

## Insights into Crypto Community Governance: A Case Study of the DASH Masternode Proposal System

### Overview and Problem Statement

*Our proposal seeks to fulfill an information gap within the crypto community regarding governance structures by performing statistical analysis on the DASH voting system, its patterns and the proposals submitted for deliberation.*

To date, many established cryptocurrencies leverage improvement proposals: Bitcoin through its BIPS, Ethereum through EIPs, but neither have a fully formed governance structure that tracks proposals and their votes on an immutable blockchain. Unlike the aforementioned coins, DASH, a fork of Bitcoin created in 2014, utilizes masternodes to facilitate and maintain governance through a decentralized autonomous organization. The DASH network's vision openly states that it seeks to "increase financial freedom and opportunity for everyone, by providing the easiest-to-use payments-focused blockchain network". To accomplish this, the Dash Decentralized Autonomous Organization (DAO) solicits and funds projects monthly to further this mission. Through the DAO, these masternodes are presented with proposals and vote on which are to be funded from a dedicated portion of the block rewards generated during that time period. It is the desire of the masternode owners to approve proposals that will further the development and adoption of the DASH cryptocurrency. DASH's DAO has considered over 500 proposals across a broad range of categories that have spanned multiple countries, yet there has not been a comprehensive statistical analysis on these projects, nor the DASH governance structure itself. This is despite DASH having the longest active formal masternode governance structure in the entire crypto-ecosystem. We seek to provide clarity into the project selection and masternode governance processes. Through an understanding of how DASH structures its governance, we ultimately hope to provide insights into possible best practices for securing and improving democratic activities within the entire cryptocurrency ecosystem.

### Preliminary Analysis

As a proof of concept, we've collected data from existing DASH resources [dashninja.pl](http://dashninja.pl), [dashcentral.org](http://dashcentral.org), and [dashnexus.org](http://dashnexus.org) to perform a preliminary analysis to show potential insights that can be garnered from our efforts. This section more practically outlines the types of questions regarding cryptocurrency governance that, by understanding the DASH system, can be insightful for others seeking to secure their networks through decentralized democratic voting systems. At the end of this section, a list is included of other questions that will be answered using the data collected from the sources above. We hope this section also provides evidence of our expertise, desire, and commitment to completing this research.

