

<https://peoplesvaccine.org/>: Coalition of 80+ organisations demanding that COVID-19 vaccines, treatments & tests be freely available to everyone, everywhere. #PeoplesVaccine

# ANALYZING TWITTER DATA FOR MONITORING AND EVALUATION OF A PUBLIC CAMPAIGN

## Case study: Peoples Vaccine Campaign

This case study demonstrates the results from analysing Twitter data streams related to the Peoples Vaccine campaign. The analysis aimed to inform campaign implementation, especially on peaks in Twitter activity, characteristics of 'effective tweets', and (network of) main influencers; as well as to inform potential use cases of Twitter data for monitoring and evaluation of a public campaign.

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# 1. Introduction

Social media offer the powerful tool of ‘word of mouth’ to generate public support. Public campaigns reach out to their audience through social media and leverage public support to influence government or private sector policies. As such, public campaigns increasingly play out in the realm of social media and on microblogging platforms such as Twitter. Social media are an integral part of Oxfam’s influencing work as well.

In this digital era, people are creating social media content every day, producing tons of publicly available data (to be specific, in 2021 globally we consumed 79 zettabytes of data). On Twitter alone, users together create 575.000 tweets each minute<sup>1</sup>. In the private sector, social media listening is commonly used to monitor what people are saying about certain brands and to hyper-target consumers. Compared to the private sector, the development sector has only made limited use of the data generated by social media.

Building on an earlier exploratory study<sup>2</sup>, we analysed the potential of Twitter data streams for formative and evaluate research and monitoring of a (public) campaign. We used the Peoples Vaccine campaign as a case study<sup>3</sup>. At the time, the world was amidst the Covid-19 pandemic and a vaccine had just been developed. The Peoples Vaccine campaign advocated for equal access to the Covid-19 vaccines. Oxfam Novib joined the campaign in September 2020. The analysis included tweets from September 2020 until the moment of analysis, July 2021.

This paper presents the results from analysing Twitter data streams related to the Peoples Vaccine campaign. The analysis had two objectives: 1) to inform campaign implementation, especially on peaks in Twitter activity, characteristics of ‘effective tweets’, and (network of) main influencers; and 2) to inform potential use cases of Twitter data for MEAL practices.

The structure of the paper has three sections. In the next section we briefly describe the methodology for this paper. Then, we dive into the results. We close with conclusions and recommendations, both for campaign implementation as well as for MEAL practices.

<sup>1</sup> <https://www.domo.com/learn/infographic/data-never-sleeps-9>

<sup>2</sup> In 2020, we started exploring the potential of Twitter data streams analysis for formative and evaluative research and monitoring of a (public) campaign. Guided by the question “What can we learn from analysing Twitter data streams for the monitoring and evaluation of a campaign playing out in the Twittersverse?” we identified four potential use cases of Twitter data for monitoring, evaluation, accountability and learning (MEAL) practices in the development sector. The paper is published internally. Please reach out to Marieke Meeske ([marieke.meeske@oxfamnovib.nl](mailto:marieke.meeske@oxfamnovib.nl)) to get access to the paper.

<sup>3</sup> <https://peoplesvaccine.org/>

## 2. Methodology

With relative ease and little costs, we harvested all publicly available tweets related to the Peoples Vaccine campaign for the period 1 September 2020 – 28 June 2021<sup>4</sup>. This was done based on content of the tweets and hashtags used. Hashtags to be harvested were identified together with the campaign team, based on which hashtags had been used so far<sup>5</sup>. Content queries were formulated in Dutch and included combinations (and variations) of words that were in line with the Peoples Vaccine campaign messages<sup>6</sup>. Random sample checks were conducted to review if harvested tweets indeed were supportive of the Peoples Vaccine campaign messages. We have screened Oxfam Novib's Twitter timeline to validate the search queries and to ensure that all Peoples Vaccine tweets from Oxfam Novib were included either in the hashtag or content search query.

We kept only those tweets that were written in Dutch language and removed duplicates. In total 18.523 unique Dutch tweets related to the Peoples Vaccine Campaign were harvested.

Twitter users were classified according to four groups based on their username and profile description: 1) *Oxfam corporate* (i.e., "Oxfam" is specified in the username); 2) *Oxfam campaigner* (i.e., "Oxfam" or "oxfam" is specified in the profile description but *not* in the username); 3) *Peoples Vaccine Alliance* (i.e., profile description mentions "PeoplesVaccine" or "NoProfitOnPandemic" (or variations thereof); and 4) *Other* (i.e., anyone else). Few additional accounts which are part of the Peoples Vaccine Alliance, but which did not mention this in their profile description, have been added to group 3 manually. These additional accounts have been identified together with the campaign team.

