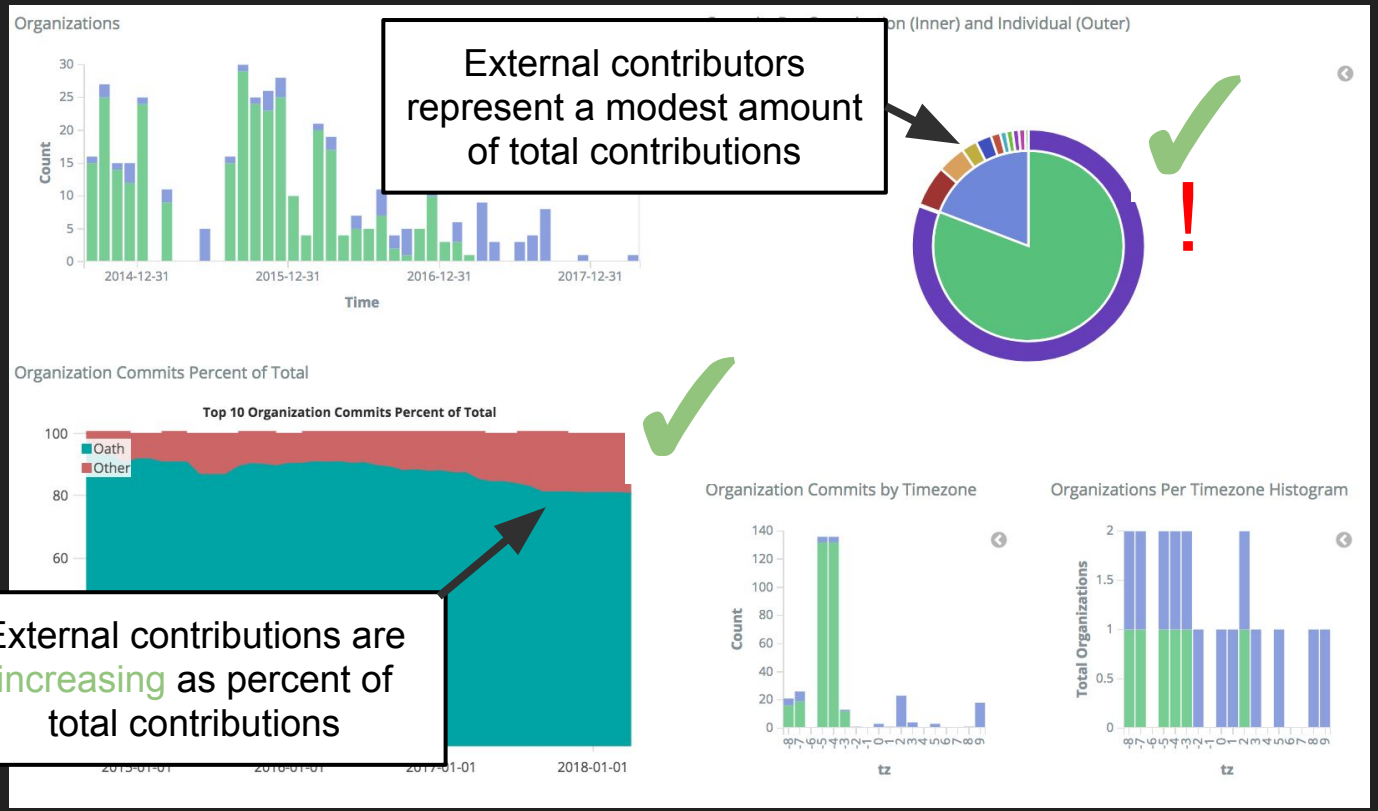
Oath:

React Intl: Organizational Diversity



Oath:

React Intl: Organizational Diversity



Oath:

React Intl: Organizational Diversity

React Intl had an increasing rate of external participation relative to internal participation.