### Preliminary Questions

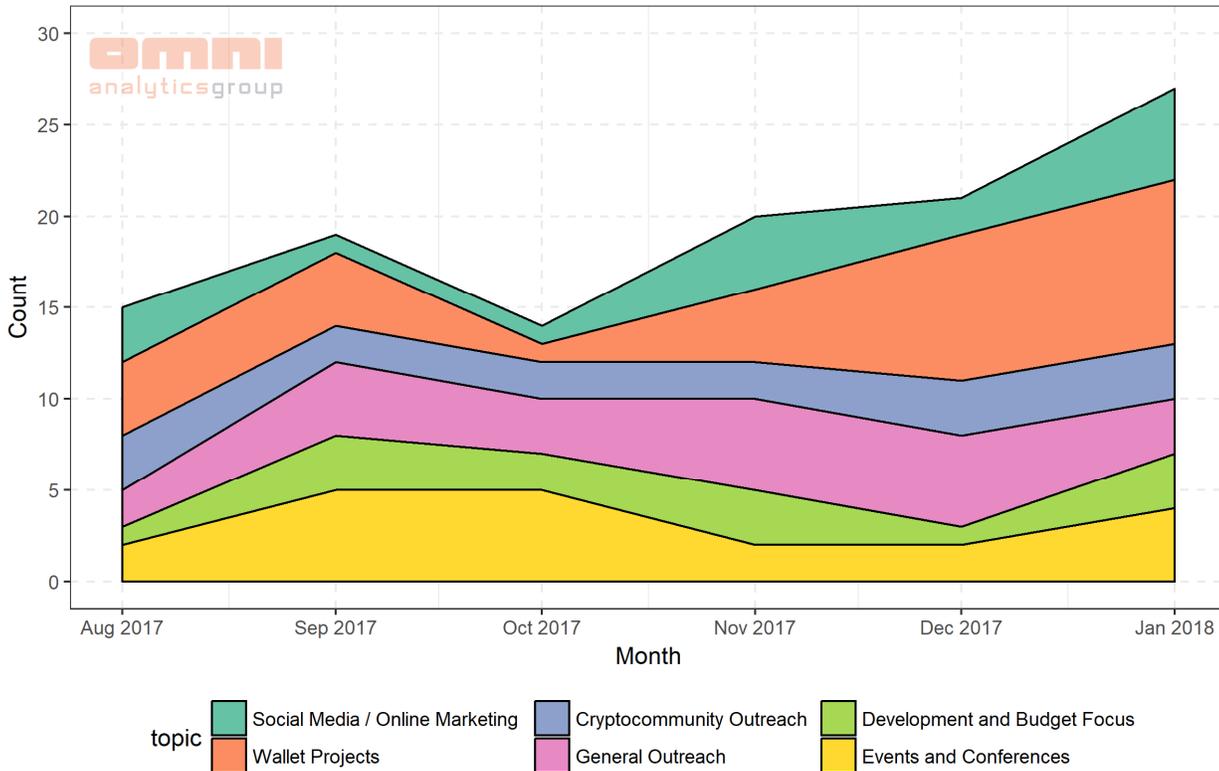
#### On Governance Proposals

Question: Without the benefit of labeled categories, can we analyze the text within proposals to determine what types of projects are being submitted to DASH over time?

Answer: Yes. A preliminary Natural Language Processing analysis identified six primary types of projects we've \*tentatively\* labelled as "Social Media / Online Marketing", "Wallet Projects", "Cryptocommunity Outreach", "General Outreach", "Development and Budget Focus", and "Events and Conferences". The number of proposal submissions per month has increased over the last year, and when we look per category, "Wallet Projects" (marketing projects which a specific emphasis on adoption) has been the focus more recently.

## Topic Distribution

Aug 2017 to Jan 2018 \*

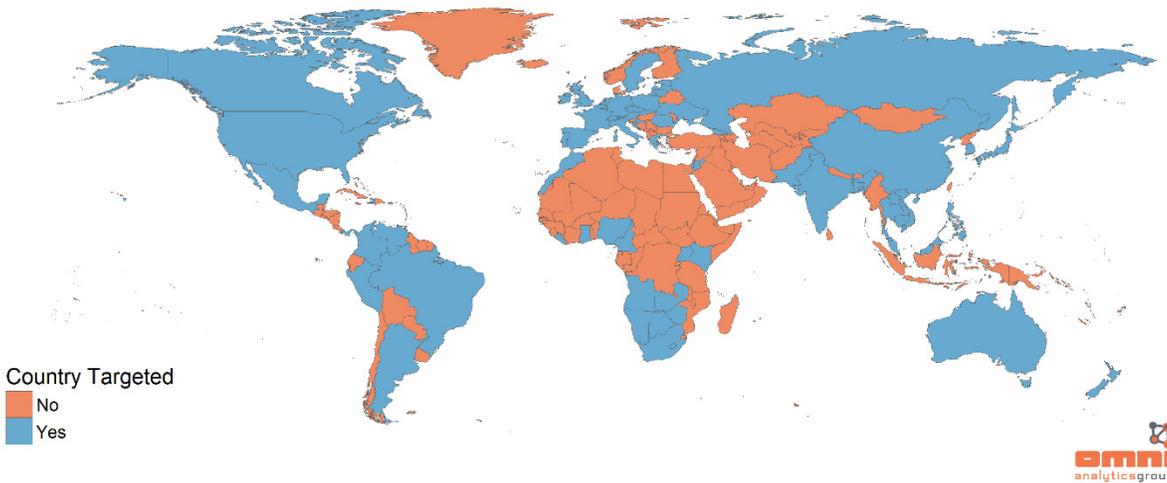


\* Some proposals removed due to data irregularities

Contact: @OmniAnalytics

Question: With marketing taking such an emphasis, are there any geographical locations that have not been targeted?  
 Answer: Yes. Preliminary analysis suggests that there are opportunities to increase adoption across the continent of Africa, the Middle East, and southern Asia and the lower part of South America.