<sup>4</sup> We used the Academic Research Product Track to get access to the Twitter data. Herewith we could download all publicly available Twitter data from the full archive of tweets for free. For more information on how to harvest tweets, please be referred to the previous working paper which includes a detailed section on the technical aspects of the methodology. Since this paper is published internally, please reach out to Marieke Meeske ([marieke.meeske@oxfamnovib.nl](mailto:marieke.meeske@oxfamnovib.nl)) to get access to the paper.

<sup>5</sup> Hashtags harvested included: #PeoplesVaccine, #peoplesvaccine #noprofitonpandemic, #NoProfitOnPandemic #vaccinongelijkheid, #VaccinOngelijkheid #COVAX, #covax, #Covax, #CTAP, #ctap, #Ctap, #JoinCTAP #Tripswaiver, #tripswaiver, #TripsWaiver, #TRIPSWAIVER, #SamenInActieTegenCorona, #ongelijkheidsvirus, #Ongelijkheidsvirus.

<sup>6</sup> Content queries included: combinations (and variations) of words related to 'kennisdelen & vaccins', 'opschorten & patenten', 'arme landen & vaccins', 'rijke landen & vaccins', 'farma-winsten & toegang', 'winsten & corona', 'ongelijkheid & vaccin', 'vaccins & betaalbaar', 'eigenbelang & vaccins'. With variations we mean different ways of writing a word, for instance 'farma-winsten' and 'farmawinsten'.

# 3. Results

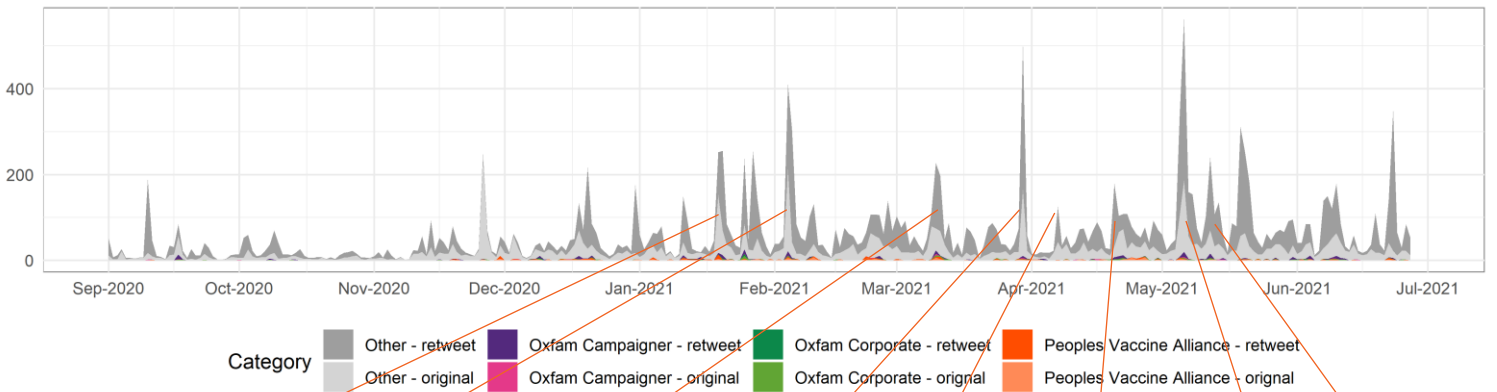
## 3.1 Where do we see peaks?

In Figure 1 below we visualized the timeline of Dutch tweets related to the Peoples Vaccine campaign. We see peaks at various moments, at some dates even reaching 500 tweets a day. Together with the campaign team we have tried to link political events and/or important campaign days to the peaks in Twitter statuses.

Figure 1

### Time series of tweets in Dutch related to the #PeoplesVaccine campaign

Frequency of Twitter statuses calculated in day intervals.



