Ipsos MORI
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Social listening Evaluation of the #BackClimateAction Tweetathon

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Contents

Glossary

Term	Definition
#BackClimateAction	This was the chosen hashtag for the DECC Tweetathon; all involved were asked to use this hashtag when tweeting to promote taking action against climate change.
DECC	Department of Energy and Climate Change.
Method51	Method51 is a platform developed by the University of Sussex and the Centre for Analysis of Social Media (CASM) at Demos. The tool uses machine learning and natural language processing to train the categorisation of content based on the manual coding of an analyst.
Crimson Hexagon	Crimson Hexagon is an analysis platform that supports individuals in analysing conversations on social media. Based on the search query defined by the research team[1], the platform collates entries from across a range of social media sites (we could include conversations outside Twitter too) and allows researchers to interrogate the data through an analysis dashboard.
Tweetathon	The name given to a concerted effort by an organisation or group of organisations to make an impact on Twitter about a particular subject through intensive tweeting and online conversation.
Followers	On Twitter, a follower is an account which has signed up to see all Tweets from a partiuclar account.
Hashtag	A hashtag is a way of sorting Tweets on Twitter into topics. All Tweets that share a hashtag can be grouped and viewed together by users, and the hashtags that are used the most in a set area are said to be “trending”.
Retweet	Twitter offers users the ability to rebroadcast a tweet they have seen to their following verbatim – this is known as retweeting. It is also possible to modify the contents of a tweet before retweeting it.
Potential number of followers reached	A metric used to approximate the potential reach of a tweet or combination of tweets. It is calculated by summing the followers from all accounts of the unique authors who generate content within a given dataset. Followers are only counted once per author; if an author tweets twice, their followers are only counted once. It does not de-dupe followers who may be present across multiple accounts; furthermore, it is not known whether the follower has seen the content.
Potential impressions	A metric used to approximate the potential reach of a tweet or combination of tweets. It is calculated by summing all the followers of an account for every piece of content generated. If an author tweets twice, their followers are counted twice. It is used to calculate the largest potential number of people who could have seen a particular Tweet or hashtag. It is prone to duplicating followers and providing inflated numbers.

[1] This is a key part of the process and relies on a solid understanding of the research topic. For example, based on our experience of PAS2014, we know people use many different terms for climate change (for example ‘Global Warming’ which will need to be incorporated into the query.

Executive summary

In advance of the Conference of the Parties to the United Nations Framework Convention on Climate Change (1-12 December 2014), the Department of Energy and Climate Change (DECC) conducted an innovative social media campaign to raise awareness of and engage the public in the need to take action to tackle climate change.

The social media campaign had two main stages: i) a ten day countdown during which a fact or figure was released each day to prompt discussion about climate change; ii) a twitter relay or 'Tweetathon' on 25th November 2015. The aims of the campaign were to:

1. Re-engage the public with climate change and to highlight the importance of the UK coming together to take action.

2. Make climate change relevant to people's day-to-day lives, moving away from detailed scientific explanations and abstract concepts.

3. Demonstrate that action is underway in the UK and across the globe.

Ipsos MORI were commissioned by DECC and BIS to measure the activity and evaluate the impact of the Tweetathon campaign. Ipsos MORI used two social media analytical platforms to conduct the evaluation: Crimson Hexagon and Method51. Two search queries were conducted in parallel over the period 15th -28th November: the first to collect data that was specific to the **#BackClimateAction campaign**[2]; the second to collect conversations about **climate change more broadly**.[3]

A table of key metrics relating to the campaign are provided in Table 1 below.

Overall reach and level of engagement

The #BackClimateAction campaign secured a large amount of interest, both inside and outside the UK.

Overall the campaign generated 37,779 entries on social media from 15th – 28th November through use of the hashtag and associated terms. 15,299 of these were on the day of the Tweetathon, which is more than 7 times as much as the general underlying daily conversation about climate change in the UK. Outside the UK, discussion was most prominent in the US, Australia and Canada.

Over 16,000 people or organisations were involved

[2] using the following search query: "#BackClimateAction" OR "BackClimateAction" OR "back climate action" OR "climate action" OR "climateaction" OR "#backclimatechange" OR "backclimatechange" OR "back climate change".
[3] using the following search term: "climate change" OR "climatechange" OR "global warming" OR "globalwarming" OR "greenhouse effect" OR "greenhouseeffect" OR "greenhouse gas" OR "greenhousegas" OR "greenhouse gases" OR "greenhousegases" OR "carbon footprint" OR "carbonfootprint".

A total of 16,414 unique authors contributed to the #BackClimateAction campaign through either tweets, re-tweets, blogs or comments. The majority of content was re-tweeting (24,900); just over a third of content was original.

The most retweeted tweet of the day was from the @DECCgovuk account, releasing the results of a survey that showed support for taking action against climate change. This was retweeted over 210 times.

Metrics which combine the number of followers with the content produced by an author provide a useful indication of the number of potential people reached by the campaign. Without accounting for duplication across those who follow multiple accounts, the number of *potential account followers reached* by the campaign was 33 million on the day of the Tweetathon; 100 million over the course of 15th-28th November. The total number of *potential impressions* (multiplying the number of followers of an active account by the times they have been 'sent' content) was 250 million[4].

Partners were engaged in the campaign to varying extents

The campaign was successful in securing engagement from a number of large organisations. 50 of the 111 partners pre-arranged to take part in the Tweetathon contributed five or more times during the day; this included the British Medical Association (contributing 53 times) and the Natural History Museum (contributing 30 times, with 666,118 followers).

However, DECC should consider reviewing the partners for future campaigns, identifying those who did little or nothing to engage with the campaign and perhaps working with a more focused sample of engaged people and organisations. This campaign can also be used to identify which notable individuals and organisations played a prominent role in the discussion without being prompted: 91 of the 123 authors who contributed at least ten times to the Tweetathon were not partners, and some of the top ten most prolific accounts belonged to personal, rather than corporate accounts.

Topics and nature of discussion

The nature of discussion was overwhelmingly positive, with most content sharing information that promoted the case for taking action

Manual sentiment analysis supported by the tool Method51 suggests that wider conversation about climate change was broadly 49% positive, 21% neutral and 29% negative.

However, the amount of negative commentary related to the #BackClimateAction campaign was near non-existent, so other categories were created to measure the campaign. 54% *shared information* to make the case for change, 17% *pledged action*

[4] N.B. "Potential account followers reached" and "potential impressions" are commonly used metrics when measuring the impact of social media campaigns. Both rely on assumptions which tend to inflate figures – please refer to the glossary and sections 2.2 and 7.3 of this report for further evaluation of these measures.

for change, 23% *promoted the opportunity* to take part in the Tweetathon, and just seven per cent stated an explicit *personal opinion* either way.

The extent of the positive energy produced by the campaign could be seen in the wider global conversation relating to climate change which witnessed an increase in the 'positive' content during the campaign.

The most popular topics of discussion were health, cities, food and water, energy/renewables and business

All topics chosen for the day received some traction, peaking in volume at their allocated time slot. The first major topic of the day was health (five per cent of discussion overall), which peaked during 9-10am, but received less attraction as new topics were introduced. Conversation relating to energy, food and water, and cities and homes made up 21% of conversation overall (seven per cent each).

Conversation was relevant and accessible; as demonstrated by the large discussions relating to birds and woodlands rather than using the term 'biodiversity' specifically. However, conversation relating to sport was less visible, suggesting that more could be done to engage people in how sport relates to taking action against climate change.

Conclusions and recommendations

It is clear that the campaign performed well against its thematic aims and engagement targets. The level of engagement was far higher than originally anticipated and contributed significantly to the wider global discussion on climate change. Aside from the volume of discussion, the campaign also succeeded in making the conversation accessible and relevant to people, and putting forward the case for taking action.

Considering the success of the Tweetathon in meeting these objectives, the aims of the next campaign should begin to explore how this success can be pushed further. For example, 'pledging' activity to combat climate change, which was outside the objectives of this campaign but did feature in some of the traffic analysed, could be explored as a new, more demanding objective. Future campaigns could set objectives around monitoring the number of people pledging action to help move the discussion beyond passive support to concrete commitments to take action.

Ahead of the next campaign, DECC should also consider reviewing the list of partners engaged in the debate and developing a framework of metrics that can be used to benchmark consistently across campaigns. Moreover, further work is required to explore how best to analyse the sentiment expressed during discussion on energy and climate change. This includes reviewing whether automated sentiment tools are appropriate, developing a common understanding in definitions of positive/negative content, and developing new categories that are bespoke and more appropriate for the topic or campaign.

Table 1 – Summary table of key metrics relating to the #BackClimateAction campaign

	Total number of entries in search query	Total number of mentions of #BackClimateAction	Total number of re-tweets	Total number of contributions from @DECCgovuk	Total number of unique authors (de-duped)[5]	Total number of potential followers reached	Total potential impressions
Ten day countdown (15th – 24th Nov)	17,183	2,800	10,457	113	10,564	53 million	101 million
Tweetathon (25th Nov)	15,299	13,000	10,467	202	4,764	33 million	121 million
Immediate aftermath (26th-28th Nov)	5,297	2,200	3,985	0	7,250	14 million	26 million
Total	37,779	18,000	24,900	315	16,414	100 million[6]	250 million[7]

[5] The figures in this column are de-duplicated to ensure that each author is mentioned only once across the timeframe specified. In the overall total cell at the bottom the total is again de-duplicated, so it is not a sum of the three values above.

[6] This metric is used to approximate the potential reach of a tweet or combination of tweets. It is calculated by summing the followers from all accounts of the unique authors who generate content within a given dataset. Followers are only counted once per author; if an author tweets twice, their followers are only counted once. It does not de-dupe followers who may be present across multiple accounts; furthermore, it is not known whether the follower has seen the content.

[7] A metric used to approximate the potential reach of a tweet or combination of tweets. It is calculated by summing all the followers of an account for every piece of content generated. If an author tweets twice, their followers are counted twice. It is used to calculate the largest potential number of people who could have seen a particular Tweet or hashtag. It is prone to duplicating followers and providing inflated numbers.

1 Introduction and methodology

1.1 Background: the Tweetathon

The 20th session of the Conference of the Parties (COP 20) to the United Nations Framework Convention on Climate Change (UNFCCC) was held in Lima, Peru from 1-12 December 2014. This conference was a key global climate change negotiation platform on the path to COP 21 which will be held in Paris in December 2015 where it is hoped a legally binding global agreement on climate change will be reached.

In advance of the COP on Climate Change in December 2014, the Department of Energy and Climate Change (DECC) conducted a social media campaign to raise awareness of and engage the public in the need to take action to tackle climate change. The campaign sought to provide an opportunity for businesses, NGOs, other supportive organisations and prominent individuals in the UK (and across the globe) to join together and work collectively to increase the public appetite for action.

The social media campaign had two main stages: i) a ten day countdown during which a fact or figure was released each day to prompt discussion about climate change; ii) a twitter relay or 'Tweetathon' on 25th November 2014. On the day of the Tweetathon a range of international partners, organisations and individuals were each given an hour slot to share their point of view as well as any interesting content on climate change, and also to handle questions on the topic from other Twitter users.

The aims of the Tweetathon were to:

- Re-engage the public in climate change and the importance of the UK coming together to take action.
- Make climate change relevant to people's day-to-day lives, moving away from detailed scientific explanations and abstract concepts.
- Demonstrate that action is underway in the UK and across the globe.

The campaign also had key objectives in terms of output and sentiment:

- Output targets: 68 tweets from @DECCgovuk #BackClimateAction; 796,700 impressions; 1,300 link clicks; 1,400 retweets; 664 favourites
- Sentiment targets: Increase positive sentiment in relation to 'climate change' and #BackClimateAction

1.2 Methodology

Ipsos MORI were commissioned by DECC and BIS to evaluate the Tweetathon in terms of monitoring the activity that took place and also to measure the impact of the campaign on public opinion.

The approach taken to both the campaign and the evaluation are highly innovative within the public sector; moreover, this was the first Tweetathon event conducted by DECC. Two of the key aims of the evaluation were to explore the feasibility of conducting evaluation through sentiment analysis, and to identify ways in which DECC can improve both the delivery and evaluation of future campaigns.

Ipsos MORI used two social media analytical platforms to conduct the evaluation:

- **Crimson Hexagon** was used to measure the reach and volume of discussion. The tool collates relevant social media data based on a user defined search query, allowing the analyst to interrogate the returned data through an analysis dashboard.

- **Method51** was used to investigate the sentiment attached to the discussion. The tool has been developed by the University of Sussex and the Centre for Analysis of Social Media (CASM) at Demos. The platform seeks to overcome a key challenge in the analysis of social media, namely that automated sentiment is often a poor indicator of attitudes. The tool uses machine learning and natural language processing to train the categorisation of content based on the manual coding of an analyst.

Two search queries were conducted in parallel over the period 15th -28th November.

1. Data **specific to the #BackClimateAction campaign**, using the following search query: "#BackClimateAction" OR "BackClimateAction" OR "back climate action" OR "climate action" OR "climateaction" OR "#backclimatechange" OR "backclimatechange" OR "back climate change".

2. A separate query to collect conversations about **climate change more broadly**, using the following search term: "climate change" OR "climatechange" OR "global warming" OR "globalwarming" OR "greenhouse effect" OR "greenhouseeffect" OR "greenhouse gas" OR "greenhousegas" OR "greenhouse gases" OR "greenhousegases" OR "carbon footprint" OR "carbonfootprint".

1.3 Structure of this report

This report is structured around the following evaluation measures, each listed with the method used to answer them:

2. **The overall reach and level of engagement in the campaign:** Key search terms were generated to track conversation about climate change generally as well as of hashtags used in the campaign. Mentions were tracked by volume over time, as well as by media source and location.