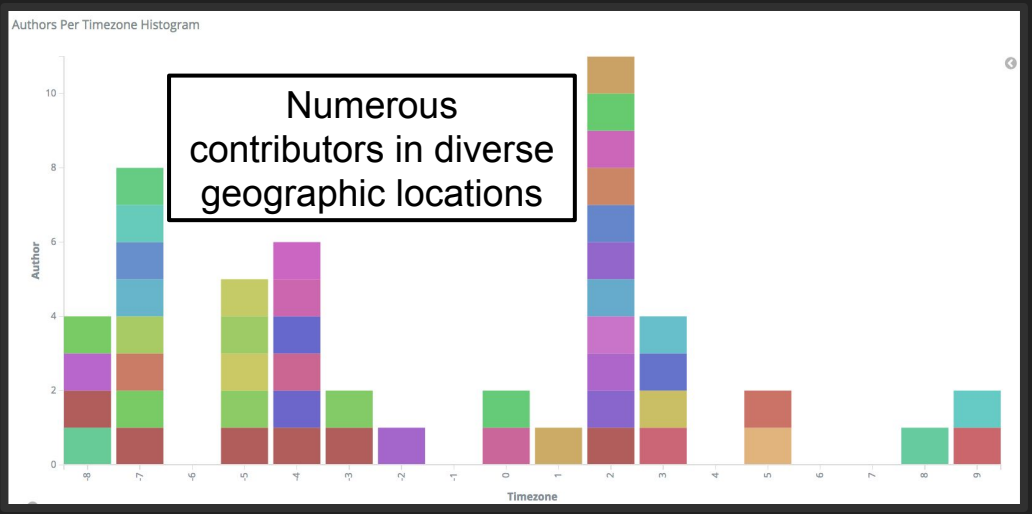
However, it never reached critical mass to hit a sustainable level of external participation

Oath:

How to Save React Intl

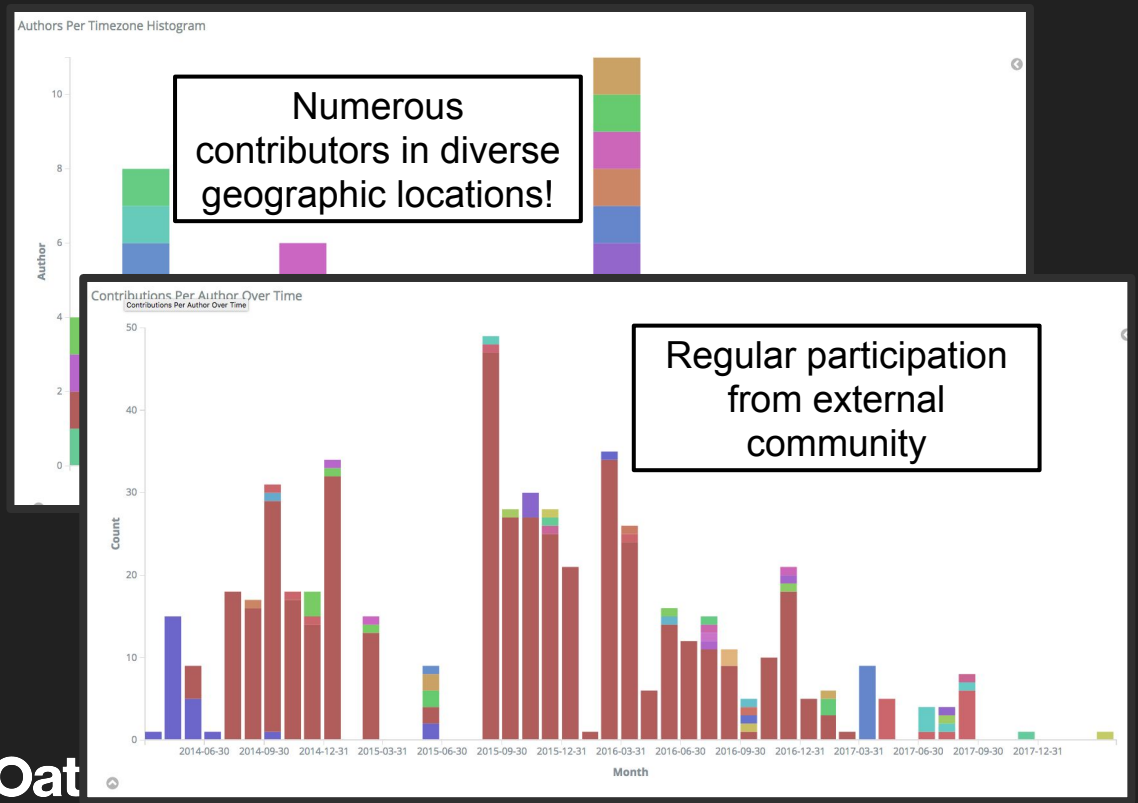
Oath:

What Works?