Source: Data collected from Twitter's API v2 via academictwitterR

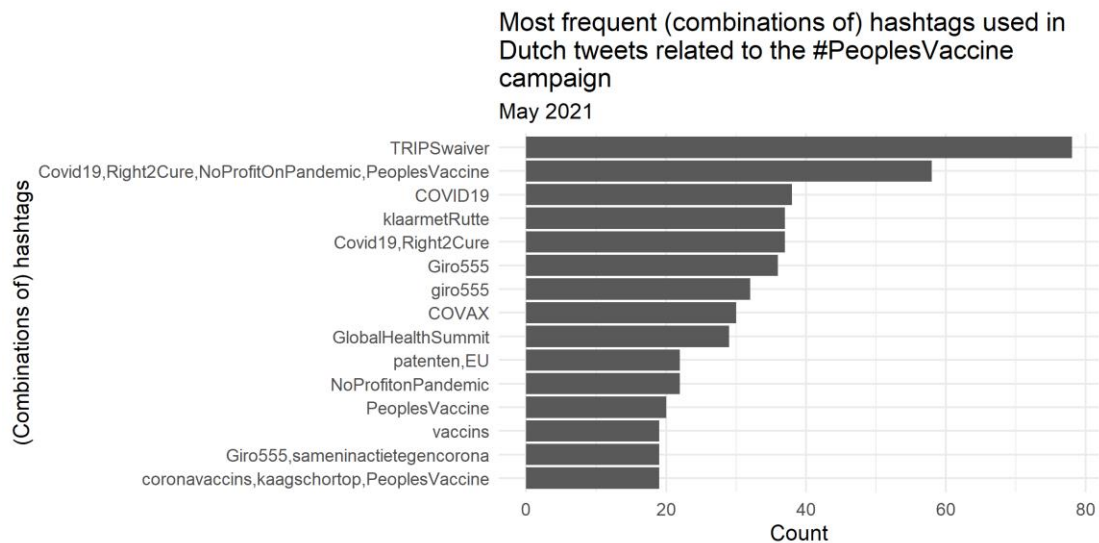
<p>Press release and media attention: <a href="https://www.oxfamnovib.nl/persberichten/vermogen-megarijken-weer-op-pre-corona-hoogte-voor-miljarden-dreigt-decennium-van-armoede">https://www.oxfamnovib.nl/persberichten/vermogen-megarijken-weer-op-pre-corona-hoogte-voor-miljarden-dreigt-decennium-van-armoede</a> (25/1)</p>	<p>Press release and media attention: <a href="https://www.oxfamnovib.nl/persberichten/wereld-wijde-vaccin-schaarste-niet-nodig-als-farmaceuten-vaccin-kennis-delen">https://www.oxfamnovib.nl/persberichten/wereld-wijde-vaccin-schaarste-niet-nodig-als-farmaceuten-vaccin-kennis-delen</a> (04/02)</p>	<p>India and South Africa propose that the WTO waive the application of certain provisions of the TRIPS Agreement for the duration of the pandemic to facilitate wider access to technologies necessary to produce vaccines and medicines. (10/03)</p> <p>+ Press release and media attention: <a href="https://www.oxfamnovib.nl/persberichten/rijke-landen-vaccineren-1-persoon-per-seconde-veel-arme-landen-moeten-nog-starten">https://www.oxfamnovib.nl/persberichten/rijke-landen-vaccineren-1-persoon-per-seconde-veel-arme-landen-moeten-nog-starten</a> (10/03)</p>	<p>Press release and media attention: <a href="https://www.oxfamnovib.nl/persberichten/epidemiologen-waarschuwen-dat-mutaties-huidige-vaccins-spoedig-ineffectief-kunnen-maken">https://www.oxfamnovib.nl/persberichten/epidemiologen-waarschuwen-dat-mutaties-huidige-vaccins-spoedig-ineffectief-kunnen-maken</a> (30/03)</p>	<p>Dr Tedros (WHO) speaks out about vaccine inequality at a Vaccines4All event (07/04)</p>	<p>Stakeholder meetings Pfizer &amp; Johnson &amp; Johnson (Twitter Storm) (22/04)</p> <p>+ E-newsletter to 100.000 Oxfam Novib supporters: <a href="https://www.oxfamnovib.nl/nieuws/oxfam-heeft-aandelen-in-big-pharma">https://www.oxfamnovib.nl/nieuws/oxfam-heeft-aandelen-in-big-pharma</a> (22/04)</p>	<p>US declare to support a WTO Waiver of COVID-19 Intellectual Property (TRIPS Waiver) (05/05)</p>	<p>Indonesia declares to support a WTO TRIPS Waiver (10/05)</p> <p>+ International Nurses Day (12/05)</p>
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What we learn from looking at the timing of the peaks is that they mainly follow the political momentum. For instance, the biggest peak is around 5 May 2021, the moment US trade representative Katherine Tai declared that the United States would support a patent waiver on Covid-19 vaccines to boost their production and distribution around the world.

We also see peaks around press releases of the Peoples Vaccine Alliance, but there is the question of causality: likely it is the political momentum influencing the date of press release which in turn triggers the conversations on social media, rather than press releases of the Peoples Vaccine Alliance on its own.

Furthermore, Figure 1 shows that especially in the month of May it is very active on Twitter. In this month, the most frequently used hashtag is #TRIPSWaiver (Figure 2)<sup>7</sup>. This confirms the conclusion that peaks follow the political momentum.