3. **What were people discussing? The story of the campaign:** Analysis of the top tweets and re-tweets and assessed by type of engagement. This chapter also identifies moments of the campaign generating the highest and lowest engagement.

4. **Who was involved? Assessment of the different partner organisations and individuals, and key influencers in driving discussion:** Using Crimson Hexagon we identify the top authors and key influencers in the discussion and assess if the campaign succeeded in engaging new people.

5. **Sentiment analysis:** Explores the feasibility of conducting sentiment analysis on this dataset.

6. **Contribution to the wider discussion on climate change:** Assesses the volume of the broader discussion on climate change attributable to the campaign to assess its impact.

7. **Conclusions and recommendations:** An evaluation of the success of the campaign against its original objectives.

2 Overall campaign metrics

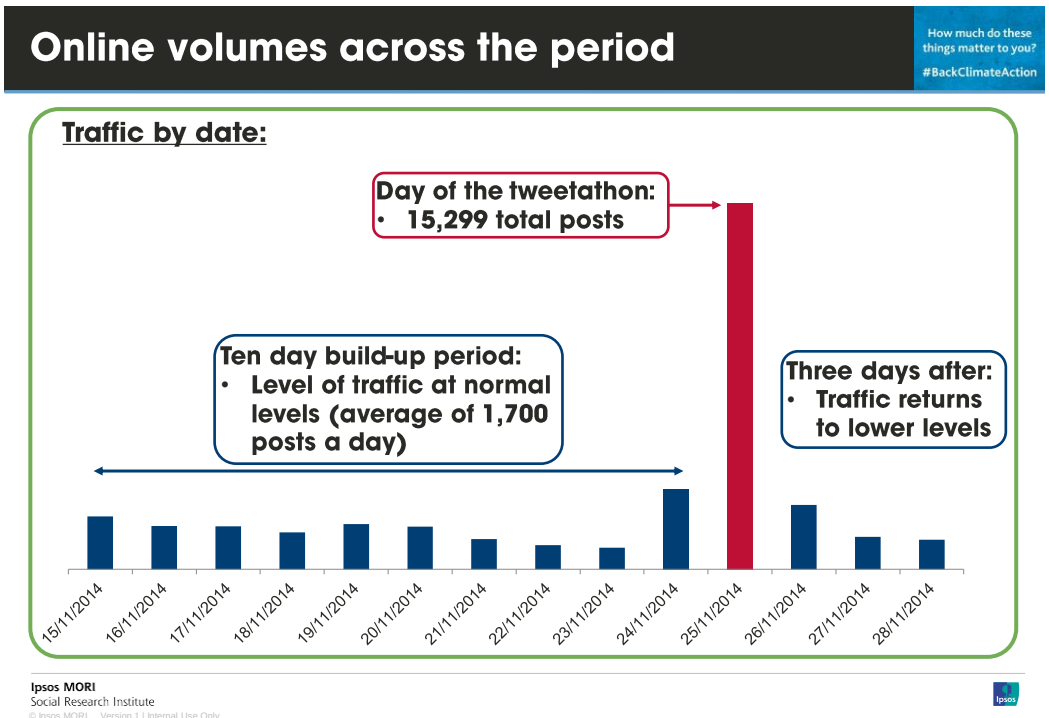
This chapter recounts some of the key metrics measured during the period of the campaign including volume, source, and (where applicable) location. Data for this chapter was primarily gathered and analysed using Crimson Hexagon, and concerns the search query related directly to the campaign.

2.1 Volume of the campaign

Volume of mentions over time

The Tweetathon drove a clear spike in activity related to the #BackClimateAction campaign.[8] As can be seen in the chart below, on the day there were over 15,000 tweets related to the campaign, compared to an average of around 1,700 during the ten day build-up period (totalling 17,183) and in the three days after the 25th November (totalling 5,297). On the two days immediately preceding and following the day of the Tweetathon, there was also a notable uplift in mentions.

Figure 2.1 – #BackClimateAction Tweetathon volumes 15th – 28th November

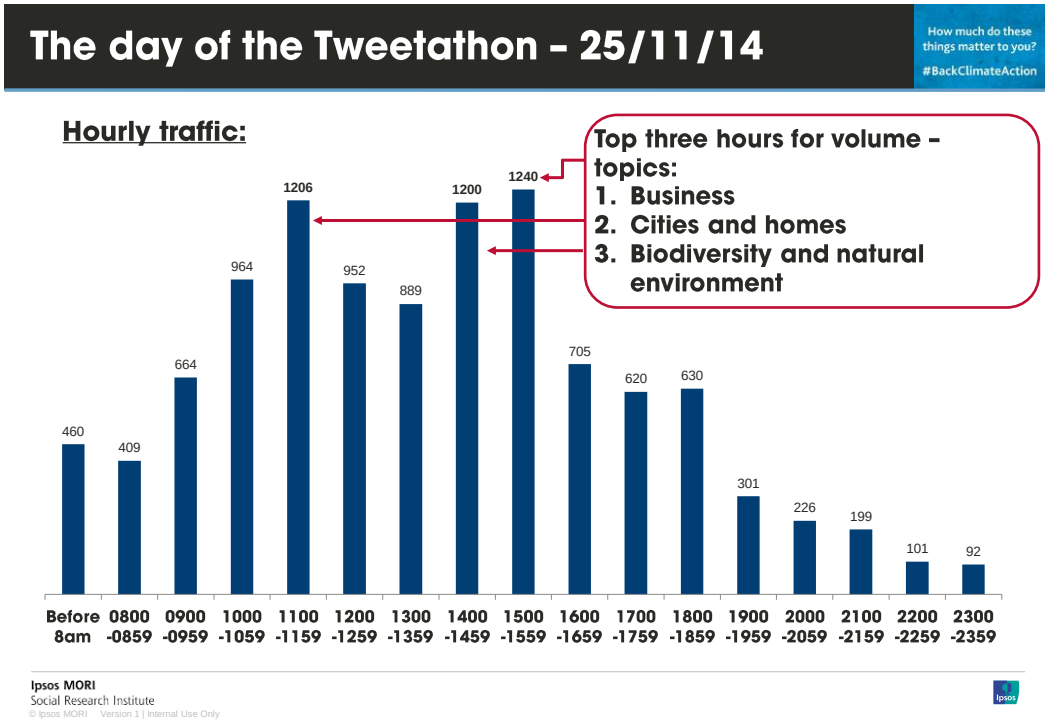


[8] Data specific to the #BackClimateAction campaign, using the following search query: "#BackClimateAction" OR "BackClimateAction" OR "back climate action" OR "climate action" OR "climateaction" OR "#backclimatechange" OR "backclimatechange" OR "back climate change".

Each of the ten days preceding the Tweetathon was given over to a particular topic. Traffic volumes for each day prior to the Tweetathon were relatively stable, suggesting that none of the topics was particularly more effective than the other at driving traffic. The highest level of traffic was recorded on the 24th, the day before the Tweetathon; whilst this may have been due to the topic (international action) there was also a higher level of activity generally in the build-up to the Tweetathon.

Volumes also varied significantly on the day of the Tweetathon itself. The chart below shows how the volume of tweets fluctuated by the hour on the 25th November:

Figure 2.2 – Hourly traffic volumes during the Tweetathon



The Tweetathon was structured so that each hour of the day was given over to a particular topic. The allocated timeslots were as follows:

- 9am-10am – DECC announces survey results
- 10am-11am – Health
- 11am-12pm – Cities and homes
- 12pm-1pm – Food and water
- 1pm-2pm – Sport
- 2pm-3pm – Biodiversity and natural environment
- 3pm-4pm – Business
- 4pm-5pm – UK government
- 5pm – 7pm – International action

Volumes were highest during the hours allocated to three topics; Business, cities and homes, and biodiversity and natural environment. However, this does not necessarily mean that they were the most engaging topics as discussions on each topic lasted

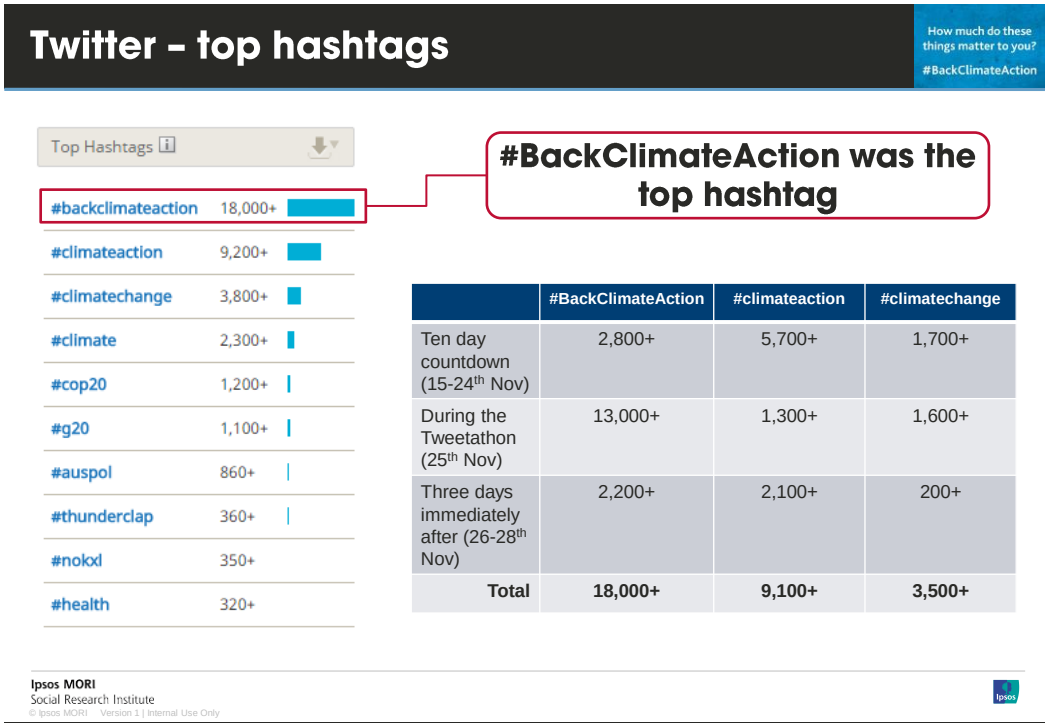
longer than an hour, and the dip between 12 and 2pm suggests that activity slowed during lunch. Thematic analysis of the campaign is explored further in chapter three, whilst further exploration of hourly traffic, including top tweeters, is available in chapter four.

Tracking hashtags over time

Looking specifically at the individual hashtags used during the campaign (measuring both tweets and retweets), #BackClimateAction was the most well-used. This hashtag was used **over 18,000 times** during the entire period covered (15th – 28th November), with over **13,000** of these instances occurring on the day of the Tweetathon.

The second most popular hashtag was "#ClimateAction", which was used more frequently in the ten day countdown than #BackClimateAction (over 5,700 instances compared to over 2,800). Use of the hashtag overlapped with the #BackClimateAction campaign; it was at the centre of a World Bank-led awareness campaign aimed at world leaders prior to the United Nations Climate Change Conference in Lima in December.

Figure 2.3 – Top hashtags during the monitoring period



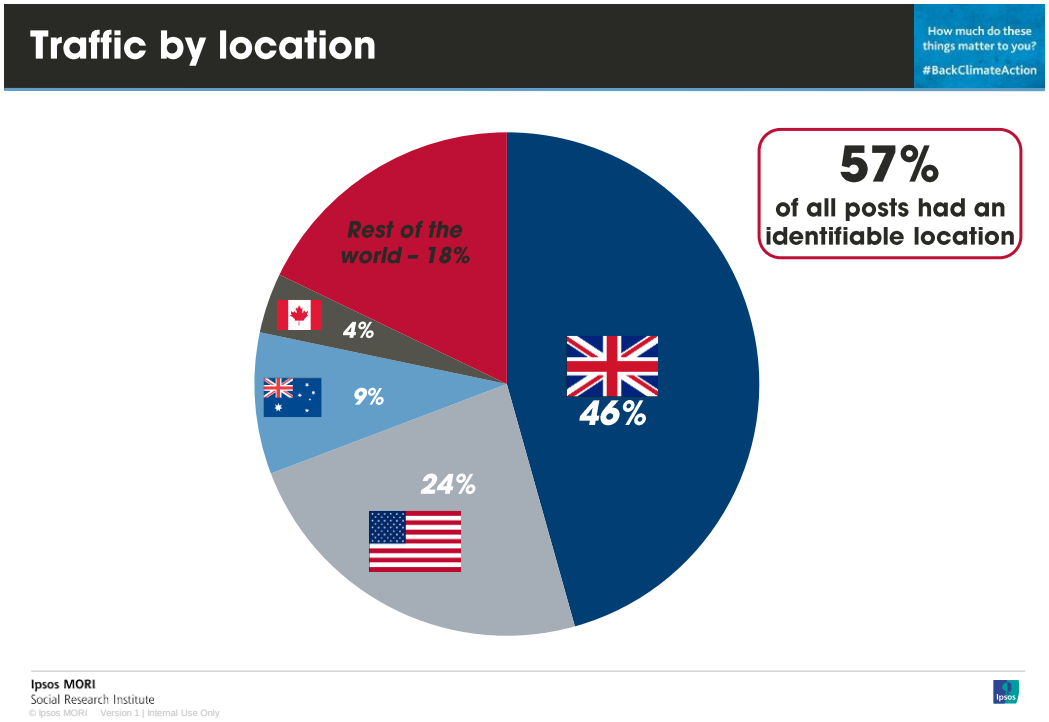
	#BackClimateAction	#climateaction	#climatechange
Ten day countdown (15-24th Nov)	2,800+	5,700+	1,700+
During the Tweetathon (25th Nov)	13,000+	1,300+	1,600+
Three days immediately after (26-28th Nov)	2,200+	2,100+	200+
Total	**18,000+**	**9,100+**	**3,500+**

Traffic by location

As was expected, the overwhelming proportion of traffic related to the campaign was recorded on Twitter. 96% of recorded traffic was on Twitter (this figure rose to 99% on the day of the Tweetathon, and fell back to 96% in the three days after the Tweetathon), with one per cent on blogs and news sites, and smaller percentages on other platforms including forums, Facebook, and YouTube.