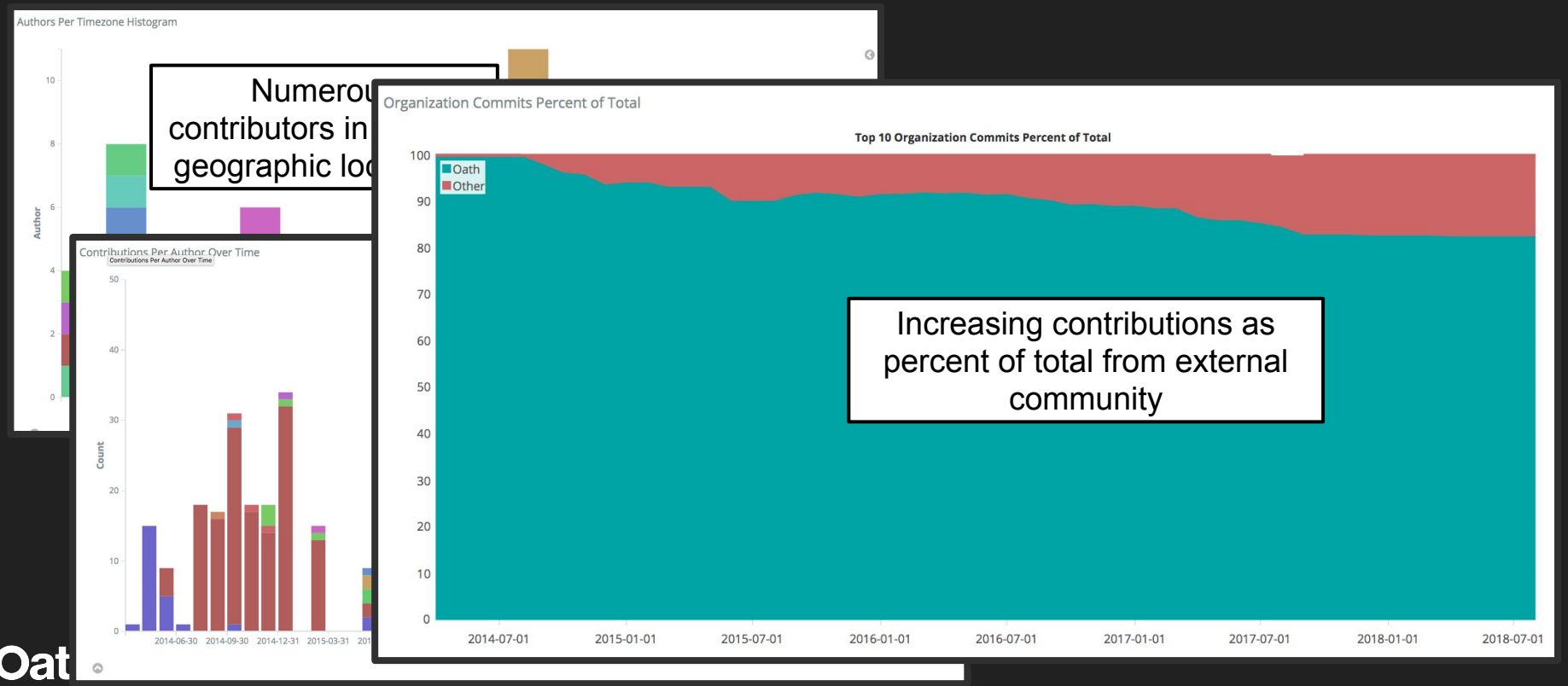
Oath:

What Works?



Oat

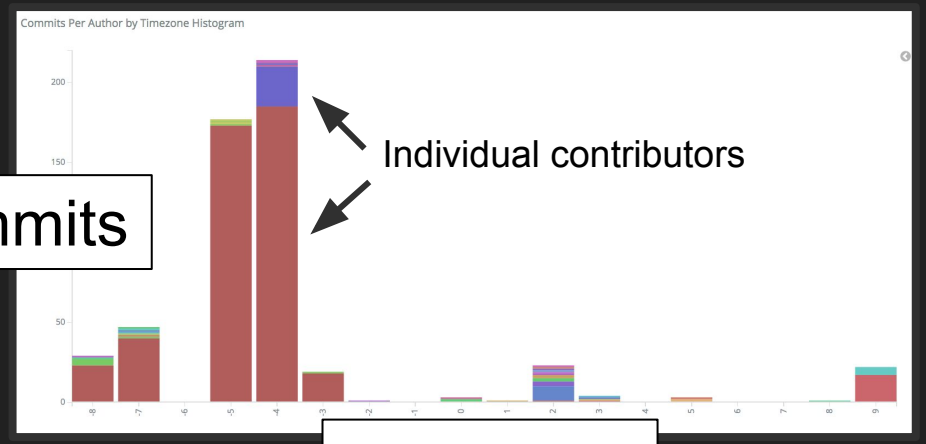
What Works?