**Figure 2**



Note that hashtags are case sensitive. For instance, Figure 2 shows that Twitter registers #Giro555 and #giro555 as a different hashtag. Hence, when trying to become 'trending' on Twitter, it helps to be consistent in spelling.

### 3.2 What are characteristics of 'effective tweets'?

In total, Oxfam Novib posted 82 original tweets in the harvested period. On average, each tweet from Oxfam Novib received 7 retweets. Three tweets stood out in terms of engagement. These are included in Table 1 below.

**Table 1**

Date	Tweet	Engagement
31/05/21	Retweet this! 🙌 @AstraZeneca will you suspend your vaccine patents and share technology & know-how to ensure that everyone, everywhere is safe from COVID-19? We need a #PeoplesVaccine, not a profit vaccine. <a href="https://t.co/KT84vnGVZR">https://t.co/KT84vnGVZR</a>	123 retweets 40 replies 194 likes 5 quotes
28/04/21	Retweet: @SigridKaag, roep namens Nederland op tot het opschorten van patenten op coronavaccins! Collega's in de VS, Italië en Spanje gingen u al voor. Nederland moet meewerken aan beschikbaarheid van meer vaccins wereldwijd 📝 <a href="https://t.co/Zvz0kxpbM4">https://t.co/Zvz0kxpbM4</a>	76 retweets 43 replies 76 likes 10 quotes
04/06/21	📌 4 mythes over vaccinpatenten waar de NLse regering zich aan vasthoudt ontkracht. 8-9 juni is de volgende WTO top over de #TRIPSWaiver. @hugodejunge @SigridKaag @NLinGeneva, roep namens Nederland op voor het tijdelijk opschorten van vaccinpatenten! <a href="https://t.co/fpWa3FAEcq">https://t.co/fpWa3FAEcq</a>	123 retweets 7 replies 126 likes 8 quotes

These three 'effective tweets' have some features in common:

1. They specifically call for action, such as retweeting;

<sup>7</sup> Note that around one in four tweets use hashtags.

2. They tag other Twitter users, like Dutch politicians;
3. Their timing follows political momentum.

### 3.3 Who are the influencers?

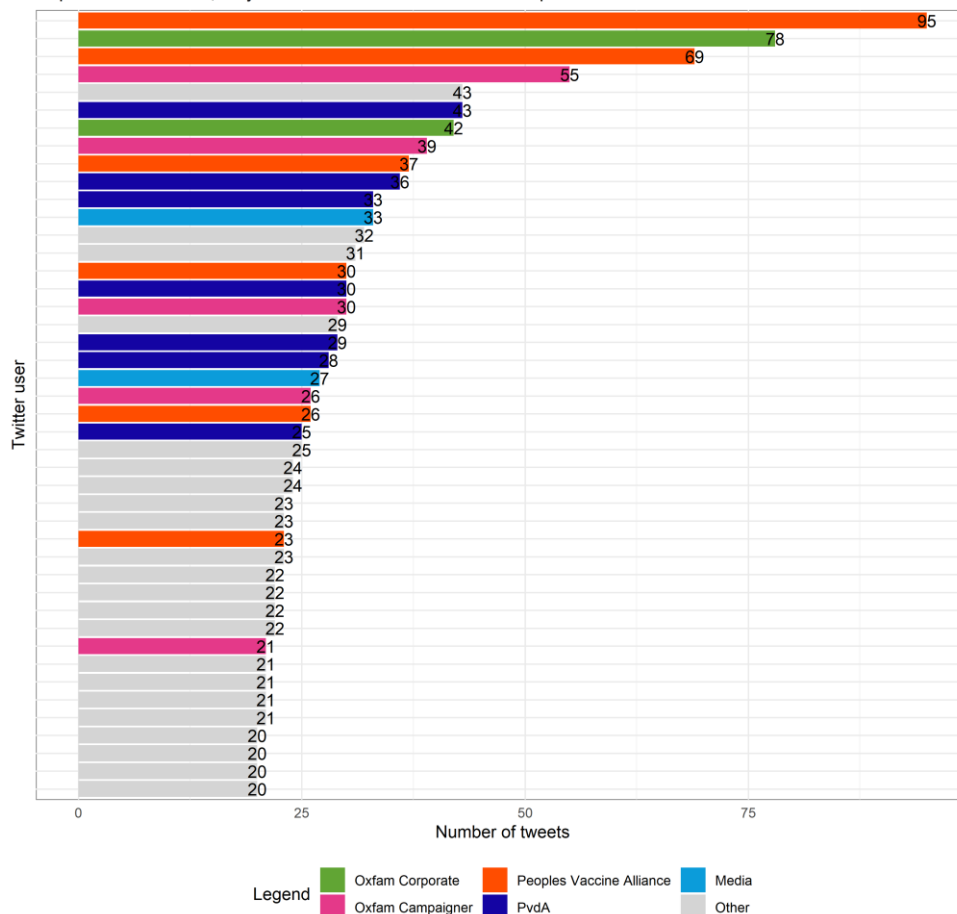
Posting tweets is the first step in influencing on Twitter. Reaching others and triggering engagement is the next. Hence, to identify the influencers in the Peoples Vaccine campaign we look at different aspects of influencing. First, we identify the most active users – those Twitter accounts that have shared the highest number of tweets related to the campaign in the harvested period. Next, we also consider the followers count of those active users to get a sense of potential reach of tweets posted. Lastly, we look at the most effective users in terms of engagement – those Twitter accounts that have the highest average number of retweets per tweet related to the campaign in the harvested period.