Looking at the location of the tweets from the day of the Tweetathon and the ten-day build up, traffic from the UK was the largest single portion. We were able to assign a location to 57% of all traffic, and of this percentage, almost half (46%) was from UK-registered accounts. In the three days after the Tweetathon the proportion of traffic from the UK fell to 26%; still the largest proportion (the next highest was 25% from the USA), but a notably smaller proportion than in the days before.

Figure 2.4 – Traffic by location on the day of the Tweetathon



Other significant contributions were from accounts registered in the United States of America (24%), Australia (9%) and Canada (4%), with responses from all other countries totalling 18%. Traffic from Australia was noticeably high in part due to the G20 Brisbane meeting that occurred during the ten day lead-in period, which focussed strongly on tackling climate change.

2.2 Overall reach and engagement

There are a number of ways to measure the level of reach and engagement of a social media campaign – a full discussion can be found in chapter eight of this report. This section uses three metrics to measure reach and engagement; potential impressions, number of unique followers (audience), and the number of unique authors.

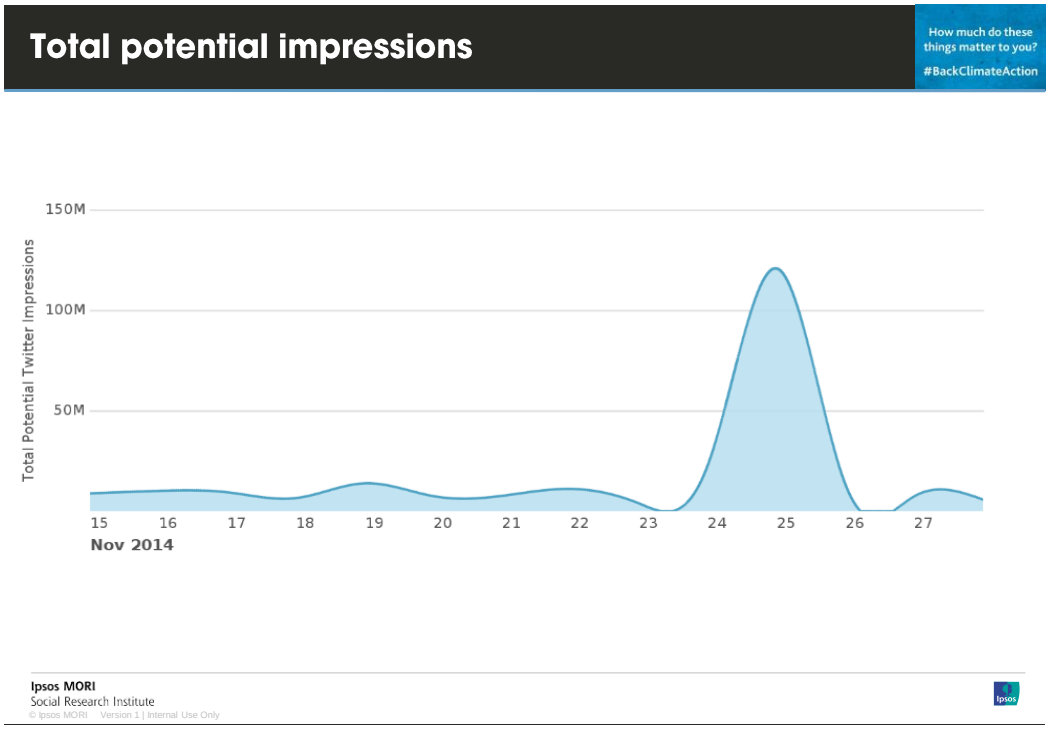
Potential impressions

By aggregating the total number of followers for all accounts which took part in the Tweetathon, it is possible to calculate a total of maximum "potential impressions" for the campaign. An "impression" is regarded as a person seeing a Tweet from another author, so to calculate the maximum potential impressions it is assumed that all the followers of an account will see all the tweets that account issues.

The potential impressions score should be treated with caution as it cannot be guaranteed that a user has seen the tweet; moreover the methodology does not allow for users to be de-duplicated and so the same followers will be counted multiple times. It should also be noted that there is a difference in approach to recording impressions; further detail is provided in the recommendations chapter of this report.

However, the metric does provide some insight into the potential reach of the campaign. The maximum potential impressions score for the #BackClimateAction campaign was measured as **250 million**, **121 million** on the day of the Tweetathon, and **26 million** in the three days afterwards.

Figure 2.5 – Total potential impressions



Potential number of followers reached

This second measure seeks to avoid the inflation of numbers that the "potential impressions" method is susceptible to – followers of an account are only counted once, even if the account produces 2 or more entries to the dataset.

However this measure still has some drawbacks. Firstly, non-Twitter sources are excluded, although for this Twitter-based campaign this is not an issue. Secondly, even by this measure duplication remains. For instance, if a follower of one account which tweeted also follows another account that tweets too, they will be counted twice. To de-duplicate further would require functionalities that are beyond the capabilities of our analysis programme.

Over the ten day warm-up period, the number of potential followers reached counted this way stands at **53 million**. The figure for the day of the Tweetathon is **33 million**, and for the three day post-Tweetathon period it is **14 million**.

The figure for the day of the tweetathon appears lower than might be expected and there are two main hypotheses for why this might be the case:

- Firstly, the data used for the day of the Tweetathon is a random sample of 10,000 rather than the full 15,299 dataset (owing to download restrictions), so the full number may be larger.

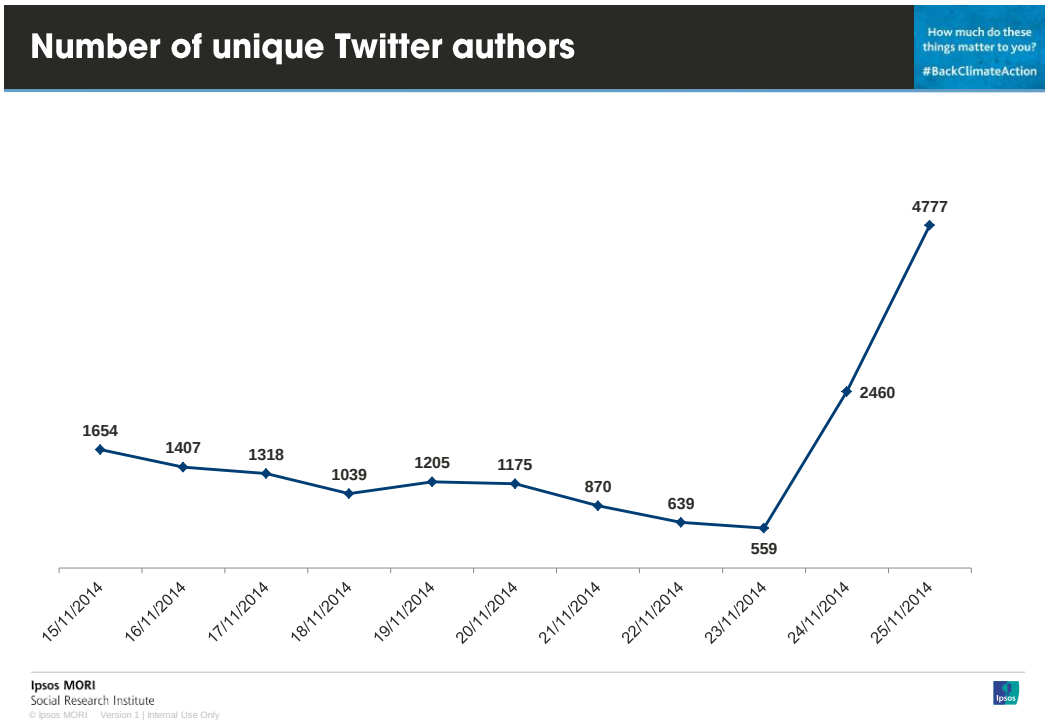
- Secondly, as outlined below, the number of unique accounts involved on the day of the Tweetathon is lower than the total of the ten days previously (4,764 versus 10,564), so the overall number of unique followers cannot be expected to be higher on the day of the Tweetathon in comparison. That it is close is a suggestion that more influential actors became involved on the day compared to the lead-in period – a finding reinforced by the unique accounts analysis below.

Unique accounts

A more robust metric for analysing the reach of the campaign is to review the number of unique accounts within the dataset. In total, 16,414 unique accounts took part – that is, tweeted or retweeted content related to the #BackClimateAction hashtag – in the campaign discussion.

The number of **unique accounts** involved in each day of the Tweetathon varied by day, ranging from 559 on Sunday 23rd November, to **4,777** on the 28th. The average number of tweets per account ranged between 1.22 and 1.43 in the ten days prior to the Tweetathon, and rose to 2.08 during the Tweetathon, which hints at a greater level of engagement and conversation.

Figure 2.6 – Number of unique Twitter authors per day



There was a clear peak in the number of unique authors involved on the day of the Tweetathon compared to the ten day warm-up period, with 4,764 on the day and an average of 1,056 per day in the warm-up. Analysing these numbers with reference to the total potential impressions listed below suggests that those who were involved on the day of the Tweetathon were more influential online than those involved in the warm-up – the total number of impressions on the day is larger than the combined total for the preceding ten days.

Figure 2.7 – Potential impressions and unique accounts over time

	Total potential impressions	Number of potential followers reached	Number of unique users (de-duped)[9]
Ten day countdown (15-24th Nov)	101 million	53 million	10,564
Tweetathon (25th Nov)	121 million	33 million	4,764
Immediate aftermath (26-28th Nov)	26 million	14 million	7,250
Overall total	250 million	100 million	16,414

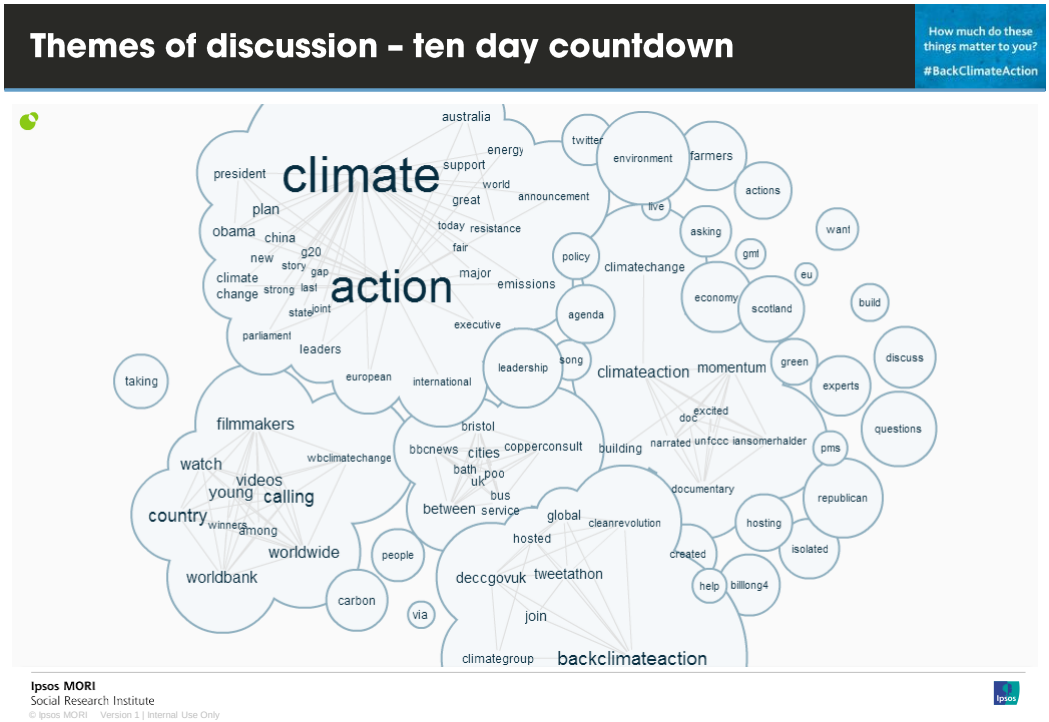
[9] The figures in this column are de-duplicated to ensure that each author is mentioned only once across the timeframe specified. In the overall total cell at the bottom the total is again de-duplicated, so it is not a sum of the three values above.

3 Topics of discussion

This chapter looks in greater detail at what was under discussion during the Tweetathon; for example, which topics were most discussed, which tweets were more popular amongst those taking part, and when each topic was most popular on the day. As with the previous chapter only data from the search query directly related to the #BackClimateAction campaign is included.

3.1 Topics of discussion in the ten day countdown

Figure 3.1 – Themes of discussion 15th – 24th November



Examining data from the 17,183 items captured during the ten day build-up period to the day of the Tweetathon, it is clear that the conversation around climate action had a strong global focus. In the word cluster[10] above "DECC" and "BackClimateAction" occupy a significant area, however the largest area is occupied by a word cluster related to the recent G20 meeting where the U.S. and China agreed to take action over climate change.