Oat

How to Save React Intl

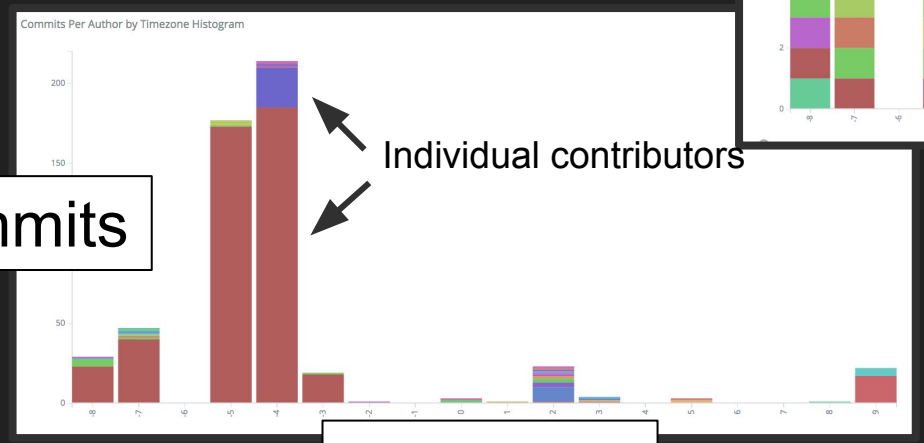
Make this

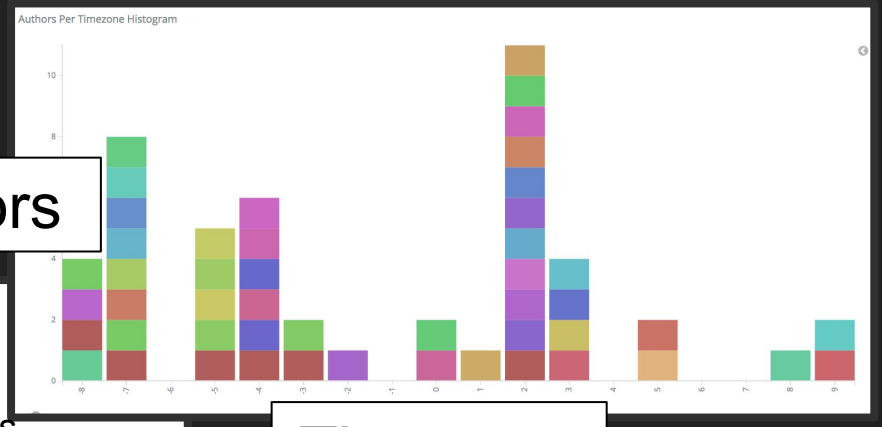


Oath:

How to Save React Intl

Make this



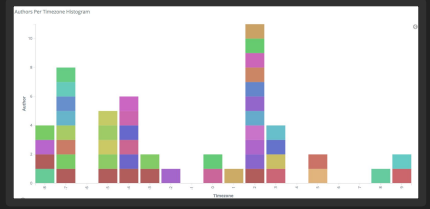


Look more like this

Oath:

How to Save React Intl

1. Evaluate the individual / organizational distributions to identify existing developer communities



Oath:

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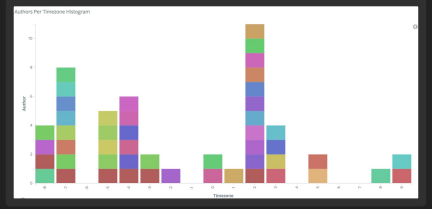
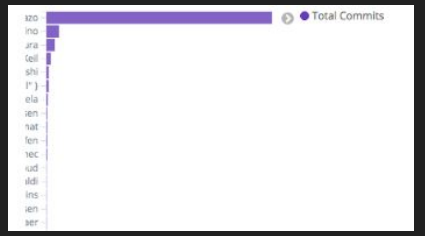
1. Evaluate the individual / organizational distributions to identify existing developer communities
2. Identify internal experts to bridge with external participants and cultivate a stronger community