Figure 3 presents the most active Twitter users. The top four most active Twitter users are part of the Peoples Vaccine Alliance, Oxfam corporate, or work as Oxfam campaigner. What stands out is that, among the other most active accounts, the Labour Party (Partij van de Arbeid, PvdA) is highly represented. Many of the PvdA accounts are affiliated to the Belgium PvdA or the European Parliament. By looking at the most active Twitter accounts, potential allies can be identified.

**Figure 3**

#### Most active Twitter accounts sharing tweets in Dutch related to the #PeoplesVaccine campaign

Sep 2020-June 2021, only users with 20 tweets or more are plotted



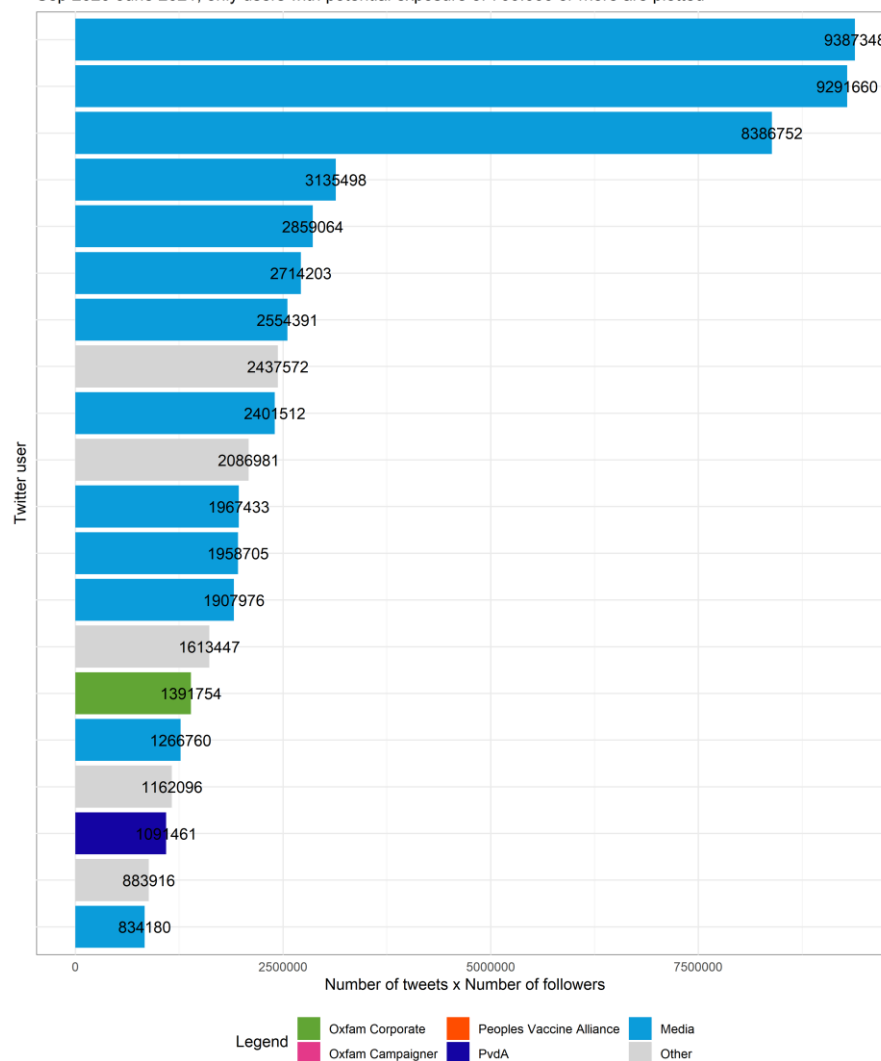
Source: Data collected from Twitter's API v2 via academictwitteR

Next, we consider the number of followers of those active Twitter users spreading campaign messages. We multiplied the number of tweets sent by a certain Twitter user with its number of followers. This should give a proxy of potential exposure of campaign messages spread by a certain Twitter user. Figure 4 presents Twitter users with the highest potential exposure. What we see is that the top ten is dominated by media accounts. Where the account with highest potential exposure only posted 12 tweets related to the Peoples Vaccine campaign throughout the harvested period, it ranks highest since it has approximately 782k followers. Oxfam Novib, posting 78 tweets, ranks 15<sup>th</sup> since its follower base approximates 17k. Hence, what we learn from Figure 4 is that if campaign messages are picked up by media it considerably increases potential exposure of the campaign.