The relative volumes on each of the topic areas covered in the ten day build up for the DECC Tweetathon are low in comparison to the global coverage of the landmark G20 agreement (comments on which used the hashtag "#climateaction"). However

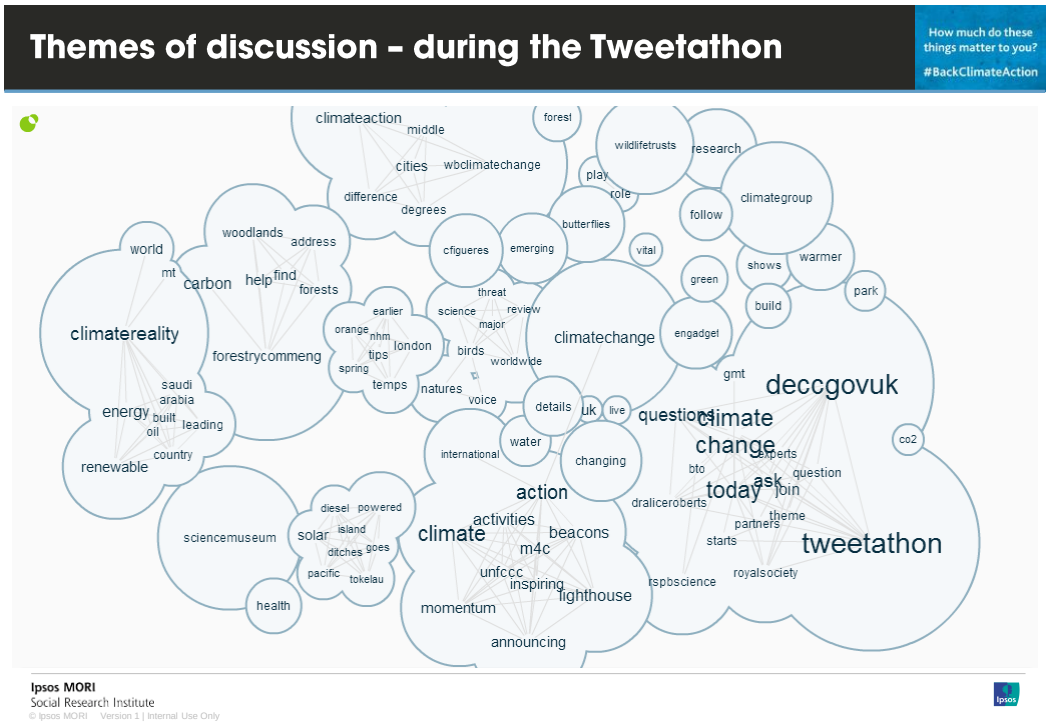
[10] A word cluster shows the relative frequencies of each term, as well as the extent to which each term is related to others in the data being studied. Please see www.infomous.com for more information.

examining data from each day individually, the topics which occupy the greatest proportion of traffic are **food, cities, business and international/global action**.

3.2 Popular topics during the Tweetathon

The word cluster chart below lays out the key discussion topics during the day of the Tweetathon, showing how each is related. A number of main topics can be discerned:

Figure 3.2 – Word cluster of topics during the Tweetathon



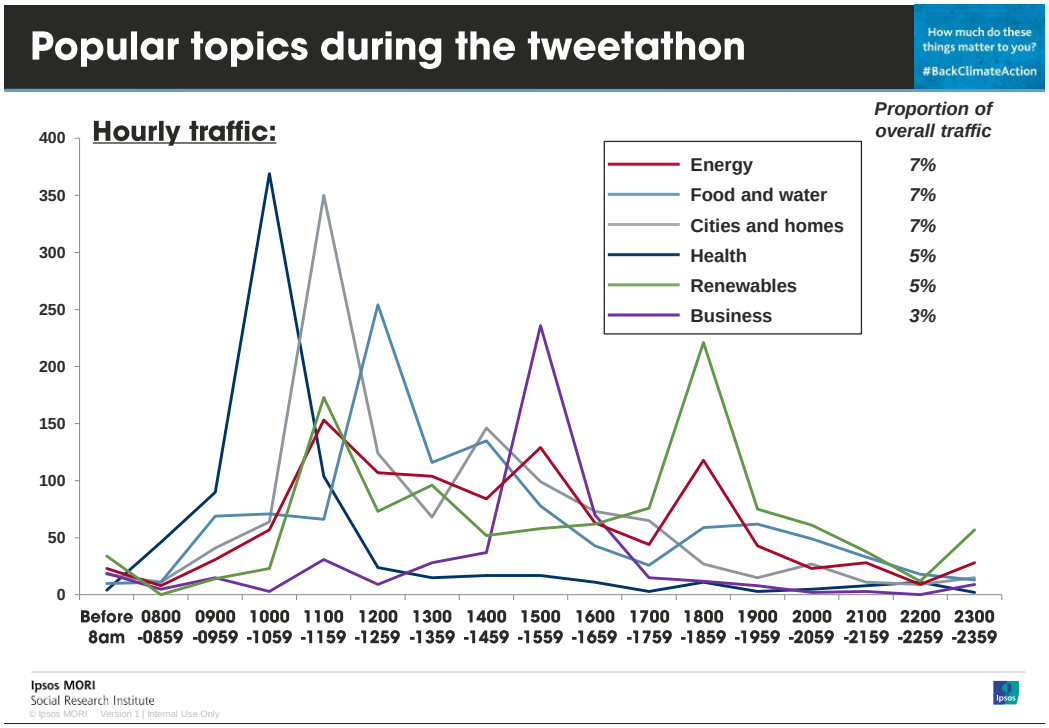
- **The central Tweetathon discussion**: This is visible in the bottom right cluster in the chart above. Although no specific terms are mentioned in connection with this cluster, key contributors who were mentioned enough to merit their own word in the cluster include the Royal Society, Dr Alice Roberts and RSPB science.
- A separate discussion (in the centre above) about **the threat to birds** caused by climate change. This would suggest that discussions around biodiversity focused on particular species or animals, rather than using the term "biodiversity", which would explain why that term was found relatively infrequently in the data.
- The **Forestry Commission's** tweet promoting woodlands (tweeted at 15:02 as part of the biodiversity hour) was retweeted 42 times and lead to a separate discussion on carbon, which can be seen in the top left. As with the birds topic it shows how discussions during the biodiversity hour were underreported when "biodiversity" was used as a search term.

The global discussion did continue during this time too, as can be seen from some of the topics listed above.

- **Cities** were discussed in relation to the World Bank's "climate action" campaign as well as in the "back climate action" Tweetathon (top centre in the image above).
- The UN's **Movement 4 Change** campaign also features (bottom centre in the chart above), although this was not part of the central search term.

Some of the **scheduled topics** generated more discussion than others. The chart below details the hourly totals for a selection of some of the most common words and phrases in the data:

Figure 3.3 – Popular topics



"Health" created the largest peak, which coincided with the allotted timeslot for health discussions of 10-11am. Similarly "cities and homes" peaked at 11am-12pm, "food and water" at 12-1pm, and "business" at 3-4pm. Topics like biodiversity and sport were less prevalent, although as discussed above this is likely to be due to the use of different terms in the discussion (e.g. "biodiversity" was not discussed; the threat to specific wildlife such as birds, was) rather than a lower level of discussion.

Some topics peaked in a number of areas; "energy" was most obvious during the hours on cities and homes, business, and international action. "Renewables" similarly peaked during the hour dedicated to cities and homes, but reached its highest point during the international action section. These topics were not part of the plan for the day, so their inclusion and multiple peaks imply that conversations around the individual topics were being linked to broader issues.

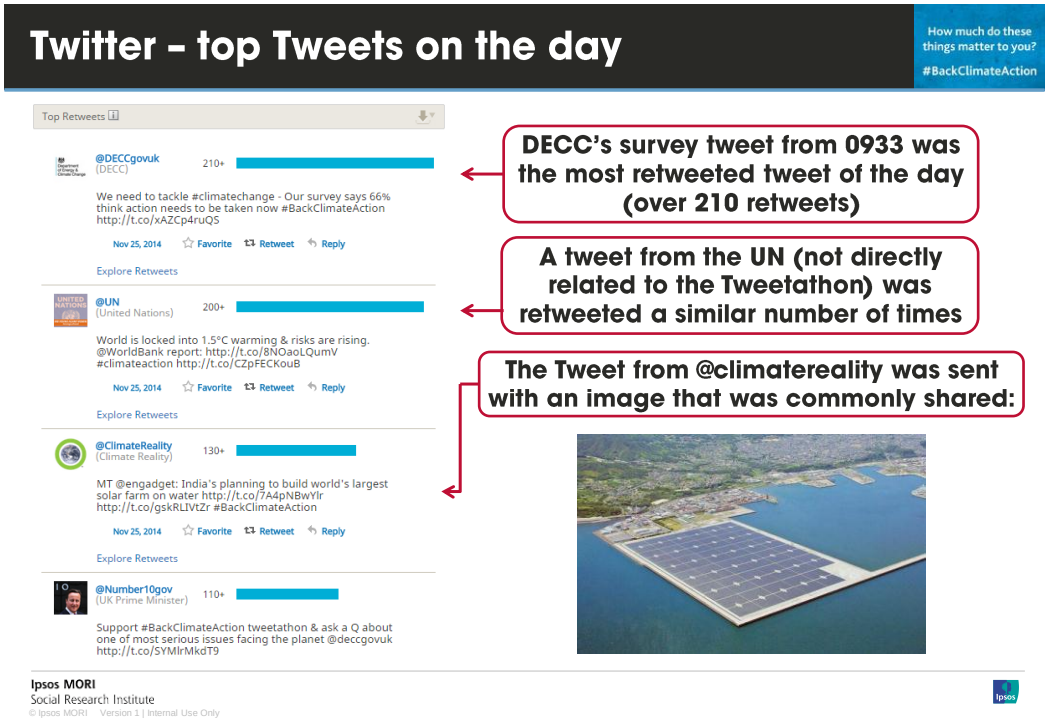
Examining each of these chosen topic areas by the proportion of the overall traffic they occupied, a slightly different picture emerges. Whilst health provided the largest peak of

the selection, it occupied a smaller proportion (five per cent) of the overall traffic than other topics – most notably energy, which had the lowest peak of any of the topics, but which featured to a greater extent across the day than other topics, and occupied a greater proportion (seven per cent) of overall traffic.

3.3 Most retweeted

The most retweeted tweet was from DECC, revealing the results of the survey which was being released on the same day showing a majority in support of taking action now. This was released at 9:33am, and was retweeted over 210 times during the day.

Figure 3.4 – Most popular tweets on the day



The second-most retweeted post came from the UN, who were using a similar hashtag ("#climateaction"). The third-most popular tweet came with a photo of a giant proposed solar array; it is likely that the striking image was responsible for its popularity.

3.4 Sharing information, questions and retweets

Seventy per cent of all related Twitter activity on the day of the Tweetathon was from retweets, with 30 per cent of material being original or new[11]. Although there are scarce statistics on how prevalent retweeting is on Twitter overall, the data that exists suggests that this is a higher proportion than in general Twitter traffic. In a 2010 study of 1.2 billion tweets, it was found that only 30 per cent of traffic was retweeted[12].

[11] Statistics provided in this section are based on a random sample of 10,000 of the total 15,299 Tweets

[12] http://www.sysomos.com/insidetwitter/engagement/

The higher level witnessed here suggests greater engagement during the Tweetathon; a retweet shows that someone has read the content they are rebroadcasting and is a higher and more measurable level of engagement than passive views of content. However it also denotes a lower level of engagement than people writing new tweets and the high level of retweets could imply that the campaign was strongly "elite-led", with much of the traffic originating from authoritative accounts and DECC partners.

Another factor to consider, which again implies a strong lead from the centre in the campaign, is the number of "modified tweets", where the sender has altered the tweet to send their own message (indicating a higher level of engagement and denoted by "MT"). This was far lower, at only two per cent of traffic. However it should be kept in mind that using "MT" is down to an individual user's discretion, and only those with greater experience of Twitter may be aware of this practice.

Discovering the number of questions each topic generated has proved to be technically difficult; investigations show that the large proportion of people who ask questions do so as a reply to a specific tweet, rather than asking a question and including the intended questioner. The questions also rarely use the #BackClimateAction hashtag, which means that they fall outside the search parameters for the analysis programme. Finally, any Twitter question and answer sections invariably draw "trolls[13]". A brief example of all the issues around recording questions on Twitter is included below (with names redacted for those who are not high-profile public individuals).

Figure 3.5 – Questions and answers on Twitter

The nature of engagement is explored further in chapter 5.

[13] An internet "troll" is defined as a person who intentionally starts arguments or attempts to upset people by posting inflammatory, extraneous, or off-topic messages online.

4 Who took part?

This chapter explores who took part in the campaign. It identifies the key authors and influencers in the campaign and considers whether the campaign has been successful in engaging new people in the debate.

This chapter makes reference to "Klout" as one measure of the influence of individual accounts on Twitter[14]. This is one of a number of metrics that are used to try and measure online "presence", and there is an ongoing debate as to the usefulness and relative strengths of these measures. Klout is used here as our analysis programme provides scores for all contributors to the Tweetathon, and as such it provides a good relative measure of influence between contributors.