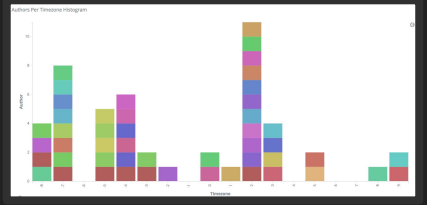


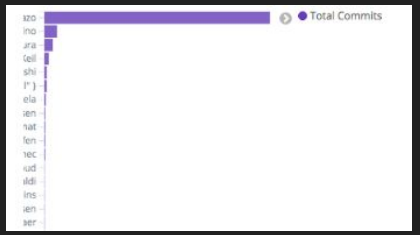


Oath:

How to Save React Intl

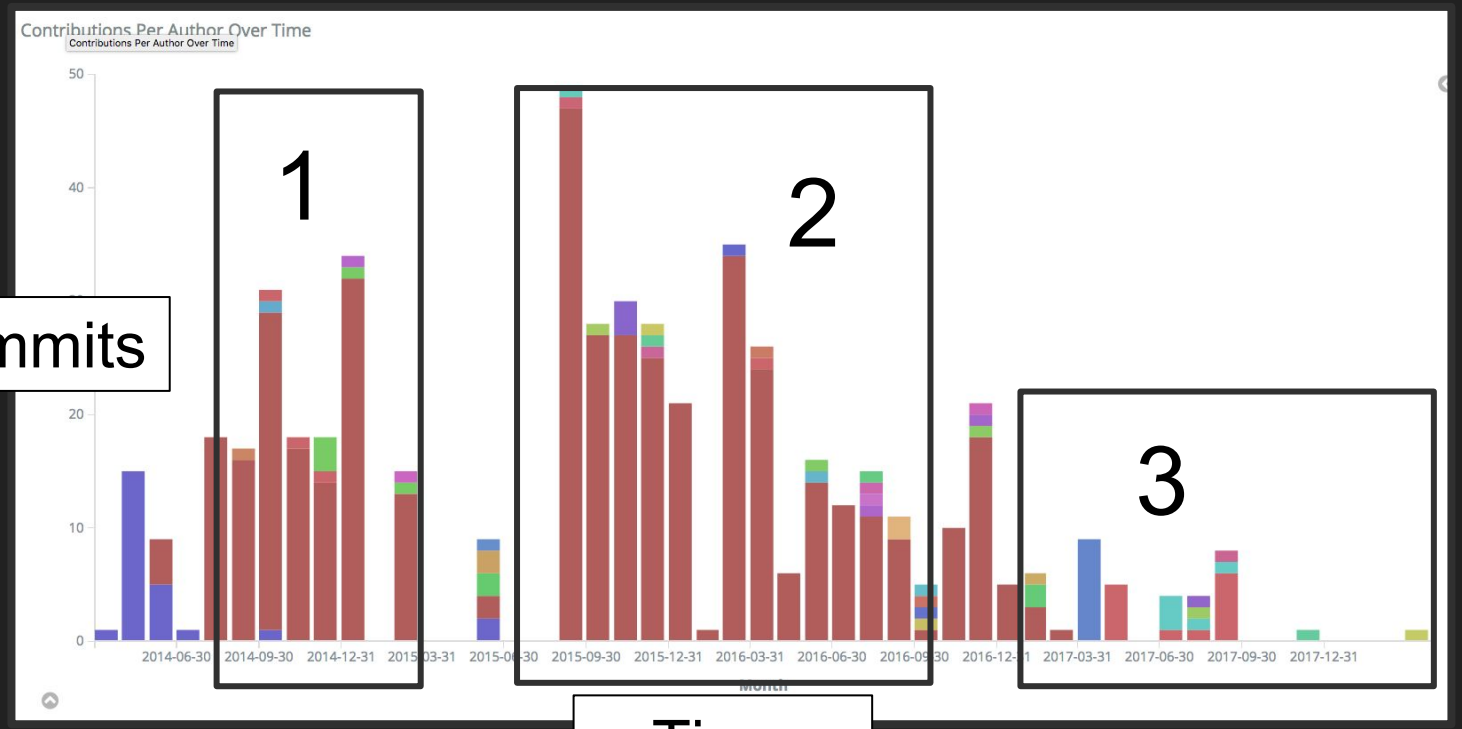
1. Evaluate the individual / organizational distributions to identify existing developer communities
2. Identify internal experts to bridge with external participants and cultivate a stronger community
3. Set alarms to notify proper authorities when certain health metric thresholds are crossed (for emergency use only!)