**Figure 4**

**Twitter accounts sharing tweets in Dutch related to the #PeoplesVaccine campaign with highest potential exposure**

Sep 2020-June 2021, only users with potential exposure of 700.000 or more are plotted



Source: Data collected from Twitter's API v2 via academicwitteR

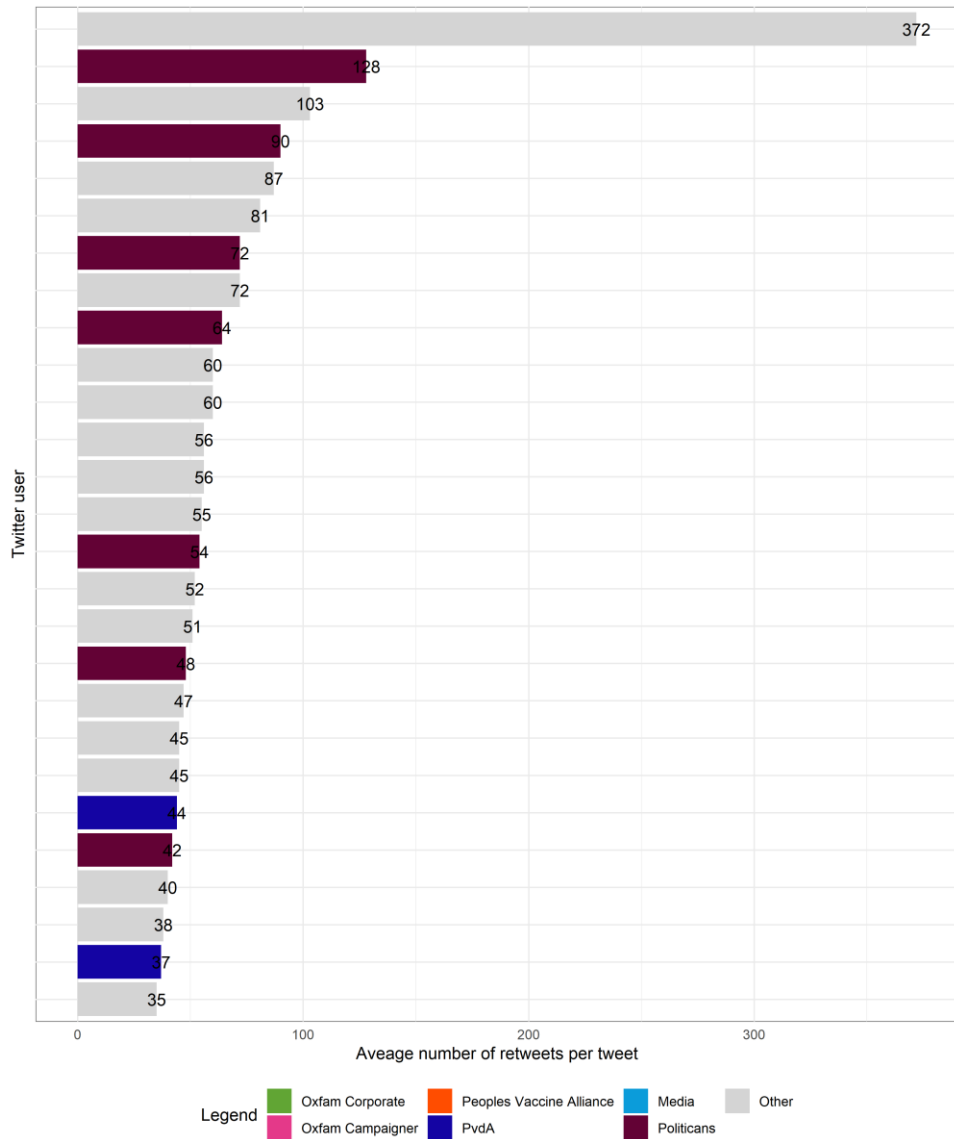
Lastly, we analysed which users are most effective in sharing messages related to the Peoples Vaccine campaign. Here, effectiveness is defined by triggering engagement in the sense of retweets. We look at the average number of retweets per tweet. What we found is that politicians and other famous persons are the most effective users in triggering engagement on Twitter (Figure 5).



