

Thought leadership from WIN: A French polling case study

French elections, fake news, and voting behavior

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Preface

This paper is a contribution by the WIN Network (international association gathering leading independent market research and polling firms in their respective countries), to discussions on changes in the polling industry. Drawing on feedback from one of its members (bva-group.com), which tracked the 2017 French presidential election using various sources of data (web listening, an online community, and polls collected via POP2017 public opinion platform), it also presents the results of an experiment conducted with two behavioral scientists at the Santa Fe Institute (USA). The purpose of this joint research, which was conducted during the French presidential campaign, was to better understand the factors – particularly social bubbles – that influence voters as well as measure the impact of fake news on public opinion.

Introduction

For a market research & polling company like ours, an election campaign is both a unique time and a valuable testing ground to help us further improve our practices. More than a year before the 2017 French presidential election, BVA's Opinion and Innovation Departments engineered a unique web platform that combined multiple data sources (POP 2017, in collaboration with Salesforce). We also initiated a number of research projects in order to decipher voting leveraging behavioral sciences.

Then the improbable happened. The U.K. voted for Brexit and Donald Trump won the White House. No one could have imagined how much our industry would be shaken by these two events. Before the French presidential campaign was even able to get off to a start, the legitimacy of polls was questioned in France like never before. Politicians and journalists around the country all played "poll bashing" instead of providing balanced information. Nowhere was the mood more virulent than on social media sites, where people shared the craziest theories. One French daily, *Le Parisien*, even decided to stop conducting polls altogether. This move forced other newspapers to choose between pointing the finger and assuming the blame. In the meantime, a few startups looking to disrupt the industry (from big data, or digital voting apps) made a cheap attempt to make themselves known by arguing that a technique dating back to the 1930s was obsolete. The cabal grew to such proportions that Syntec (the French union that represents the polling industry) and the Commission des Sondages (France's government-funded polling commission) had to publicly remind media about their responsibilities, one being that they had an obligation to only publish with the name "poll", results that comply with the law and thus the control of the Commission des Sondages. In France, polling institutes are duty bound to provide information about the methodologies they use as well as ensure full transparency about the adjustment methods used to guarantee the representativeness of the samples used.

At its core, the campaign was also full of surprises. No scriptwriter could have imagined so many twists and turns culminating in an ending that, just one year earlier, no one thought possible: the election of Emmanuel Macron, a 39-year-old man hitherto ignored by the general public.

Yet, the ending was a happy one for our industry. Our fundamentals were back in good graces with the media and the public, while those who played the sorcerer's apprentices at prediction vanished from the landscape once the outcome was published. All the same, this crisis provided BVA with the opportunity to update its practices and highlight some of our experiments as a promising response to changes in society and the media. This adventure has taught us a number of lessons which we would like to share with you in this paper.

Part one provides empirical feedback on the tool that we used to listen to opinions and observe behaviors and which combined social media monitoring with an online community of French citizens and opinion polls. Part two gives the results of an academic research project conducted with two behavioral science researchers at the Santa Fe Institute and who had deciphered U.S. elections beforehand. The purpose of this research was to better understand the factors that influence voting – particularly the social bubbles and political environment of each citizen – and directly measure the deleterious effects of a phenomenon that inevitably marked the French election after doing the same during the U.S. election: fake news.

Part 1: The lessons of this electoral adventure

A multimodal platform for going beyond polls

In 2016, BVA and its partner Salesforce, with the support of Orange and France's regional dailies, created a tool for monitoring the presidential campaign that was getting underway. Called POP 2017, its aim is to shift from simply measuring public opinion to listening to public opinion – whether given spontaneously and sought – and to observing behaviors. POP 2017 is an intelligence platform that collects data from multiple sources in real time. In particular, we used it to post a daily column about the campaign for the media. The data sources went beyond polls and extended to new ways of stating one's opinion on the web. POP 2017 was turned into a website (www.pop2017.fr) accessible by the general public and on which we published all of our data and analyses.