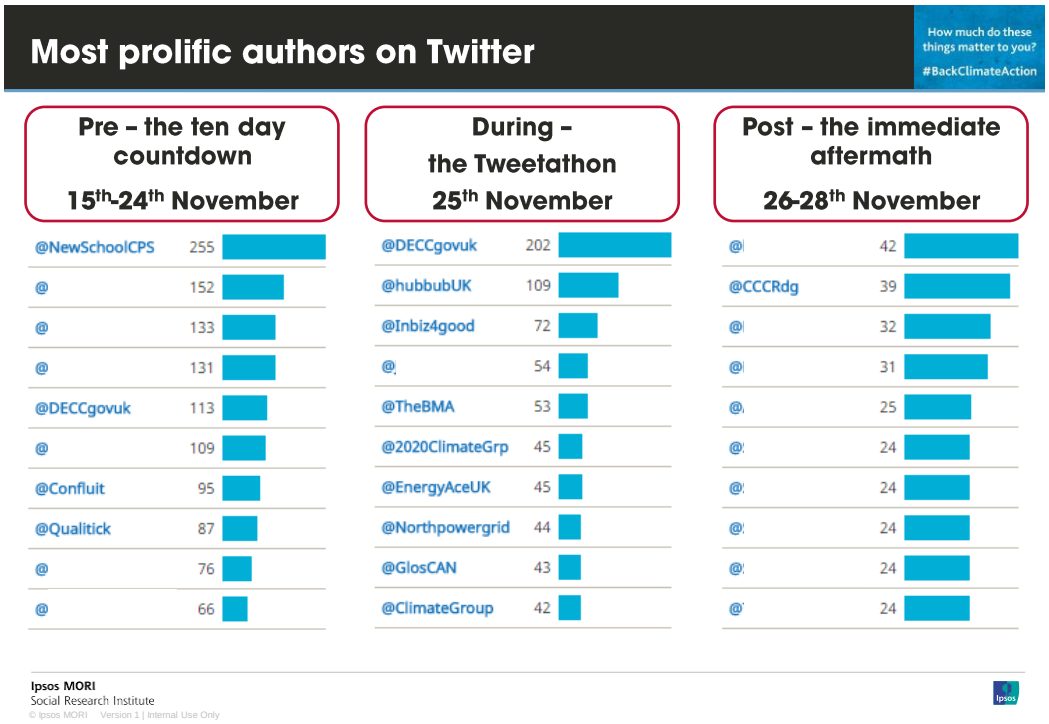
4.1 Key authors[15]

As noted in chapter 2, 16,414 unique authors took part in the campaign between 15th and 28th November. The DECC twitter account was crucial in driving the campaign, as the most prolific generator of content across 15th – 28th November, with a total of 315 tweets or retweets.

The involvement of the Centre for Public Scholarship from New York in the days prior to the Tweetathon points to a more global discussion about climate action. An assessment of key authors also identifies a number of key individuals or organisations who seek to promote information shared on social media about tackling climate change who were outside the original list of campaign partners.

[14] "Klout" scores are a measure of online presence for individual s and organisations, which take into account activity and presence across a range of social networks to give a relative influence score out of 100. More information can be found here: https://klout.com/corp/score
[15] N.B. Throughout this chapter references to the Twitter accounts of individuals have been obscured to protect individual identities

Figure 4.1 – Most prolific authors on Twitter



Outside of the top ten, further analysis of a random sample of 10,000 contributions on the day of the Tweetathon helps to identify which campaign partners were making a contribution to the discussion. Overall, 123 authors tweeted (or retweeted) posts more than ten times during the day. These contributors had an average "Klout" score of 52, higher than the world average Klout score of 40. This implies that the top tweeters were those with an elevated social media profile.

In contrast, the average Klout score for all authors involved on the day of the Tweetathon was 46, suggesting that the Tweetathon was shared by individuals and non-institutional accounts, which tend to have lower scores. However this does imply that the average account involved in the Tweetathon was still more active on social media than the average person registered on Twitter.

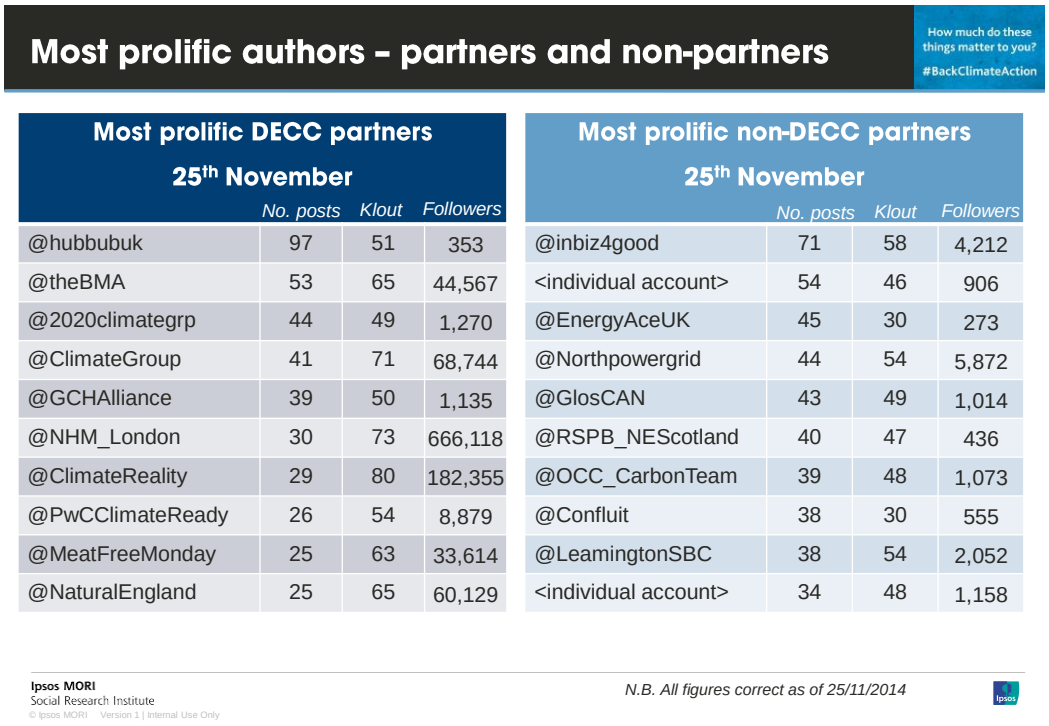
4.2 Partners

Of the 123 authors who contributed to the debate more than ten times, 31 were partners DECC actively engaged for the Tweetathon, and 92 were not (the final author was DECC, who are not counted in either list.).

Of the 111 partners engaged by DECC, 50 tweeted at least five times during the day, ranging from 97 contributions from HubbubUK to five tweets from a number of accounts including the Science Museum and BIS. The remaining 61 tweeted fewer than five times during the Tweetathon. However, it should be noted that this included single tweets from some key influencers including the Twitter accounts of the Prime Minister and Mayor of London, which should be judged as a success.

It is important to note that as results are based on a random sample of 10,000 tweets from the total of 15,299 (owing to analytical restrictions), the numbers provided here show the relative activity of each partner, rather than the absolute number of tweets each wrote on the day.

Figure 4.2 – Most prolific partners and non-partners



Examining the top ten most prolific partners and non-partners produces the tables above. Almost all the most prolific tweeters were institutional accounts, with the exception of the second and tenth most prolific non-partners, and the second most prolific was an individual green campaigner. There is an institutional connection even in this case as this non-partner is connected to the RSPB, who were one of DECC's partners for the Tweetathon. It is difficult to ascertain whether involvement was spontaneous or due to the partner relationship with the RSPB; however it is clearly important that future partner engagement explores the potential to include prominent and active personal accounts.

Although non-partners tweeted more frequently (as might be expected) DECC's partners are recorded as more influential than non-partners, with average Klout scores of 62 and 47 respectively. The real gulf emerges in the number of followers (as measured on the 25th November 2014); the largest following amongst the top ten partners is the Natural History Museum, with a following of two thirds of a million accounts, whilst for non-partners it is Northern Powergrid, a Newcastle-based electricity distributor, with 5,872.

These findings would suggest that getting partners on board is central to getting the message of a Tweetathon heard. Whilst much of Twitter traffic is sustained by individuals with fewer followers writing tweets frequently, the influence of less frequent but more widely-followed partners most likely lies at the core of a successful campaign.

4.3 Key influencers

Another common metric used for evaluating social media campaigns is to identify which authors have the potential to have a large impact on the discussion with relatively little involvement: authors with a large number of followers but a small number of contributions are likely to have a higher rate of return on their involvement compared to authors who contribute numerous times but have a smaller audience to be exposed to their material.

The key influencers involved in the campaign are provided in the chart below. As explained at the top of this chapter, Klout scores are used to define influence, as it provides a comparative measure of influence between all organisations in the search results. The list is topped by large international organisations such as the World Bank and UN. However, these organisations were both promoting a "Movement for Change" climate campaign at the same time, and did not interact directly with the #BackClimateAction Tweetathon. The closeness of the terms they were using (e.g. #ClimateAction as a campaign hashtag) means that there is crossover between the two campaigns. Other influential authors include a number of national government departments.

DECC was by far the most active account during the day, and was the eighteenth most influential tweeter involved in the campaign. The Liberal Democrats, Greenpeace, and Mayor of London Boris Johnson are other examples of influential accounts involved in the campaign, alongside those partner organisations highlighted above.

Figure 4.3 – Twitter influence

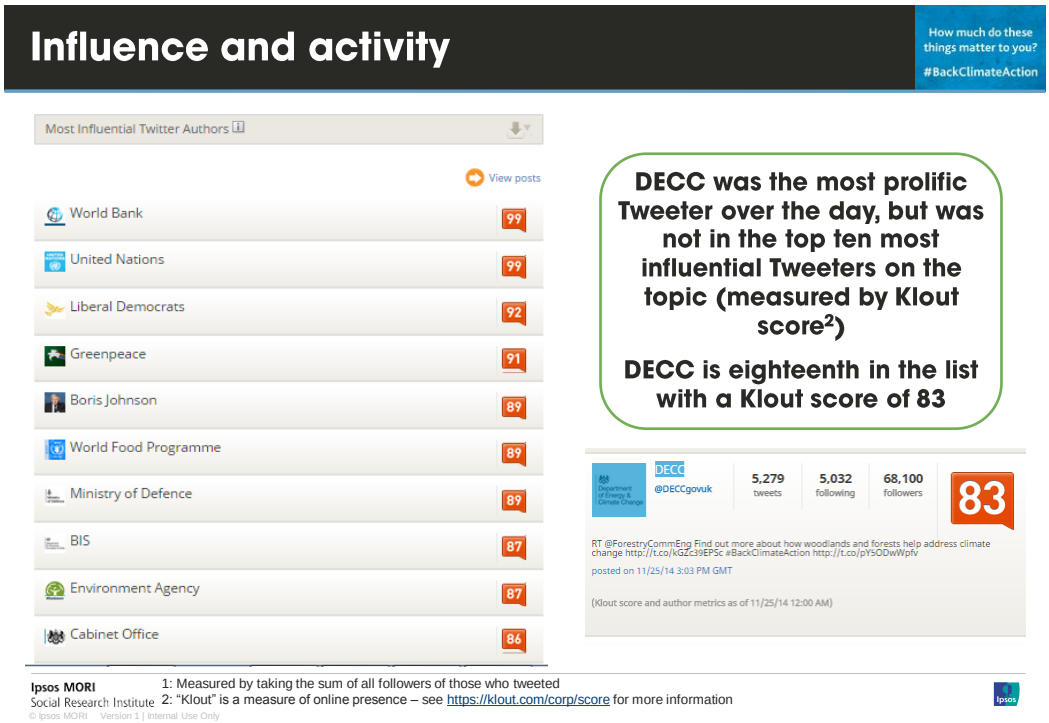
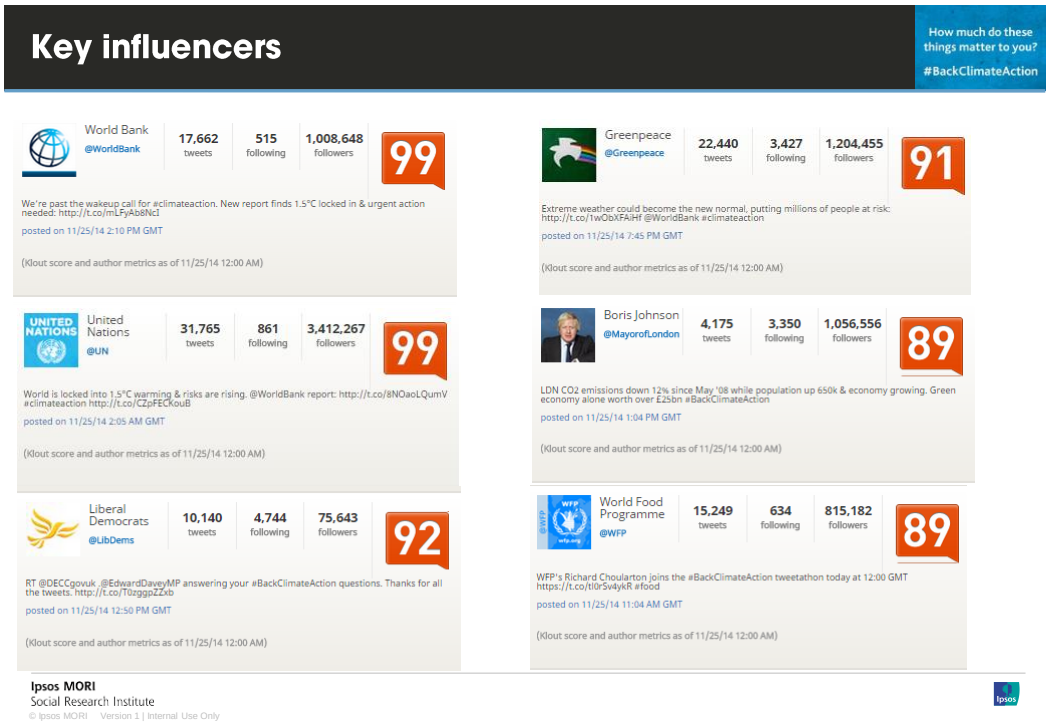


Figure 4.4 – Most seen messages



4.4 New engagement?

One of the aims of the social media campaign was to introduce new people to the debate and encourage them to take action to tackle climate change.