Figure 5

**Twitter accounts sharing tweets in Dutch related to the #PeoplesVaccine campaign that have highest average number of retweets per tweet**

Sep 2020-June 2021, only users with average of 35 retweets or more are plotted



Source: Data collected from Twitter's API v2 via academictwitter

To conclude, when looking at the most active accounts we see that this group primarily consists of the to be expected users: those accounts which are part of the Peoples Vaccine Alliance. Potential exposure is highest for media accounts, hence collaborating with media on spreading campaign messages could be a useful strategy to improve reach. Lastly, when looking at the list of most effective accounts in terms of engagement, we see that the three most active accounts are not part of it (incl. Oxfam Novib, who gets on average 7 retweets per tweet). On the contrary, it is politicians and other famous people who trigger most engagements in terms of retweets. Hence, finding ways for campaign tweets to be picked-up by these high influentials could considerably increase engagement. For instance, following these high influentials, tagging them directly in your own tweets, and/or reaching out to them offline or via other channels, might help in getting them on board of the campaign.

### 3.4 How does the network of influencers look like?

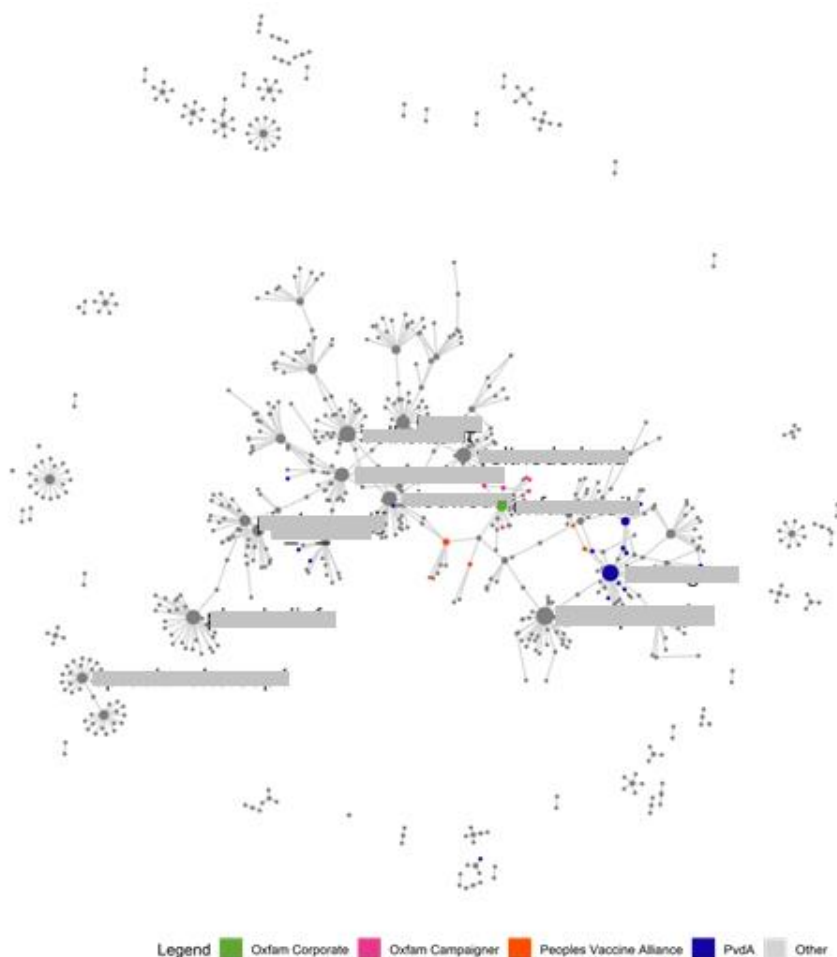
Lastly, to better understand how messages travel in the *Twitterverse*, we analysed how the Dutch influencers are connected to each other on the issue of vaccine equality in a so-called network analysis. When doing a network analysis, it is helpful to limit the number of tweets included to keep the network analysis feasible and the visual readable. This is because a higher number of tweets is heavier to process, and it complicates the readability of the visual. In this paper we present an example of a network analysis for the period 1-10 May 2021, when there was a spike of tweets related to TRIPS Waiver (N= 782).

Figure 6 below visualizes the network of Twitter users that retweeted each other. Each node is a Twitter user. The size of nodes depends on the number of times the nodes appear (whether as poster of the retweet or whether as the one being retweeted). Larger nodes, that are relatively closer to the centre of the graph, are relatively more important in spreading the topic. A connection between two nodes (i.e., an edge) indicates that one user has retweeted the other user.