In particular, this 360-degree "augmented polling" tool consisted of (see figure 1):

- *Real-time web listening* that aggregated millions of sources (articles, social media sites, blogs) in order to detect spontaneous shifts in opinion and identify weak signals (e.g. campaign issues, tone of the conversations about each candidate, reactions to campaign-related events) as well as more *ad hoc* observations of various behaviors (site visits, searches, etc.).
- An online community of 800 French citizens (unpaid volunteers spanning a broad spectrum of sensibilities and profiles) active throughout the campaign. A community manager who elicited live and deferred reactions from groups of 50 people as the main events of the campaign unfolded. Verbatim comments were analyzed in order to observe the formation of opinions and changes in these opinions during argumentative debates analyzed through the prism of each speaker's profile.
- Regular opinion polls (bimonthly at first, then weekly) developed using questions formulated from spontaneous feedback made by our online community and from listening to the web. These polls, which measured public opinion at a given time, were conducted with a representative sample and revealed power relationships and long-term dynamics. They made it possible to confirm or refute the impact of events and information during the campaign on the crystallization of voter preferences. The other building blocks in the system (community, social media) also made it possible to contribute to the analysis of the results of the poll via spontaneous verbatim comments and provide the objective keys for understanding the movements at work, which were measured via recorded poll changes.

Figure 1. POP 2017, a 360-degree tool



A tool put to the test by a campaign full of twists and turns

The 2017 French presidential campaign was unlike any other that the country had seen. First of all, it was unusually long. The choice made by France's two main political parties (first the right and the center, then the left) to hold their own primaries lengthened the campaign period to nearly one year instead of the usual six months. Then, one by one, the candidates dropped out the race. President François Hollande announced that he would not run for a second term. On the right, Nicolas Sarkozy and Alain Juppé lost the primary race to François Fillon, the "surprise" candidate. On the left, Benoît Hamon beat Manuel Valls, the logical candidate to succeed Hollande. During this time, Emmanuel Macron and his newly formed party known as En Marche ! (On the move!) slowly grew in popularity. The only certainty was that Marine Le Pen, the far-right candidate, was going to make it to the second round. The question on many people's minds was which candidate would be able to block her from becoming president. Never before had social media in France been so abuzz during a presidential campaign, with scandals boosting audiences (such as Penelope Fillon's, spouse of the candidate under formal investigation for fake job offence). Battalions of citizens, particularly on the farright as well as partisans of Jean-Luc Mélenchon on the far left, rallied to support their favored candidates. The conditions were ripe; fake news circulated online up until the televised debate between Le Pen and Macron. This unforgettable debate was marked by Le Pen's Trump-inspired aggressive offensive during which she insinuated that Macron held an offshore account in the Bahamas. Macron quickly threatened to sue Le Pen for defamation. This pseudo information was posted in a fake leak on Twitter during the debate, which was held just hours before the cutoff time for the official end of the campaign and subsequent media blackout. Le Pen's mediocre performance during the debate did not enable her to secure the score she had hoped to achieve.

What have we learned about these various metrics?

Polls accurately captured the Macron's dynamics over a long period

Whether in terms of turnout or the results of the first or second round, BVA and most other institutes were able to accurately describe the power relations at play. (See figure 2.)



Figure 2. Macron's dynamics over the long term

The POP 2017 community proved to be valuable in better understanding the workings of our online tool. When polls provide a rational reading (the choice of candidate Macron motivated by his party platform or by a default choice), the analysis of the community's discussions reveal a more emotional motivation: a desire for a new direction fueled by *dégagisme*, which can be defined as the popular urge to kick old-elected officials out of office.

However, the polling tool alone was insufficient in grasping the dynamics at work during the short time and totally new situation of the primaries

The French primaries were particularly fraught for polling institutes because of their electorate. The grass roots who chose to participate in them were rather complex to estimate, there was no comparable historical reference, there were many candidates (some of whom were not well known), there was little time in which to form an opinion, and the porosity between the platforms of candidates from the same political family made shifts in opinion easy. The context was one in which decisions by electors was a complex task that could lead to heuristics to simplify choices (usual party affiliation, delegation, individual stakes, etc.) and in which the measure of the conventional poll was forced by a field period to obtain the necessary samples that does not make it possible to reproduce in the results the accelerations observed in the last days of the campaign. Against this backdrop, web listening and the reactions of the community proved to be valuable in deciphering voters' strategies.