Oath:

Three Steps for Rescue



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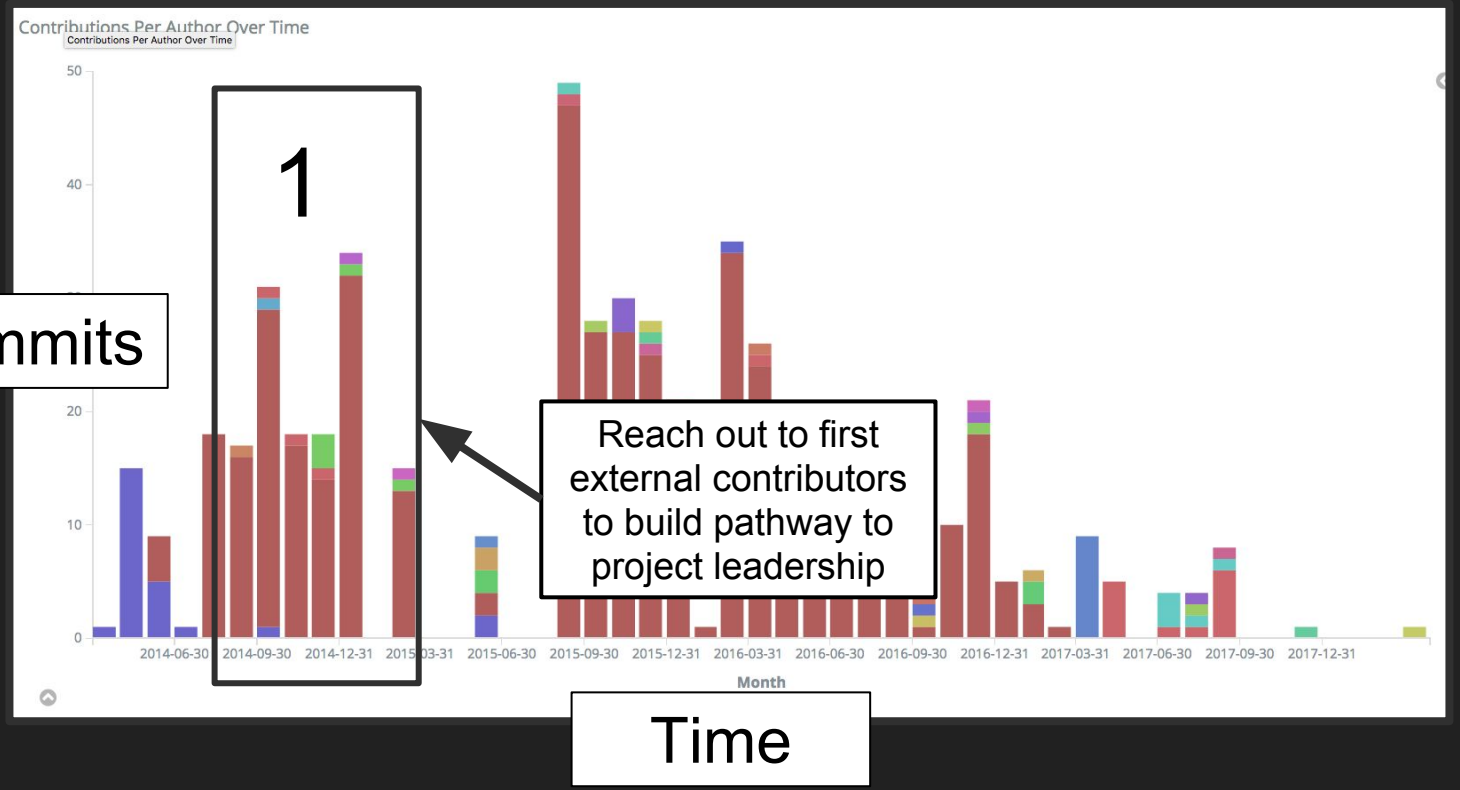