This is a relatively challenging metric to measure; however one method of assessment is to compare the authors involved in the day of the Tweetathon to those who contributed to the discussion in the ten day countdown period prior to 25th November.

Of the 4,764 unique contributions to the Tweetathon, 3,796 (80%) were new to the discussion and had not taken part in the ten day countdown. This indicative measure is positive, however further work would be required to confirm what proportion already take part in other wider discussions about climate change.

Another way to measure this could be to use demographic profiling variables to explore whether the individuals who took part matched the campaign's target audience. These variables make assumptions about the author based on information contained within a tweet; however, the quality of demographic profiling variables within social media analysis is currently not high enough for inclusion in this analysis. A number of social media analysis companies are working to improve these metrics, and thus it is possible that they could be included in future campaign evaluations.

5 Sentiment analysis

A key aim of the campaign was to promote a more positive discussion about the need to take action against climate change. Within social media analytics this is known as the amount of "positive sentiment" around a discussion, and is one of the more challenging and experimental aspects to analysis of social media. To conduct the analysis Ipsos MORI have been using an advanced sentiment analysis programme (Method51), which uses computer learning to provide a more accurate measure of online sentiment than existing tools. This chapter is based on the experience of using the software and discusses the feasibility of conducting accurate sentiment analysis, providing an assessment of the different ways in which people were positively engaged with the campaign.

5.1 Challenges in conducting automated sentiment analysis

Many social media analysis platforms offer an automated sentiment analysis tool, which classifies discussions and posts into positive, negative or neutral categories based on the language used by the author. The automated sentiment tool provided by Crimson Hexagon (Ipsos MORI's analysis programme) suggests that overall, discussion relating to the #BackClimateAction campaign from 15th-28th November had twice as many positive (11%) as negative (six per cent) contributions, with 83% classed as 'neutral'. On the day of the Tweetathon, the same tool suggests that 13% of discussion was positive compared to five per cent negative. The automated sentiment analysis provided to DECC by Coosto (another social media analysis programme) suggested a dip in positive sentiment during the middle of 25th November; however, this result was not replicated by Crimson Hexagon. That two programmes with the same function can produce divergent results hints at the difficulties of automated sentiment analysis.

On the face of it, the automated sentiment calculated by Crimson Hexagon suggests a positive outcome for the campaign, namely twice as many positive than negative contributions; however comparison to national polling would suggest that most people remain concerned about climate change, thus questioning whether as many as 83% of contributions were truly 'neutral'[16]. A common weakness of both programmes is that while they capture whether the words used in the discussion are positive or negative, they cannot look at the context to judge whether the author is making a positive or negative association to the climate change debate. As demonstrated in the examples at 6.3.1 below, authors often use negative language, yet are making positive associations with the need to take action on climate change.

Automated sentiment tools rely on using generic categorisations of language, and hence their tendency to code a large proportion as 'neutral'. A more robust analysis of sentiment requires human judgement.

[16] 973 Great British adults, aged 15 and over, 8th - 26th March 2013. **Source**: Nuclear Power, Ipsos MORI/Cardiff University/UKERC, 2013 (http://www.ipsos-mori.com/researchpublications/researcharchive/3284/British-public-split-on-nuclear-power.aspx)

5.2 Analysis of the wider discussion on climate change

The automated sentiment tool provided by Crimson Hexagon suggests that, globally, wider discussion on climate change between 15th-28th November was 14% positive, 21% negative and 64% neutral. Yet a manual coding of 573 of these tweets (sampled at random from 15th-28th Nov) suggests that the balance of discussion is quite different compared to the results from fully automated sentiment measurement, with **51% of posts coded as positive, 21% negative, and 28% neutral.** This of course relies on the judgement of the analyst to decide what constitutes a positive or negative association with climate change[17]. For the purposes of this research:

- **Positive contributions** included any promotion of statistics/arguments that would encourage a person to back action against climate change, direct pledges for more action, as well as sarcastic comments that despite their negativity were a rallying call for more action.
- **Negative associations** included contributions from those underplaying the need for action or denying that climate change is man-made; it also included contributions from those who were reporting negatively on role and record of organisations and senior politicians in taking action against climate change.
- **Neutral associations** included jokes, and promotion of material or events that are intended to discuss both sides of the debate.

Using the Method51 programme developed by the University of Sussex[18], which relies on a combination of machine learning and natural language processing, it is possible to train computers to learn from the manual coding and extrapolate the categorisation to the remainder of the dataset. The result of this process provides a similar picture to the manual coding; it suggests that global discussion on climate change between 15th – 28th November 2015 was **49% positive, 29% negative and 21% neutral.**

Impact of the #BackClimateAction campaign on wider climate change discussion

The aim of the campaign was to make a positive impression on the social media discussion relating to climate change. Further analysis of the bespoke sentiment classifications described above, again using Method51, suggests that the conversations generated by the #BackClimateAction campaign did have a positive impact.

As outlined in the table below, global conversation relating to climate change was most positive during the day of the Tweetathon (61% positive), and remained more positive in

[17] Recommendations for future sentiment analysis are considered in chapter 8. One of these is for the DECC team to examine raw data and develop a agree a set of bespoke definitions for coding climate change discussion.
[18] For more information please see http://www.demos.co.uk/blog/the-method-in-the-madness

the three days immediately after the Tweetathon (57% positive) than during the ten day countdown (47%)[19].

Table 5.1 – Sentiment of wider climate change discussion over duration of campaign

	Positive	Neutral	Negative
Ten day countdown (15-24th Nov)	47%	22%	31%
Tweetathon (25th Nov)	61%	21%	18%
Immediate aftermath (26-28th Nov)	57%	24%	19%
Overall total	49%	21%	29%

Having undertaken this analysis, the research team considered how best to code the discussions relating specifically to the #BackClimateAction campaign.

5.3 Analysis of the #BackClimateAction campaign

In addition to increasing positive sentiment in relation to climate change, one of the aims of the campaign was to increase positive sentiment relating specifically to the #BackClimateAction hashtag. According to the DECC specification for the campaign, this had been previously measured using the automated sentiment tool Coosto as 15% positive, 0% negative for the period 9-26th September. However, given the existence of negative entries across wider climate change discussion, it was conceivable that the hashtag could be used by those who do not support action against climate change or refute that climate change is man-made.

Initial analysis

Initially, the project team attempted to analyse the climate change tweets using the same positive versus negative framework discussed above. However, it soon became apparent that trying to apply the positive-negative framework to content relating directly to #BackClimateAction would not be possible. The negative tweets were so few and far between that it would not be viable to train the machine learning algorithms in this way; furthermore, there would be no definition nor distinction within what was a predominantly

[19] It should be noted that the established framework for calculating statistically significant differences within research datasets does not apply here – for example there is no weighting applied to the data here and there are no confidence intervals from which to predict accuracy. Trend analysis should therefore be seen as indicative only.

positive dataset. This in itself should be seen as a positive for the campaign as it had succeeded in generating a positive discussion about the need for change.

However, evaluating whether conversation relating to #BackClimateAction was more or less positive as a result of the Tweetathon campaign itself was more challenging. Upon further analysis of what came up as positive or negative, it became apparent that the tweets that were being returned were not straightforwardly positive or negative.

There are three reasons that might explain this:

- The hashtag is intrinsically positive – if people engage with it, or have been influenced to engage with it, they will most likely be positive about it. This also links with the self-selecting nature of Twitter – many people only follow other people they are interested in and, to a greater or lesser extent, agree with.

- *What* is positive or negative? Should it be positive sentiment towards the Tweetathon that is analysed? Or should it be positive sentiment towards climate action *in general*. Most people will only have space to be positive about the hashtag or the issue, not both.

- The binary nature of positive/negative is also problematic. As mentioned above, it works best when there is a proposition to be agreed or disagreed with – it was found that just 17% of tweets analysed fitted easily into positive/negative categories, and so the rest were treated as neutral. Six per cent of these tweets were considered negative, but below are some examples of "false negatives", where a tweet was classified as negative but, on closer inspection, this proved to be the wrong classification.

Just think the governments (sic) energy focus is all wrong. They need to stop looking for short term fixes for long term issues #BackClimateAction

In this instance, it is possible to see that the tweet is negative about something – the sentiment analysis has not failed. However, the tweet is not being negative about climate action, nor is it being negative about the #BackClimateAction campaign. If the objective was to find tweets criticising the government's record, then this would fit, but it is misleading if the objective is to look at the campaign itself.

RT @DECCgovuk NM: There is no security solution to a changing climate, just greater risk of insecurity if we do not act now. #BackClimateAction

This retweet was also classed as negative by Crimson Hexagon's automated sentiment tool. Again, the tool was justified in its action because the tweet is pessimistic about the current situation. But the hashtag campaign is about instigating change, and a negative view of the current situation is one compelling reason for change. It would seem that on other levels this retweet should be considered positive – it is engaging with the debate and encouraging action.

A revised approach

Within the dataset, it became clear that the evaluation team would need to identify new ways of categorising the tweets that went beyond the standard positive-negative analysis that can be automated or, alternatively, manually coded in the analysis tools. As the tweets were on the whole positive on the metric of engagement, four classifiers were identified that reflected the way in which people were engaging (predominantly positively) with the campaign.

Table 5.2 – New categorisation of type of sentiment expressed during the #BackClimateAction campaign

Label	Description	Proportion of tweets
Knowledge sharing	Tweets that were straightforwardly sharing links and information. Often sharing arguments and statistics on the case for change, or notifying readers of action that has already been taken.	54%
Pledging action	Tweets that were talking about pledges for further action – these were sometimes reporting on pledges and sometimes tweeters making their own pledges.	17%
Promoting the Tweetathon	Tweets that encouraged use of the hashtag by giving details about how people can get actively involved in the campaign.	23%
Opinions and attitudes	Tweets that explicitly gave an opinion about climate action or related issues.	7%

Analysis[20] through these classifiers showed that over half of the tweets (54%) relating to the hashtag were sharing information, links etc. Nearly one quarter (23%) were promoting the actual Tweetathon, and slightly fewer (17%) were pledging some kind of

[20] The category that worked least well was 'opinions and attitudes'. This was very much a catch-all classifier and came under the same problems as the positive-negative classifiers – opinions were shared, often implicitly, but not in a way that made the tool easy to find them.

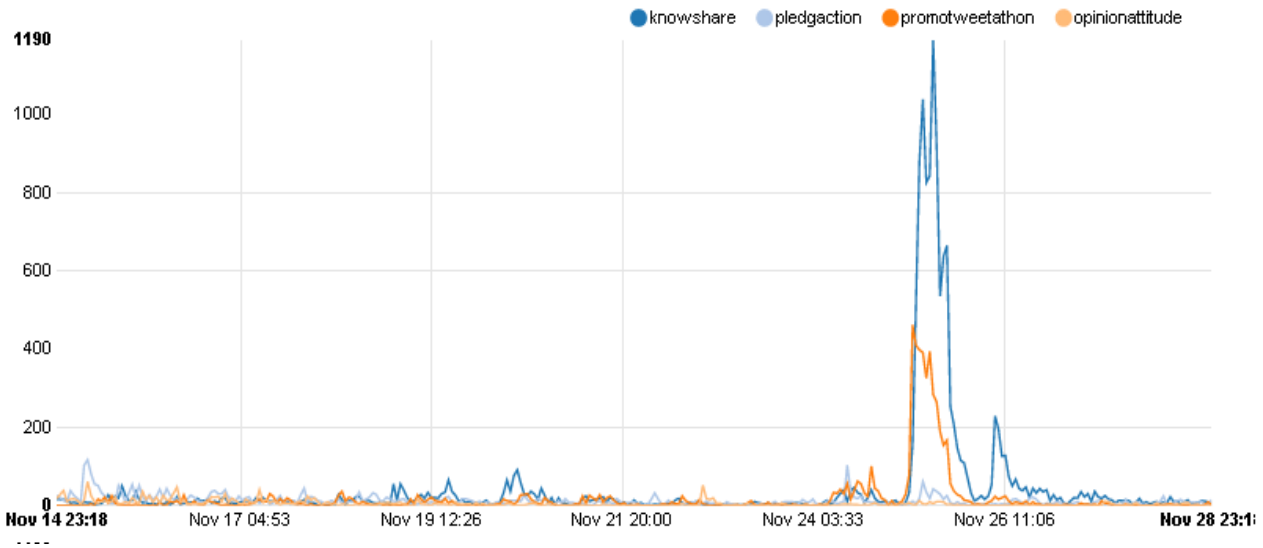
Promoting the Tweetathon worked the best – tweets that were promoting the hashtag showed the most straightforward resemblances to one another. Whilst knowledge sharing and pledging action were moderately successful, their accuracy could be improved by thinking carefully about what the Tweetathon was supposed to achieve.

action. Just 7% displayed an overt attitude or opinion. The body of tweets analysed numbered 27,084.

On the day of the Tweetathon, the proportion sharing knowledge increased to four in five (80%), with only 7% pledging action and 12% promoting the Tweetathon. Those tweets expressing an explicit opinion on the day numbered 19 (1%).

Whilst knowledge sharing was just as prevalent before the Tweetathon as after (51%), there was a notable uptick in those pledging action. This rose from 17% pledging beforehand to 31% after the day of the Tweetathon. Such a large increase in those talking about climate action pledges can certainly be seen as a successful metric.

Figure 5.1 – Type of sentiment expressed during the #BackClimateAction campaign, over time



This demonstrates the importance of moulding categories to fit the campaign that is being measured, rather than relying on broader catch-all categories. This can often be very difficult to do before the fact. It is clear that sentiment analysis can be a powerful addition to the analysis of any social media campaign, but one key learning is that how this analysis is categorised requires a great deal of thought, and close consideration of the objectives of the research.