However, it was not the "usual suspects" web metrics that provided the best insights

While the volume of posts/publications about a candidate or a campaign issue can alert about a phenomenon under way (in evolution), it remains very imperfect about the content of what is being measured in a online world where anyone can publish information or pass it on. In this online world, quantity is not representativeness, and measurement tools never are all-inclusive. In addition – and this is the key issue – data that is collected can easily be manipulated, especially by campaign bots. Nor did engagement find better grace, particularly during the presidential campaign which was too closely bound up with the track records of the online activist communities of each candidate, with the audience profiles, and, once again, with the mobilization of the campaign teams.

However, behavioral data (site visits, searches) and on-the-spot reactions from the community allowed us to capture decisive weak signals:

Measures such as visits to the candidates' websites and keyword-based Google searches confirmed that interest in candidate Fillon was growing despite the fact that voting intentions were lagging behind (see figure 3). Other public data also proved useful throughout the race (Wikipedia page views, viral videos, book sales ranking, etc.) and are now included in our media intelligence tables.

Figure 3. The growing interest in François Fillon



Likewise, the community's on-the-fly reactions during televised debates showed François Fillon to be the frontrunner (see figure 4), crystallizing the growing favorable interest measured elsewhere. Fillon was thus seen as a candidate who could both replace the old guard and square off against Marine Le Pen. Collecting on-the-spot feedback during moments of truth such as debates can thus make it possible to anticipate trends that gain traction overnight from discussions and comments.

Figure 4. Two communities' contribution



The issue of prediction: whom do we serve?

This issue cropped up rather early, prediction being one of our skills in data science. However, although the volume measurement was there, the genuineness of the data collected over the Internet remained the main limit. Enriching a rigorously controlled poll with potentially manipulated data would only throw further suspicion. Although the outcome of the election has shown us that we were right (big-data players have always failed in their predictions), it was not the main reason for not heading in this direction:

This episode of poll bashing had another virtue: it made us reconsider our purpose. Who do we serve when we conduct polls? And regarding the position to take on measure, are polls in themselves predictions? The position of players in the industry is sometimes ambiguous. While many defend the idea of a descriptive measure (admittedly able to identify dynamics and power relations), others are tempted to claim a predictive advantage (especially after the fact). The consequences of this sin of pride are not neutral in their effects on our industry's image. While the media challenged our usefulness - due to a supposed lack of accuracy - the main argument in defense of polls resurfaced, i.e. polls are essential to democracy because they provide genuine information that is intended to help citizens make enlightened choices (just like debates, campaign rallies, etc.) and they are not conducted in non-democratic societies. Yet, paradoxically, to venture into "election predictions" is to give up the idea of working for the public good. Indeed, our online community of French citizens said that making predictions exacerbates the main criticism leveled at polls (and the media), i.e. that they rob citizens of elections. The build-up of self-fulfilling comments suggesting that election results are a foregone conclusion discourages many voters from going to the polls. Furthermore, they suspect the media, politicians, and the polling industry of colluding with each other. We therefore decided to drop all references to predictions and even to help our partners in the media to make clear to their readers how each person's vote can still change everything. It turns out that we had everything we needed to talk about data in this sense and the media were receptive to using cautious language during this period.

Restoring our relationships with the media: a step in the right direction

More often than not, complaints about polls are as much about the comments made by the media as they are about the results themselves. Our responsibilities regarding this are shared and our fates are bound together. In this time of media soul-searching, many news organizations have revised their journalistic practices, gone back to doing field analyses, and given up making basic "horse race journalism" comments. In journalists' defense, the explosion of data (including from social media sites), the number of footnotes and indigestible statistical precautions, and the huge number of polls (more than 500 during the campaign) have made it tremendously hard for journalists to do their job in a context where positions are increasingly disappearing. This provided us with the opportunity to reconsider the value that we can bring to our partners. Journalists working for France's regional dailies were valuable allies in helping us do this. It is our responsibility to help the media correctly interpret the data they are given and it is our duty to make essential information immediately accessible.

We thus realized that our industry jargon is not always readily understandable and can even invite suspicion. For example, it would be clearer to stop talking about "margin of error" and refer instead to "confidence interval". It addition, teachings on the "adjustment" of data need to be rethought. To separate ourselves from this simplistic categorization, this realization prompted us to materialize the uncertainty of the election by making "volatility" a result as such (and not a weakness of measure): if the figures can change, it's because voters change their minds! One way to make it tangible was to create and, more importantly, highlight an indicator of the volatility of the electoral base (portion of intending voters who have not made a final choice or are liable to change their minds) in the first few pages of our reports, show the relative robustness of each candidate's base (portion of intending voters for a candidate who are sure of their choice), or calculate the transfer potentialities (second possible choice), and their impact on the vote potential of each candidate, etc. (see figure 5).