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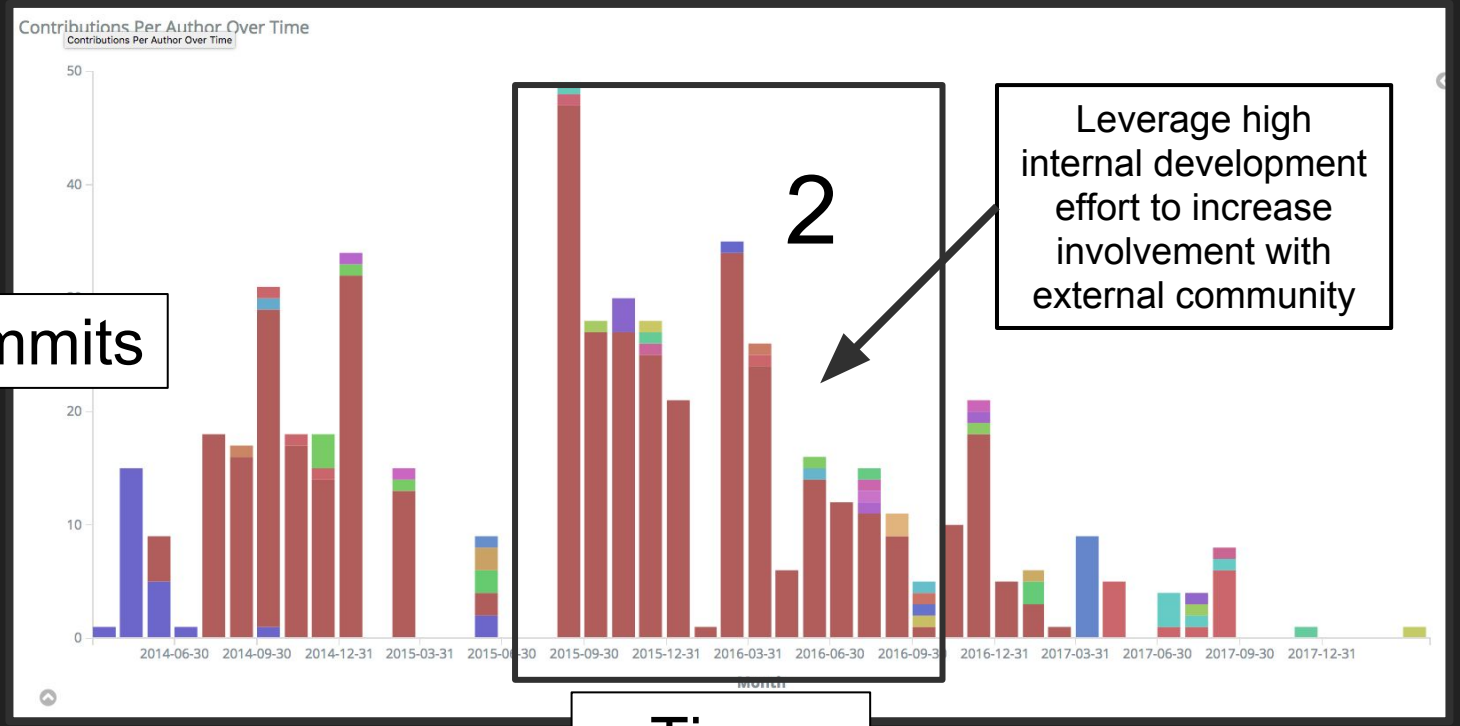