**Figure 6**

#### **Twitter accounts retweeting one another**

1-10 May 2021



Source: Data collected from Twitter's API v2 via academicwitterR

What we learn from the network analysis in Figure 6 is that Oxfam Novib is quite central to the network, indicating its relative importance in spreading Peoples Vaccine

campaign messages on Twitter. Furthermore, we found clusters of politicians/political parties, and media accounts. We also found stand-alone clusters. Hence, the figure is illustrative of the relative ease of identifying main influencers by adopting a network analysis.

## 4. Conclusions and recommendations

This case study presented the results from analysing Twitter data streams related to the Peoples Vaccine campaign. It aimed to inform campaign implementation, especially on peaks in Twitter activity, characteristics of 'effective tweets', and (network of) main influencers; as well as to inform potential use cases of Twitter data for monitoring and evaluation of a public campaign. Conclusions and recommendations to these two objectives are summarized in the following two sections.

### 4.1 Campaign implementation

#### **Jump on the bandwagon**

Twitter peaks, similarly as Oxfam activity, seem to follow the political momentum. Hence, when there is 'big vaccine news', benefit from the momentum by responding to the news with one (or several) tweets, using the hashtag that is trending.

#### **Use your network**

Reach and engagement of tweets increases considerably if a tweet is picked up by media or high-influentials, like politicians. Hence, next to producing tweets (quantity), it is also important to consider the quality of the tweet. Tagging accounts that you want to reach, or that are closely connected to these accounts, may considerably help to increase the reach of your tweets. This could also mean tagging accounts that connect to media networks.

#### **Expand your network**

There may be other (networks of) actors that are active on the topic of interest. In this analysis, for instance, we identified a network of accounts affiliated with the Labour Party (PvdA). Reaching out to the people behind the accounts that are active on this topic, and tapping into a different network than Oxfam Novib, may help to reach a new, bigger audience.

#### **Consistency is key**

Tweets and hashtags are case-sensitive. Topics or hashtag become trending at a certain number of tweets. This means it is important to be consistent in the use of hashtags, and to make sure you use the same spelling.

#### **Call for action**

One of the characteristics of effective Oxfam Novib tweets in terms of engagement was the direct call for action. If you directly ask someone to retweet your tweet it can pay off in the number of retweets you get. This increases the visibility and reach of your tweet.

### 4.2 MEAL use cases

Although there are limitations for what a Twitter data analysis can add to current MEAL

practices<sup>8</sup>, we want to emphasize the low hanging fruits in terms of opportunities it provides. As a low-cost way of collecting informative and granular information, it can complement conventional ways of answering formative and evaluative questions that go beyond simple metrics about the reach of a campaign. Four potential use cases include:

### **Monitoring uptake and reach of campaign messages on Twitter**

It is relatively easy to analyse uptake and reach of tweets. Key questions for instance include: Are campaign messages being picked-up in the Twitterverse? Is the audience responding to campaign messages? Are our influencing targets responding to messages originating from the campaign?

### **Network analysis of the campaign audience and its influencers**

By analysing Twitter data, a detailed picture of how messages spread and among whom such messages spread can be identified. This could provide relevant information about who is responding and sharing campaign messages. Key questions include: Who are the main influencers? Which users most actively spread campaign messages, and which are most effective in spreading the word? What is the trajectory of the spread of messages? Who are opinion leaders in these social networks that can generate traction around messages?

### **Sentiment analysis and opinion mining for public campaigns**

Our Twitter analysis so far has mainly focused on volume and reach of messages. However, qualitative interpretation of content generated by Twitter users is another use case. Instead of counting mentions, one would move to assess users' opinions. Key questions include: How are people talking about a certain campaign? Is retweeting predominantly positive or negative? What are opinions towards a certain campaign topic? Are there any changes in people's opinions or feelings towards a certain campaign or campaign topic as expressed on Twitter?

### **Real-time monitoring of public campaigns**

Data streaming through Twitter can be analysed real-time. This allows for instance for timely insights into reach, engagement, sentiment, and identification of allies.

*Excited about what analysing Twitter data can offer and would you like to apply a Twitter (or other social media platform) social listening analysis to the monitoring and evaluation of your public campaign? Please get in touch with Oxfam Novib's Impact Measurement and Knowledge (IMK) team, part of the Learning, Innovation and Knowledge (LINK) unit (Marieke Meeske; [marieke.meeske@oxfamnovib.nl](mailto:marieke.meeske@oxfamnovib.nl)).*

<sup>8</sup> For more details, please be referred to the previously published paper (internally). Please reach out to Marieke Meeske ([marieke.meeske@oxfamnovib.nl](mailto:marieke.meeske@oxfamnovib.nl)) to get access to the paper.

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