To accurately evaluate social media campaigns an important step is to look past pre-arranged "positive-negative" categories and to consider *what kind* of positive needs to be talked about. Our analysis has looked at different subsets of engagement, because whilst not everybody is making a judgement on a hashtag, they are always engaging with it. Future evaluations might focus on, for instance, the kinds of engagement coming out in the analysis: what engagement do you expect to see, and what engagement do you want to see?

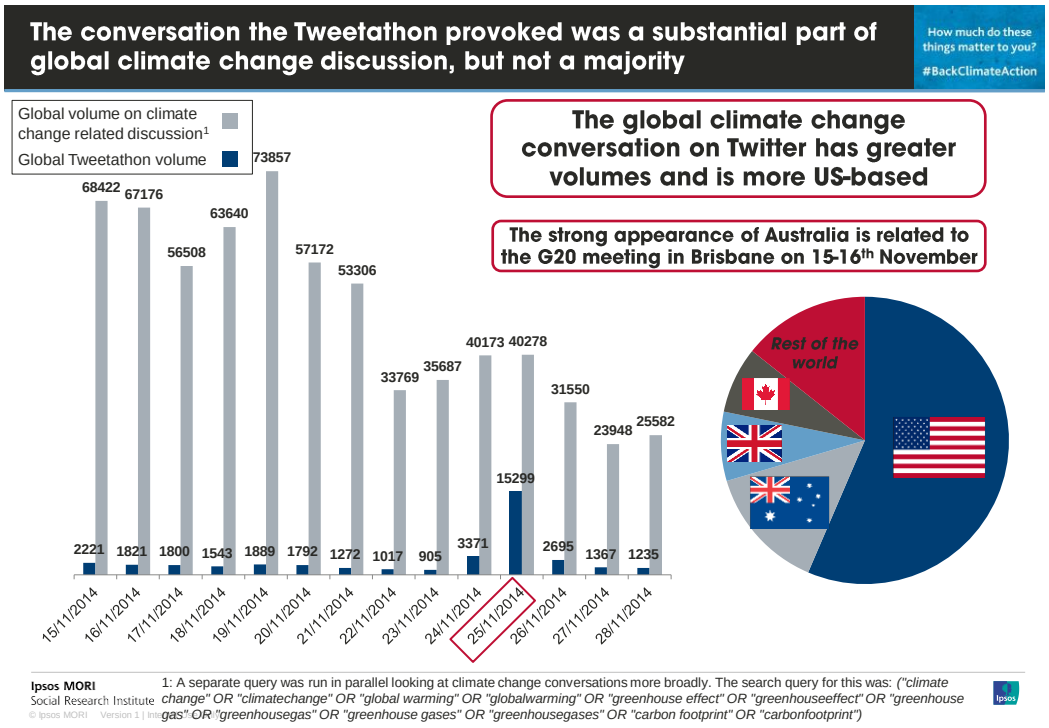
6 The wider climate change discussion

This chapter looks at data gathered using a separate, broader social listening query that looked at global discussion on climate change. Rather than focusing solely on the "#BackClimateAction" hashtag, this query examined discussions around "climate change" and "greenhouse gases" – two widely used terms.

6.1 Global volumes

The chart below compares the volume of tweets recorded by the broader search query in comparison to the volume produced by the #BackClimateAction related search.

Figure 6.1 – Global climate change and #BackClimateAction volumes



A number of separate trends can be observed in these findings:

- Global traffic was driven to a far greater extent by the United States. The British contribution to the global conversation (8%) was the third largest after the US (56%) and Australia (14%). Although the US typically dominates internet traffic, the high level of Australian traffic was a result of the G20 meeting held in Brisbane during this period. This finding contrasts with the #BackClimateAction search results, where the largest proportion of traffic was from UK linked accounts.

- #BackClimateAction volumes are much smaller than global climate change traffic. It should be noted that the results from each search used different criteria

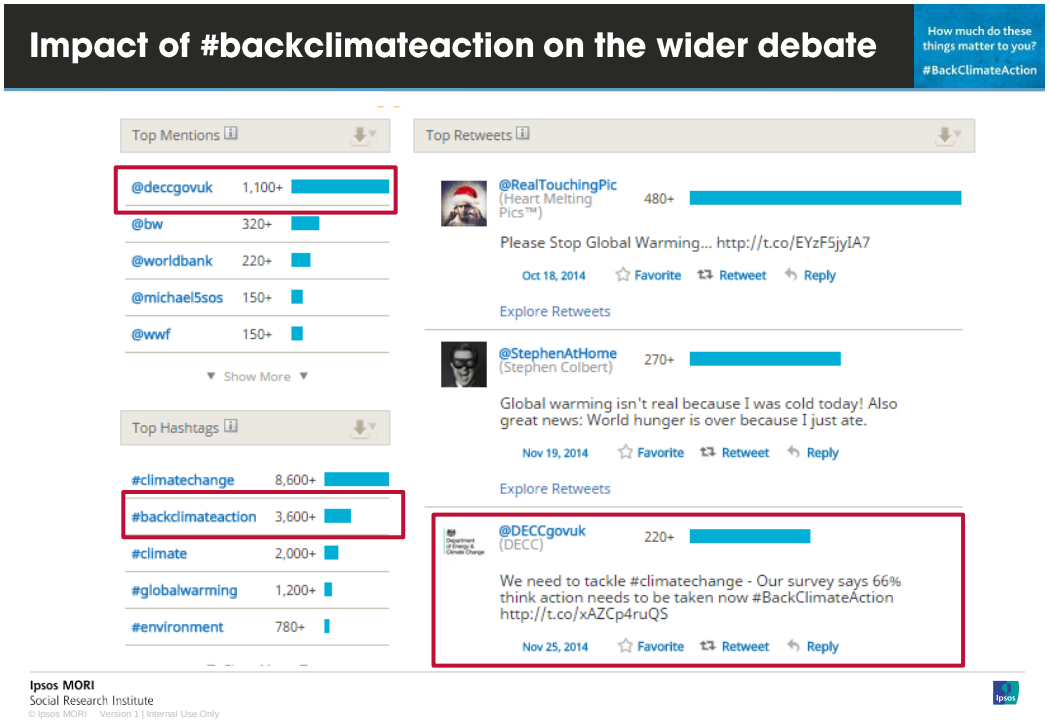
and so are measuring slightly different things, but the ratio of traffic between the two discussions gives a measure of the magnitude of the conversation which can be compared. **Global discussion traffic was, on average, seventeen times larger than traffic related to #BackClimateAction, although on the day of the Tweetathon this fell to a ratio of 2.6 to one.** This shows that it is possible for an organised event such as this to influence global discussion.

- **Global traffic operates independently of any single campaign.** The volumes of climate change discussion appear to fluctuate independently of the Tweetathon and its build up, with the day of the Tweetathon itself one of the days where there was least global discussion on the topic. Again, this shows the impact of global events (in this case the Brisbane G20) on the global discussion.

- **This may have been a positive for the Tweetathon however** as it was better able to dominate the climate change conversation on the 25th than it would have been a week prior to then, when its message would have been more likely to be lost in the G20 traffic and related discussions on internal Australian politics.

The **#BackClimateAction Tweetathon had a noticeable impact** on the wider debate. The chart below shows the most retweeted tweet, top mentioned accounts, and most popular hashtags in the broader search query relating to climate change during the Tweetathon on 25th November.

Figure 6.2 – #BackClimateAction in the global debate



- **The DECC account is the top mentioned account** globally over this period, which reflects its centrality to the campaign. It also suggests that the #BackClimateAction campaign was the most organised discussion on climate change on Twitter during this period. Whilst it is difficult to infer anything from

this conclusion, it does imply that the Tweetathon was able to exert an influence on an otherwise multidimensional and broad conversation online.

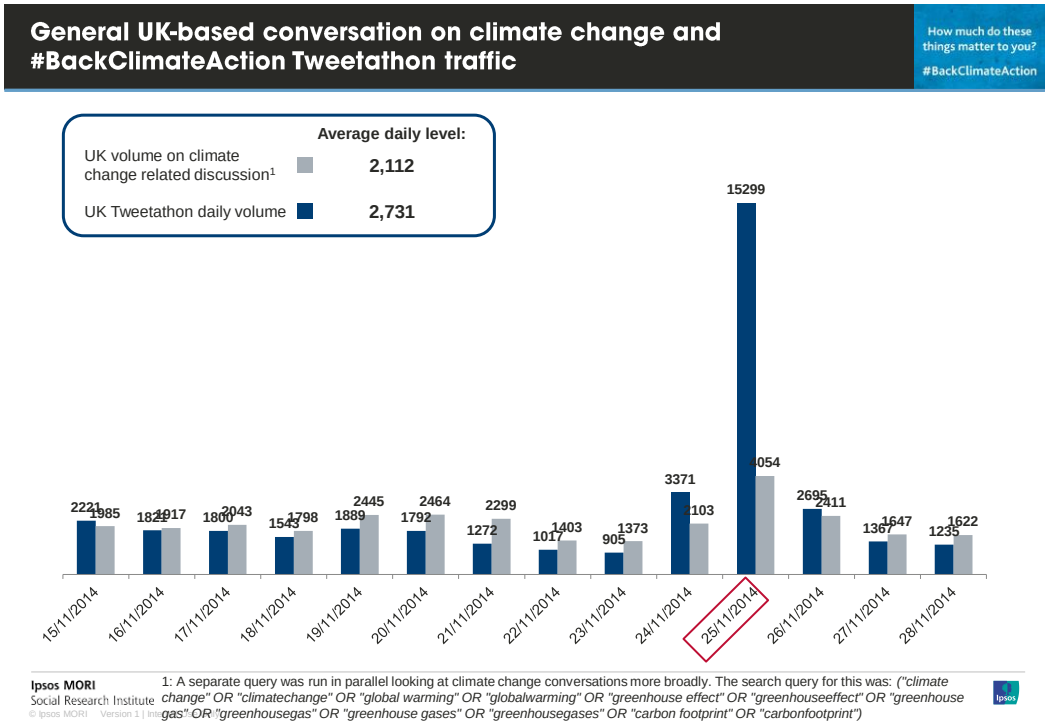
- **#BackClimateAction was the second most-used hashtag**, second only to the broad "#climatechange". Again from this it is possible to infer that the DECC Tweetathon was the single most popular climate change-related discussion.

- **DECC's survey tweet from the day of the Tweetathon was the third most retweeted** over the period. The two more popular tweets were from the popular US comedian Stephen Colbert and an account which posts only pictures of animals. These tweets were on different days to the Tweetathon, making the DECC tweet the most retweeted post globally on the day. Again this finding reinforces the conclusion that the Tweetathon conversation was one of the more focussed discussions on climate change over the observation period.

UK comparison - #BackClimateAction and Climate change

Focusing on UK-only traffic from the global search query into climate change, the impact of the Tweetathon can be better observed. As the search terms for these queries are distinct, it is entirely possible for the level of UK-based general climate change traffic to fall below the level observed for the Tweetathon – as it does in several cases.

Figure 6.3 – UK-based general climate change and #BackClimateAction volumes compared



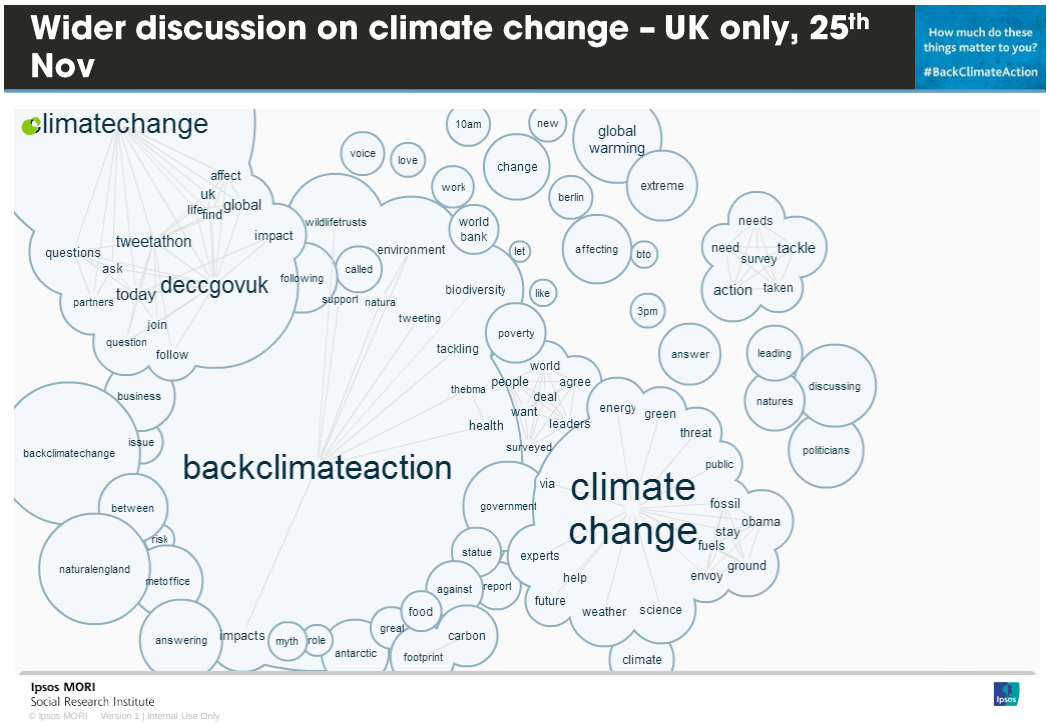
The average level of general climate change-related conversation online for the UK over the days observed was 2,112, and over the same period the search query looking at the Tweetathon recorded a traffic level of 2,731 – somewhat higher than the general query. This suggests that the Tweetathon, as well as occupying a significant minority proportion

of global conversation, was the main point of conversation as far as UK traffic was concerned. Notably, on the day of the Tweetathon itself, the level of traffic recorded in the UK by the general query almost doubles from the longer term average to 4,054, suggesting that the Tweetathon was able to influence the broader UK conversation around climate change.

6.2 Global discussion topics during the #BackClimateAction Tweetathon

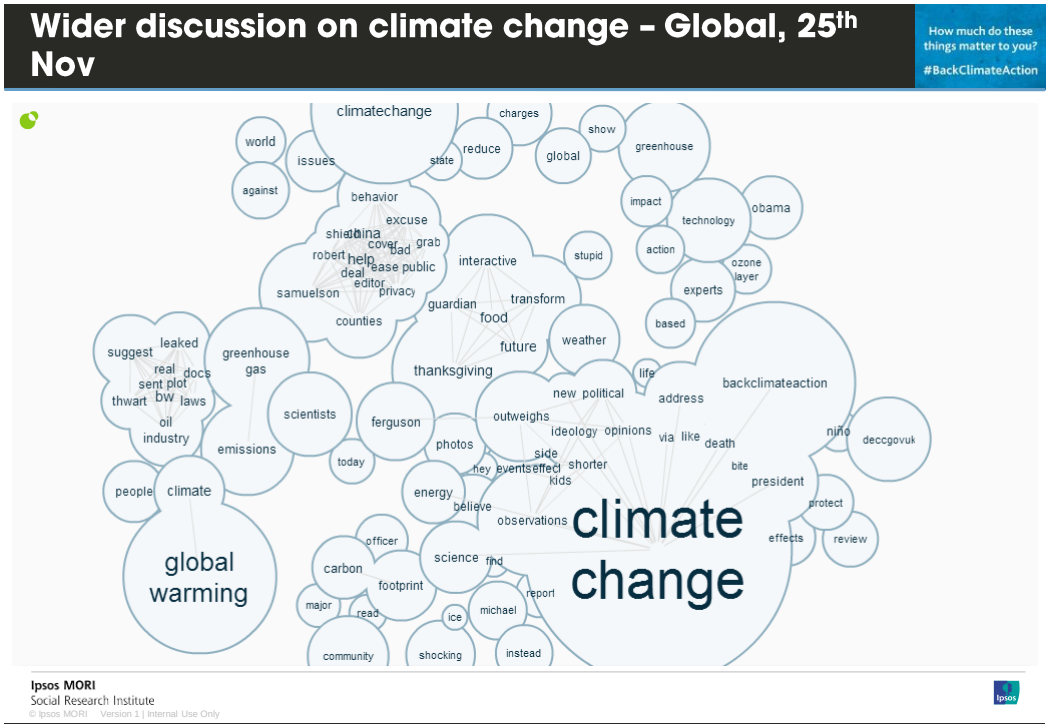
The relationship between UK and global discussions can be further investigated by examining the two word clusters below. The first shows the topics of discussion covered by the UK-only climate change search query, whilst the second reveals the results from the same query unfiltered to show global results.

Figure 6.4 – UK-centred discussion on climate change – 25th November



#BackClimateAction understandably occupies a central position in the UK-only data, and most of the themes for the day can also be seen, including health, biodiversity, environment and business. The survey forms its own topic cluster, showing that it was frequently retweeted and discussed, creating a separate sub-conversation.

Figure 6.5 – Global discussion on climate change – 25th November



Examining figure 6.5 above, it is clear that the Tweetathon was less central to the global discussion. Global traffic on climate change was two and a half (2.6) times larger than traffic related to the campaign on the day of the Tweetathon, and seventeen times larger overall.

Other topics – including Thanksgiving, Ferguson (the town in Ohio made famous by a recent police shooting), and the oil industry – are also present in the analysis of the global search query (see the chart above). The diversity of terms under discussion in the global query again reinforces the conclusion that the #BackClimateAction Tweetathon did not shape the entirety of the global conversation on climate change, but was a particularly focused and organised minority of that discussion, which boosts the likelihood that it was heard by those who were engaged in the broader online conversation.

7 Conclusions and recommendations

This section evaluates the success of the #BackClimateAction campaign against its original objectives, and offers some recommendations for future campaign activity and evaluations.

The aims of the Tweetathon were to:

1. Re-engage the public with the need to address climate change and highlight the importance of the UK coming together to take action.
2. Make climate change more relevant to people's day-to-day lives, moving away from detailed scientific explanations and abstract concepts.
3. Demonstrate that action is underway in the UK and across the globe.

The campaign also had key objectives in terms of output and sentiment:

- **Output targets**: 68 tweets from @DECCgovuk #backclimatechange; 796,700 impressions; 1,300 link clicks; 1,400 retweets; 664 favourites
- **Sentiment targets:** Increase positive sentiment in relation to 'climate change' and #BackClimateAction

7.1 Conclusions

It is clear that the campaign performed well against its thematic aims and engagement targets. However, the lack of comparative data makes it difficult to draw conclusions on where the campaign did particularly well, and the areas in which it could be improved further. Despite this, the research project has uncovered a number of ways for generating new types of insight that can help evaluate campaigns of this nature.

Reach

The #BackClimateAction campaign generated a significant amount of interest and exceeded DECCs initial output targets, with a total of 37,779 contributions related to the campaign, 315 Tweets from the @DECCgovuk account, 16,414 unique authors, 24,900 re-tweets, and over 250 million potential impressions from 15th – 28th November. Although traffic was predominantly produced from the UK (46%), the campaign was also successful in engaging global discussion (for instance, 24% came from the USA)[21].

[21] Please note, not all content has an identifiable location. Figures are based on 18,451 (57% of the overall) who do have a known location.

While there is a constant undercurrent of daily conversation relating to climate change, the campaign frequently exceeded the level of more general UK-based conversation on the topic. The average number of tweets per day during the Tweetathon for #BackClimateAction was 2,731, compared to 2,112 for the general conversation relating to climate change. It also drove a greater level of general conversation on the day of the Tweetathon, pushing the number of general tweets to 4,054. In measures of pure content volume, the campaign was a success.

Given the lack of control data to benchmark against, there are a number of technical challenges in evaluating whether the campaign was successful in engaging new people to the discussion. However, one positive indicator is that 80% of those who took an active part in the Tweetathon had not taken part in the discussion that took place during the ten day countdown prior to the event.

Topics and nature of engagement

Detailed analysis of the discussion that took place shows that the campaign was successful in supporting the case for the UK to come together and take action against climate change, and demonstrate that action was underway. Around half (54%) of all tweets were intended to share arguments and statistics on the case for change, or notifying readers of action that has already been taken; a further 17% of tweets were direct pledges to take further action[22].

Manual analysis of content relating directly to the campaign points to a predominantly positive discussion; in fact, it was not possible to classify contributions in a standard positive-negative framework due to the low number of negative tweets which either underplayed the need for action or denied that climate change is man-made. This may be in part due to the positive bias of the hashtag, which was designed to promote action on climate change.

This overwhelmingly positive engagement with the debate is also apparent in the wider global discussion relating to climate change. Though the numbers are not bound by standard rules of statistical reliability, the #BackClimateAction campaign correlates with an increase in the positive contributions made to the wider global social media discussion on climate change (from 47% during the ten day countdown, to 61% on the day of the Tweetathon and 57% in the three days immediately after the event).

The campaign was also successful in making climate change relevant to people's day-to-day lives. The most popular discussion topics were health, cities, food and water, energy/renewables, and business. This is further demonstrated in that discussion relating to biodiversity contained detailed accessible discussions about the threat to birds and the promotion of woodlands rather than using the terms 'biodiversity' itself.

[22] However, one of the aims of the Tweetathon was to encourage people to submit questions to partners throughout the day. This proved difficult to evaluate as those posing questions tended not to use the hashtag and asked a question as a reply to a prompt which means not all were present in the data.

There was less prominent discussion on sport; further work is required by DECC to review whether this is due to a lack of engagement from key partners in this area, or whether the language/issues/examples used that relate climate change to sport need renewing – either because they fell outside the confines of the search query or because they failed to grab the Twitter public's imagination.

Partners

In advance of the Tweetathon, DECC had arranged 111 organisations and prominent individuals to be partners in the campaign; this had mixed success. Of the 111 partners recruited, less than half (50) tweeted at least five times during the day of the Tweetathon, the most prominent being HubbubUK with 97 tweets and re-tweets, and the British Medical Association with 53. On one level, this represents an impressive achievement to have so many partners involved on the day; however not all partners were fully engaged and one area for improvement is further refining the list of partners to a smaller but more fully engaged core. The data also points to key contributors who were not in the initial list of DECC partners; of the 123 authors who contributed to the debate more than ten times on the 25th November, 91 were not official partners. The most prominent of these was "Inbiz4good", a small business promotion organisation. Some of the other non-partners may have been drawn in to the discussion through connections to DECC partner organisations; future campaigns should try to ensure that the personal accounts of prominent and active individuals should also be included as key partners.

7.2 Recommendations for future campaigns

A key action point from the campaign will be for DECC to review the partners it engages with in future campaigns, to follow up with the partners who did not engage at all, or less than expected, and to contact those who were naturally leading the discussion without any prompting from DECC. Any assessment should take account of partners' potential impact in the discussion, prioritising those who have access to large volumes of followers, and those who will bring fresh followers to the discussion who are less likely to have been involved in the discussion before.

The format and structure of the campaign appeared to work well in generating discussion volume, with a significant amount of promotion of the Tweetathon in advance of the event itself. However, the focus of the discussion was in sharing information and re-tweeting content rather than generating fresh content and sharing opinion; moreover, it was difficult to assess the number of questions asked as part of the campaign.

Another key recommendation is to review the terms of engagement to see if the positivity and conversation generated by a campaign such as this can be used to promote action outside Twitter. Spontaneous examples of individuals pledging action to combat climate change suggest that this could be incorporated as an objective for future campaigns. To include pledges of real-world action in their objectives future campaigns will need to incorporate this into their thinking from the start. They will also need to consider the design of the campaign to ensure that such pledging activity can be measured easily after the fact. One option could be to ask people to re-tweet one of a set of pledges of action, or stronger promotion of central hashtags.

7.3 Recommendations for future evaluation

As noted in the introduction to this report, the method of both the campaign and the evaluation are highly innovative. One of the objectives of the evaluation is to build on the experience of analysis and improve the way DECC measures the success of future campaigns.

Framework of common metrics

Future evaluations would benefit from the development of a common set of terminology and the establishment of a standard framework for measuring success. This would involve deciding which metrics are appropriate and reliable, and building a database of metrics for campaigns against which future activity can be benchmarked.

Key to this is further exploring the reliability of metrics such as 'potential impressions', 'potential reach', 'potential number of followers', and 'unique accounts', all of which are used in this report to try and evidence the number of people who have been touched by a campaign. Ipsos MORI would advocate use of metrics which have the least ambiguity. Assuming that the initial search query is appropriate, an assessment of the number of unique accounts who directly engage with content (either write, tweet, re-tweet, favourite or 'like' content) is the most reliable of these measures and this can be fully demonstrated within the data.

Metrics which add up the number of followers of all unique Twitter accounts who have authored content are less robust, as this does not account for individuals who follow multiple accounts within the dataset. It could be argued that within any one topic of discussion, there is likely to be more overlap between accounts as the conversation will attract like-minded individuals. Moreover, there is no guarantee that the followers have seen the content produced by the author; and this measure does not account for more open sources of content such as blogs who may have no metric for the number of readers who might see their content.

Metrics which add up the number of potential times the campaign has reached an individual (often known as potential number of impressions) are the least robust. Like those that measure 'reach' there is no de-duplication between followers across multiple accounts and there is no guarantee that followers have seen the content produced by the author. Furthermore, the metric assumes that it is valid to count followers of an account multiple times if the author produces multiple pieces of content. Though this may be relevant if there is a reasonable gap of time between pieces of content, it exaggerates the number of individuals who have been reached by the campaign.

Points of reference

DECC's ability to evaluate similar campaigns could also benefit from a longer lead-in time to monitor relevant discussion on social media – this would provide a more robust benchmark against which data collected during the campaign can be compared. For example, this project had a ten day period prior to the Tweetathon in which to gather comparative data that could be used to measure whether the campaign had a real

impact beyond the undercurrent of discussion on that topic – on reflection a longer period would have been more useful.

Similarly, a longer period in which to monitor relevant discussion which takes places after the campaign would help evaluate the lasting impact of the campaign. For example monitoring changes in sentiment of discussion, or increasing the amount of content produced about a specific issue.

Sentiment analysis

Chapter six explored the challenges of conducting sentiment analysis using fully automated tools. A crucial step in understanding the limitations and potential use of these tools will be for DECC to develop a common understanding in definitions of positive, negative and neutral content in relation to energy and climate change policy issues. This can initially be achieved by conducting a workshop to manually code raw data, and to review a sample of data which has been automatically coded as positive or negative by a fully automated tool.

This will help establish whether (on a campaign by campaign basis) a positive – negative framework is a helpful way of understanding the discussion and therefore evaluating the success of the campaign. Use of a tool similar to Method51 will allow for a tailored positive-negative framework to be mapped across the duration of the campaign, another option is to manually code a snap shot of sample data to give an idea of the balance of discussion.

Ipsos MORI would also advocate the use of bespoke categories (beyond positive-negative) to help fully understand the sentiment of a discussion. The experience of this analysis shows that the categories chosen must be based on the parameters of the campaign and the precise goals of the evaluation to provide the greatest insight. This approach allows analysis to be conducted from the bottom up, based on the raw data. Such an analysis must also be combined with analysis looking at the type of contribution each author is making as the context in which sentiment is recorded is important and can change.

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