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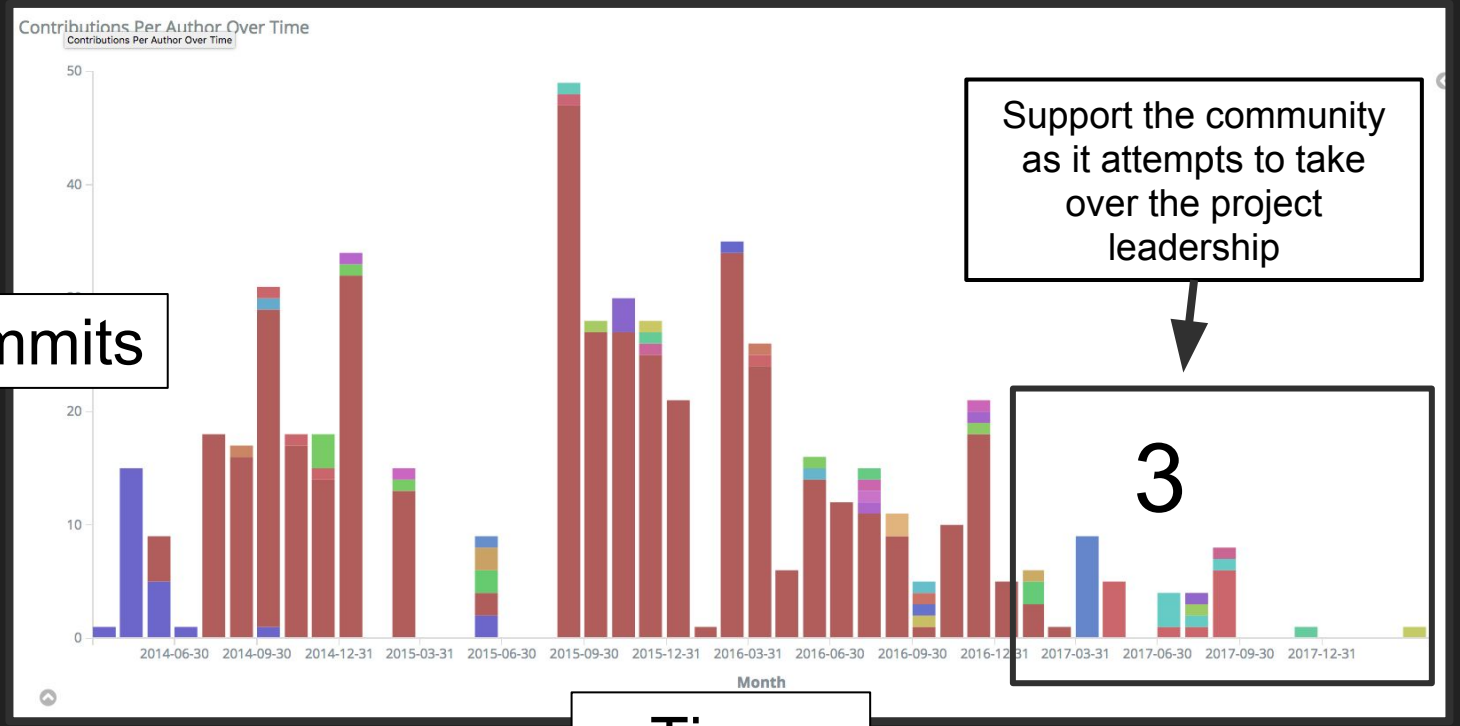

Oath:

The Plot Twist

There are still a ton of internal and external developers who use and want to contribute to this project

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There are still a ton of internal and external developers who use and want to contribute to this project

Maybe it’s not too late!

Oath:

What Does this Mean for You?

Extracting More Value from Open Source Metrics

The Goal:

- Quickly gather vital information to better monitor projects for specific problems.
- Use the right data to better communicate how and where resources should be directed to better leverage open source software

Oath:

Extracting More Value from Open Source Metrics

Metric sets like these could be useful for a variety of individuals

- Community Managers
- OSPO teams
- Development Managers
- Strategists
- Software Architects
- Etc.

Oath:

Let’s Work Together!

I want to collaborate with the CHAOSS community to build more informative visualization sets that help us better communicate the value of our efforts.

I’ve published all of the dashboards from this talk at http://github.com/BenLloydPearson/grimoirelab-dashboards

P.S. I’m more than willing to grant this project to the CHAOSS community when it’s ready ;-)

Oath:

Let’s Work Together!

I need help to make this awesome

- What is the best way to classify and organize these metric sets?
  - Profession, purpose, goal
- What other metric sets are useful for monitoring vital health metrics?
  - Development backlog management, dependence on individual developers
- What other metric sets could help identify and solve specific problems?
  - Building better organizational partnerships, identifying project risks
- How can we better combine data sources to produce more context?
  - Evaluating the effects of events on development pace, contributor distribution, organizational distribution.

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Thanks!

http://github.com/BenLloydPearson/grimoirelab-dashboards

Oath:

Check out our open source projects too!

- https://github.com/yahoo/react-intl
- https://github.com/aol/moloch
- https://github.com/screwdriver-cd

Oath: