

Predicting political surprises and uprisings before they happen

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From the Arab Spring to the successful leadership bid by Jeremy Corbyn or Donald Trump's success in the US Republican campaign: Why are so many surprising things happening in politics? New research by the University of Oxford and University College London has harnessed a wealth of digital data and techniques to try to answer this question.

The researchers focussed on the digital traces left by tiny acts of [political participation](#) to find clues for why movements or campaigns snowball into significant collective action while others quickly fail. They found that the catalysts for political action have changed – with the personality types of those involved playing more of a part than demographics or charismatic political leadership. Drawing on large-scale, internet data, they linked it to global, real-world events and movements through conducting a series of laboratory, field and natural experiments. They analysed acts such as signing a petition, donating money to a political cause, supporting or liking or sharing something on Facebook, tweeting or retweeting political messages, news, photographs and videos.

According to their analysis, an online petition seems to need to attract support within 10 hours if it is not going to crumble into digital dust. Between 2011 and 2015, around 97% of petitions started on the UK government petition site failed to attract even 500 signatures, with less than 0.1% reaching the 100,000 mark set for parliamentary debate. Only a handful of petitions on this site received millions of signatures, bringing real policy change on issues from road pricing and the privatisation of forests to immigration.

This finding was replicated across all the countries and platforms studied by the researchers, with huge numbers of failed petitions and a tiny fraction of dramatic successes. Most tweets or Facebook posts that urge political action or spoke of political preferences are shared by no-one. Yet the most successful initiatives show a meteoric rise seemingly from nowhere, such as the UK petition calling for Donald Trump to be barred from the UK that was signed by more than 500,000 people in a matter of days leading to a debate in parliament.

Successful mobilisations rely on a series of chain reactions – subject to positive feedback loops and explosive amplifications – which seem to depend on the personality types of those involved. Different personalities react in different ways to social information about what others are doing online, and how the visibility of their actions to others influences their behaviour, says the research. In the past, political scientists have relied on indicators such as age, socio-economic status or ethnicity, but this research suggests that when a political act is tiny, such as liking or retweeting, these factors matter less.

The researchers found that extraverts were more likely to jump in early, starting or joining online collective action without needing clear signals that it would succeed. Meanwhile, agreeable types tended to wait for signs of success before joining. Those defined as 'pro-social' (motivated by empathy and concern for the welfare and rights of others) were put off by platforms that promoted the visibility of their actions; whereas 'pro-self' or individualist personality types were the most likely to be shamed into donating more money or participating online.

The book, *Political Turbulence*, launched in the UK today, concludes that like real turbulence in natural systems, political mobilisations can be broken down and analysed scientifically. Just as a storm or a space rocket generates billions of data points, so does every campaign, petition, hashtag or unlikely political protagonist. The digital traces generated by

tiny acts of participation may be studied in the same way as particles, atoms or cells in natural systems. It suggests that by using 'data science', including experimental methods, mathematical modelling and advances in computational methods – such as machine learning – researchers will be able to understand, explain, predict and even influence the political world and the underlying patterns of political preferences and concerns which drive it. Societies that ignore this new political turbulence do so at their peril.

Co-author Professor Helen Margetts, said: 'If the time is right, political movements made up of millions of tiny acts of participation can now succeed without the trappings associated with political causes of the past, such as a charismatic leader or a political organisation. That makes politics unpredictable, unstable and often unsustainable, one of the reasons why recent uprisings and revolutions have been short-lived. But we can use the data they generate to increase our understanding of today's political world through experimental methods, mathematical modelling and machine learning. Big data and data science are not just for retailers analysing their footfall after Christmas. We should use the same techniques in pursuit of democratic understanding.'

The book authors are Helen Margetts, Professor of Society and the Internet and Director of the Oxford Internet Institute (OII) at the University of Oxford; Peter John, Professor of Political Science and Public Policy at University College London; Scott Hale, data scientist at the OII; and Taha Yasseri, a research fellow in computational social science at the OII.

Provided by University of Oxford

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