## Map of Countries Targeted by DASH Marketing Proposals

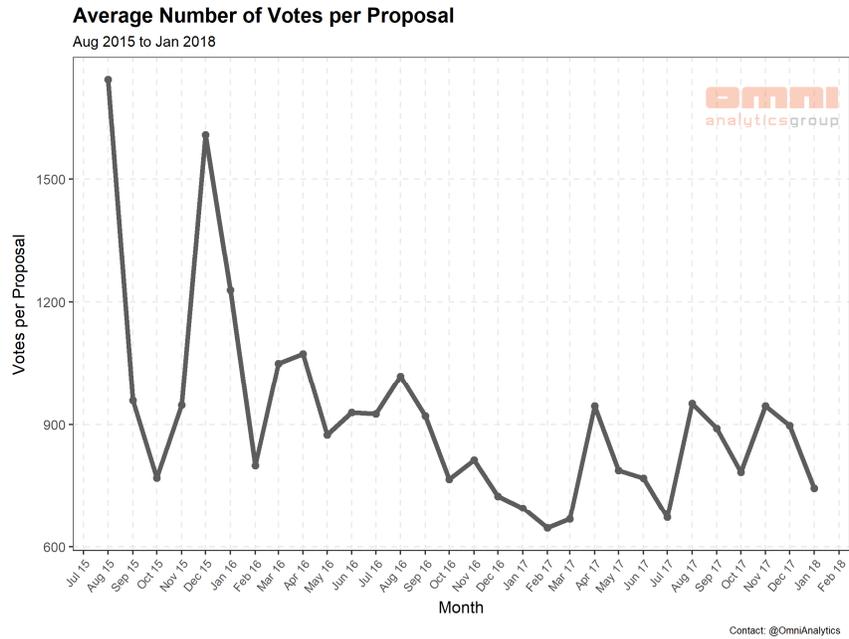


## On Governance Activity

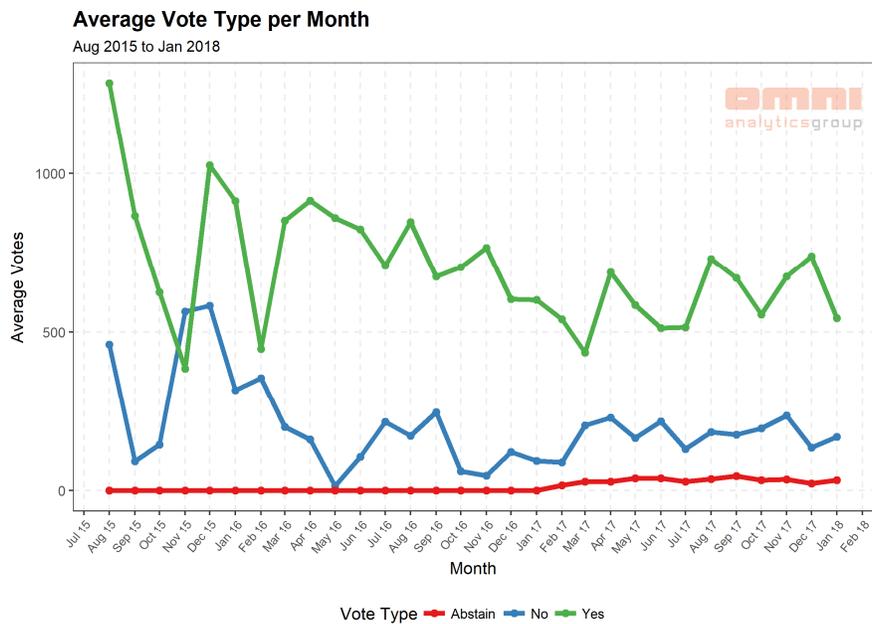
Question: Previous analysis has shown that the number of proposal submissions have been increasing over time, has masternode engagement followed this trend?



Answer: Masternode engagement, as measured by the number of votes per proposal, has decreased over time, but has begun to recover as of February of last year.



Question: How does this decreased engagement show itself if we observed the actual voting categories?  
 Answer: The actual votes cast show a universal decrease in the number of "Yes" and "No" votes cast, with a slight increase of "Abstain" votes over time. This suggests that some masternodes are not abstaining from voting, but have disengaged from the voting process completely.

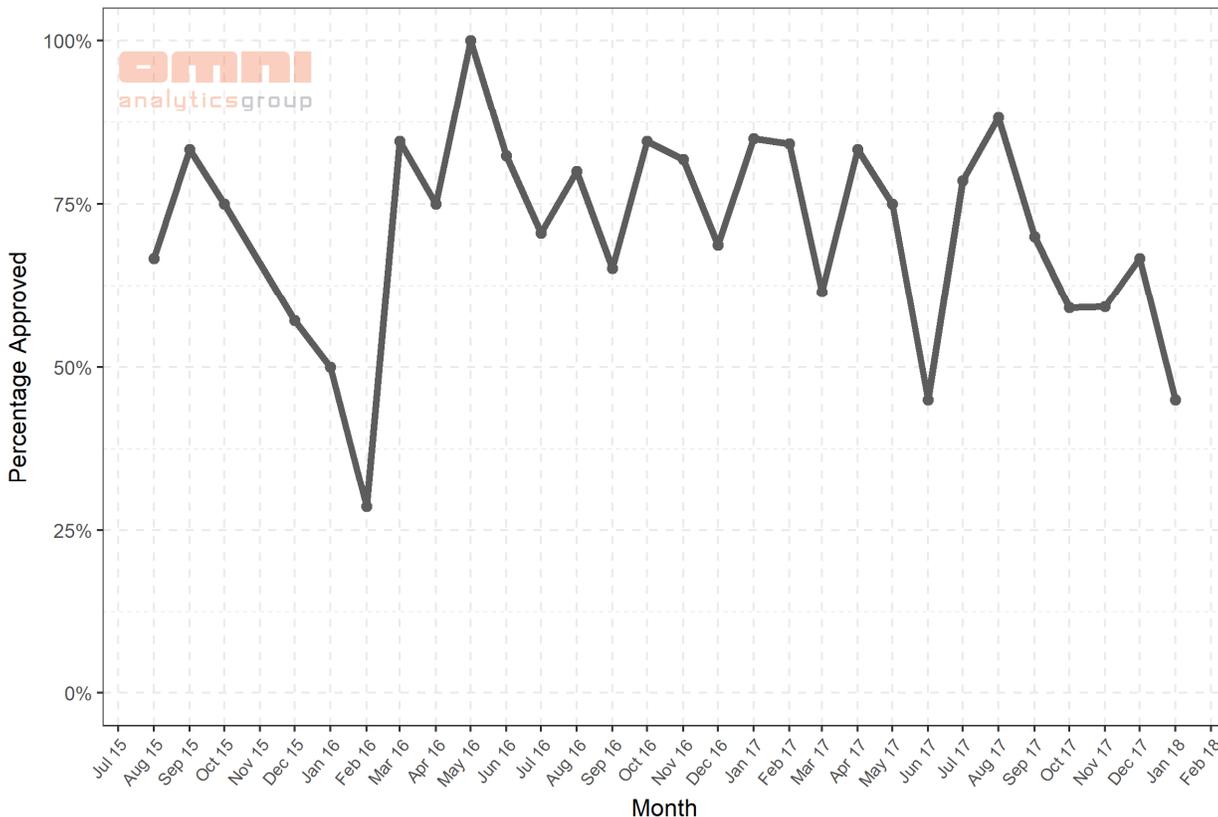


Question: How has monthly proposal approval percentages changed across time?  
 Answer: Project submissions have had a 69% approval rating across time, with a slightly downward trend over the past year.



## Percentage of Approved Proposals

Aug 2015 to Jan 2018



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The analysis we've conducted thus far shows promise and motivated the submission of this proposal. With the data we've identified, we're comfortable answering the following questions in a full analysis:

- **How has masternode engagement and voting changed overtime?**
- **How susceptible is the governance voting system to 51% or other majority-spoof based attacks?**
- **What kinds of proposals are being submitted each month?**
- **What regions have DASH proposals focused on?**
- What percentage of projects are approved (and rejected)?
- What's the average duration of proposed projects?
- What the number of unique proposal owners?
- What's the total number of funded projects?
- What's the total sum of DASH (USD) spent?
- What's the average cost of funded and unfunded projects?
- What is the average number of monthly payments in DASH (USD) for both funded and funded projects?
- What proportion of the budget is being allocated to those categories per month?
- What proportion of those categories are being approved?
- Are there certain types of projects the governance system is biased towards?
- How likely are proposals to be approved that are submitted by first-time owners?
- Has the amount of proposal funding changed across time?

### Deliverables, Timeline and Milestones

At the conclusion of the study, we'll provide the Lykke Research Hub and larger crypto-community with a snapshot of the data collected, a reproducible report written in R hosted on Github, and an executive summary of all the findings. The proposed analysis will take two months to complete, with major milestones set at the end of the data collection stage, the analysis phase, and lastly at delivery construction.

## Who we are

Omni Analytics Group is a boutique data science consulting company consisting of PhD experts in the fields of statistics, computer science, economics and operations research. We've worked with several Fortune 500 companies and smaller businesses on multiple data science projects. Recently our time has been dedicated to working within the crypto-economy, having been top 10 finishers for the Numer.ai Hedge Fund weekly competition and developers of their R API integration and tournament dashboard. To learn more about our work, please visit <https://crypto.omnianalytics.io/> and for a glimpse of our lighter side, please follow us @omnianalytics