By thus placing the focus on aspects such as the volatility of the choices, the possible scenarios, and the potential of each one rather than on pseudo-deterministic voting intentions, we admittedly helped to fuel comments on electoral strategies as well as on the power of citizens to create swing effects by rallying together. For the first time, the headlines in the press talked about the unbelievable indecisiveness of voters (rather than the performance of the candidates or the lack of accuracy in polls) and dramatized the stakes of voter turnout and its possible positive effects on one candidate or another. As a result, by the time presidential election entered the home stretch, the gap separating the four main candidates narrowed to the extent that they were neck and neck. Technically, it was still possible for the situation to reverse and it most probably helped create the high turnout seen in the first round.

What if we made a commitment to society?

Despite the risk of being struck by lightning, we decided to brave the storm and go out and defend our industry. In order to combat misinformation and reinstate a few truths, we used short films to respond publicly to the legitimate questions posed by our community of French citizens (see figure 6). Using input from our community, we produced a mini-series of simple yet educational messages that allowed us to convey the right tone but with a dose of cheek (hence the title "à poil les sondages" [Polls: the naked truth]). These short films were also widely covered by our media partners (Orange, PQR) and shared on social media sites, thus contributing to the debate on the role of public opinion polls. Far from a mere defensive effort, our bias was especially to reassert the key message (polls don't make elections) and to encourage everyone to vote by marking their calendars so that they would be sure not to miss the dates. It was our way to demonstrate our commitment to this democratic issue and do the opposite of what had been a long-standing complaint.

Figure 6. "Polls: The naked truth" web mini-series



Polls: the naked truth – Episode #1

Can polls predict the winner of an election? <u>https://www.youtube.com/watch?v=2xPkbSCaL7c</u> (in French)

Polls: the naked truth – Episode #2

Is it possible to know what the French think just by polling 1,000 of them? <u>https://www.youtube.com/watch?v=OYGkIbFptB0</u> (in French)

Polls: the naked truth – Episode #3

Can polls be trusted? <u>https://www.youtube.com/watch?v=9ymgEilW4bU</u> (in French)

Part 2: The lessons from our research with the Sante Fe Institute

Summary

All citizens tend, in varying degrees, to adhere to a system of political beliefs. Depending on the case, this system is reinforced by interactions with others who share similar opinions, by a lack of critical reasoning, or by thought habits that make people interpret information in ways that reinforce rather than challenge their beliefs and opinions. Such situations, referred to as "social bubbles", can prevent us from communicating and learning and are used by media manipulators in any manner they choose. The purpose of this survey was to better understand the tendency of various voters to be prisoners of these social bubbles.

It examined three types of questions in addition to the usual questions about personal voting intentions: 1) the distribution of voting intentions of the members of respondents' social circles (referred as entourage); 2) a battery of questions aimed at gauging open-mindedness and analytic reasoning; and 3) questions aimed at evaluating respondents' reactions to a fake news story and to its subsequent refutation.

The questions about the voting tendencies of the respondents' social circles were relevant and robust. Indeed, our paper shows that they make it possible to improve the accuracy of election outcomes in relation to measures based on personal voting intentions and produce results very similar to those of personal voting intentions. Their value therefore goes beyond the sociological issues studied herein regarding the conducting of election surveys.

These questions enable us to sketch a sociological portrait of the various types of voters in France. For example, farright voters in France believe that their social environment is essentially composed of voters from the same party. This belief decreases the more one moves toward the center and the left of France's political spectrum. Far-right voters therefore belong to social groups that are more homogeneous in their political views, while those who voted for Emmanuel Macron have the most diversified social circles.

The survey also showed that French voters react in very different ways to false information and its subsequent refutation. Voters tend to be receptive to false information that makes opposition candidates look bad and tend to be unreceptive to refutations by the mainstream media. Far-right voters in particular tend more than other voters to interpret sources of information in ways that validate their own particular views. On the other hand, far-left voters (those who voted for Jean-Luc Mélenchon) seem to be more receptive to refutations by the mainstream media.

Voters who score higher on the open-mindedness and analytic reasoning scale are less easily manipulated by fake news. Moreover, a high score on the open-mindedness scale is often associated with a more diverse social circle. These scores increase slightly the farther one moves towards the left of the political spectrum.

To conclude, we find that French voters differ greatly in terms of the diversity of their political beliefs in their political circle. This diversity is positively correlated with the open-mindedness score and a lower tendency to be manipulated by fake news circulating on the Internet. The tendency to confine oneself to a social bubble that reinforces one's beliefs (both from a cognitive and a social perspective) is correlated with right-wing and especially far-right sensibilities. In France, this confirms a tendency that has been identified by studies conducted in the U.S.A. (Deppe et al. 2015) and other countries (e.g. Yilmaz and Saribay, 2016).

Accuracy and value of the questions about the voting intention of the respondents' social circles

We asked the respondents to estimate which proportion of their entourage (friends, family, colleagues) would actually vote and which proportion would be liable to vote for each of the main candidates (or cast a blank or spoiled ballot) even if they only had a rough idea. The aim of these questions was twofold: 1) measure their value in pre-election polls and 2) study the political opinions in the social circles of various voters. Regarding the first aim, a study conducted during the last U.S. election showed that questions about the voting intentions of respondents' social circles yielded estimates that were closer to the actual election outcome than estimates based on the traditional question about respondents' own voting intentions.

This finding can be explained by several reasons. First, the respondents may not have been entirely sincere or clearheaded about their voting intentions. For example, there may have been a "hidden vote" or they may have overestimated their probability of voting. Second, the questions that were asked may have allowed the respondents to project their own doubts and/or uncertainties about abstaining or choosing a candidate on the behavior of their own social circles. In addition, these questions increased the implicit size of the population being studied¹⁾ and the number of measures. The confidence interval of the results obtained about the entourage's voting intentions was 1.5 to 2 times narrower than that of the respondents' own voting intentions. It is also possible that the opinions indirectly represented by the bias of the questions that were asked made it possible to take into account the opinions of people who do not usually answer polls. For all of these reasons, we estimate that the questions asked help improve the accuracy and robustness of voting intention polls.

Table 1 summarizes the estimates and results for the first round of the 2017 French presidential election (with weighting). The distribution of the voting intentions of the entourage is closer to the distribution of the results of the first round than the personal voting intentions. This is primarily because the responses about the social circles better reflected abstention in this election. Indeed, on average, the respondents predicted that nearly 25.3% of their social circle would not vote or would cast a blank vote, while only 10.4% of the respondents said that they themselves would not vote or would vote blank.

	Voting intention % registered	Voting intention of immediate circle % registered	Outcome % registered
Abstention + Blank/Void ballots	10.4%	25.3%	24.2%
Emmanuel Macron	23.2%	18.3%	18.2%
Marine Le Pen	20%	16.3%	16.1%
François Fillon	13.6%	12.9%	15.2%
Jean-Luc Mélenchon	17.6%	14.6%	14.8%
Benoît Hamon	6.6%	6.6%	4.8%

Table 1. Comparison of the voting intentions of the individual respondents and their entourage, and the actual results for the first round

The accuracy of these voting intention estimates can be quantitatively evaluated using several measures created exactly for this purpose.

- Mosteller 3 is the average of the absolute deviations between the estimate of the scores and the scores obtained during the election.
- Measure A (predictive accuracy) was proposed by Martin *et al.* (2005) and subsequently generalized for multiparty elections by Arzheimer and Evans (2013). Its characteristic is that it has the same order of magnitude

regardless of the number of candidates and the distribution of voters in the population, thus enabling polling methods among several elections and political systems to be compared. The measure was obtained for each candidate using the following formula:

$$A_i = log(rac{\hat{p}_i}{rac{100-\hat{p}_i}{v_i}})$$

Wh \hat{p}_i , 'p was the 100- v_i estimate from the poll and v_i was the corresponding election outcome.

If Ai < 0, a candidate's score was underestimated; if Ai > 0, it was overestimated. The accuracy measure table gives A for each candidate as well as the overall accuracy measure $B = \Sigma i |Ai|/N$ (N being the number of candidates), and the Mosteller 3 and RMSE measures.

Measure	Candidates	Voting intention % registered	Voting intention of immediate circle % registered	Voting intention % cast	Voting intention of immediate circle % cast
	Abstention + Blank/Void ballots	-1.01	0.06	N/A	N/A
	Emmanuel Macron	0.31	0.01	0.10	0.03
•	Marine Le Pen	0.26	0.01	0.06	0.03
A	François Fillon	-0.12	-0.19	-0.33	-0.18
	Jean-Luc Mélenchon	0.21	-0.02	0.01	0.00
	Benoît Hamon	0.33	0.33	0.15	0.35
В		0.35	0.12	0.16	0.12
Mosteller 3 RMSE		3.84	0.82	1.55	1.03
		5.56	1.12	2.10	1.45

Table 2. Accuracy measures of voting intentions for the first round

The total measures (the last three rows in table 2) show that the estimates for all of the registered voters (including those who were registered but did not vote) tended to be less accurate due to the error in the abstention rate estimate. The questions about the participants' social circles were significantly better for the estimates including non-participation, and slightly better for the estimate of cast ballots. All of the B values below 0.15 indicated an estimate that seems to be accurate (unbiased).

It can therefore be concluded that the questions about the social circle yielded an estimate that was slightly higher than the traditional questions for the first round. The same trend was found for the second round (see table 3 for the summary of the second-round results and table 4 for the accuracy measures).

Table 3	. Compa	rison	of the	voting	intentions	of the	individual	respondents	and	their	social
circles,	and the	actua	l resul	ts for t	he second	round					

	Voting intention % registered	Voting intention of immediate circle % registered	Outcome % registered
Abstention + Blank/Void ballots	18.7%	31.2%	34.0%
Emmanuel Macron	50.3%	44.1%	43.6%
Marine Le Pen	31.1%	24.6%	22.4%

Table 4. Comparison of the voting intentions of the individual respondents and their social circles, and the actual results for the second round

Measure	Candidates	Voting intention % registered	Voting intention of immediate circle % registered	Voting intention % cast	Voting intention of immediate circle % cast
	Abstention + Blank/Void ballots	-0.81	-0.13	N/A	N/A
А	Emmanuel Macron	0.27	0.02	-0.17	0.14
Marine Le Pe	Marine Le Pen	0.45	0.13	0.20	0.15
В		0.51	0.09	0.18	0.14
Mosteller 3 RMSE		10.24	1.86	4.20	3.29
		10.89	2.10	4.22	3.29

We now know that there were no hidden votes in this election. At first glance, the questions about the social circle could make it possible to verify this, as demonstrated by the results of a similar poll conducted during the 2016 U.S. election (Galesic, 2017). Also, the questions about the social circle can be particularly useful when the sample is smaller as can be the case in order to understand voting intentions in a particular area or in the case of legislative, departmental,2) or local elections.

Homogeneity of political opinions

Since the questions about the voting intentions of the entourage yielded accurate estimates, these measures can be used to analyze the diversity of the respondents' social circles in order to identify the social bubbles that are present in varying degrees in the various voter groups.

Entropy, which measures the total variability of a distribution, was used to compare the degree of diversity of each respondent's social circle. The entropy of each individual *i* was calculated thus:

$$H_i = -\sum_{j \in ext{Candidats}} p_j log(p_j)$$

The higher the entropy, the greater the diversity of the person's social circle. As a base point, an individual whose social circle perfectly represented the distribution of the political preferences throughout France would have an entropy measure of 1.77.



Figure 7. Box plots of the political diversity of the social circles, by electorate

Figure 7 shows the distribution of these diversity measures for each candidate in the first round.

The diversity distribution of Marine Le Pen's electorate is broader, with more voters having weak diversity values. The Kolmogorov-Smirnov test confirms that the distribution of the diversity measures is substantially different for Marine Le Pen's voters and particularly different from that of Emmanuel Macron's voters.

This is clearly illustrated by the cumulative distributions (see figure 8): the social diversity of Emmanuel Macron's voters is much more concentrated toward the top of the distribution (this group therefore is more diverse than the other groups, especially compared with Marine Le Pen's voters).

Figure 8. Cumulative distributions of the measure of political diversity of the social circles, by electorate



In order to better understand what sets the social circles of each electorate apart from one another, figure 9 shows the average or typical composition of the social circle of each group's members. For example, the bar representing Marine Le Pen's electorate shows that, on average, nearly 60% of the social circle of a Marine Le Pen supporter intended to vote for Le Pen while only 8% intended to vote for François Fillon, 9% for Emmanuel Macron and Jean-Luc Mélenchon, and 4% for Benoît Hamon.





What is immediately striking is that, for each of these groups, on average more than half the social circle of a typical respondent intended to vote for exactly the same candidate (Benoît Hamon's voters, in the minority, being an exception) even if three of the candidates did not represent the traditional main parties. This reflects a major sociological consolidation of France's new political formations: On the move!, Unbowed France, and (less surprisingly) the National Front. There is therefore a very strong effect of social grouping by political preference.

One can also see that the proportion of the social circle voting for exactly the same candidate is higher for Marine Le Pen's voters (59%) and modestly decreases the farther one moves to the left of the political spectrum. This is the first indication that the degree of inclusion in a social bubble is stronger on the right.

Discussions with the social circle and impact on voting choices

The shift in opinion from left to right seen on the scale used to measure the homogeneity of the choices of the social circle is also found in the analysis of the questions about the discussions on the presidential election within the social circle and their impact on individual votes.

A poll conducted by BVA on the day of the first round of voting³⁾ showed that 65% of citizens who were registered to vote had discussed the candidates or their platforms with their social circle and that 43% had asked their relatives for whom they were going to vote. However, a closer look at the results of the actual votes that were cast makes it also possible here to conclude in differentiated responses between left-wing and right-wing voters.

Just like the observation in the perceived homogeneity of the social circles' voting choices, a shift in opinion from left to right can be seen in figure 9b.



Figure 9b. Discussion with the social circle, by electorate

This observation is also found when the impact that these discussions may have had on voting choices made that very day is evaluated. Left-wing voters felt more that these discussions may have had an impact on their voting choice:

Figure 9c. Perceived impact of discussions with the social circle, by electorate



Obviously, these observations apply only to the 2017 French presidential election and to the political context in which it occurred. That said, they provide information on the influence of interactions with the social circle in making voting decisions and open fields of investigation into understanding individual choices that take this social variable into account.

Susceptibility to false information

In political life, independence of mind is particularly important in order to combat opinion manipulation and critically assess information provided by the media and over the Internet. To evaluate this aspect of critical reasoning, we conducted an experiment on the perception of false information.

We showed the respondents a fake news story about Emmanuel Macron that had been circulated over the Internet by a fake news website, largely shared over social media, and subsequently shown by the mainstream media and Macron's election team to be false (see figure 10a).

Figure 10a. A fake news story circulated on Twitter



"Emmanuel Macron, the presidential candidate favoured by Saudi Arabia"

Figure 10a. A fake news story circulated on Twitter, continued

Sharing of Article	ke news <i>Twitter Analytics</i>	
publication	and the denials used to illustrate their stories.	First round
Feb. 24, 2017	Regular reposting of the fake news story by the far-right online community prior	April 23, 2017
Ŏ-		

As can be seen in figure 10b, half of the respondents were told that the story was fake before being asked about its credibility and impact, while the other half only learned that the story was fake after being asked about its credibility and impact. This allowed us to evaluate the respondents' skepticism to information spread over the Internet as well as to more official information (refutations) and to evaluate the potential impact of this false information on the various groups of voters.

Figure 10b. Sample questioning diagram



Figure 11 shows the results on the credibility of the information. The refutation had an effect on the left. The proportion of respondents that considered the information to be probably or definitely false was 47% with the refutation and only 36% without the refutation.

On the other hand, only 47% of the respondents who knew that the information had officially been refuted thought that it really was false. This indicates a high level of skepticism toward the media.

Figure 11. Responses to the question about the credibility of the information, I with and without refutation shown first



Despite their skepticism of the information, 26% of the respondents said their perception was negatively affected by the information when no refutation was provided (see figure 12). The false information therefore had a significant effect on the respondents' perceptions. The refutation made it possible to partially counterbalance this impact. Indeed, the perceptions between both samples were highly significantly different. The proportion of participants whose perception was not affected by the false information rose from 67% to 85% when the refutation was shown.

Figure 12. Responses to the question about the perception of the candidate, with and without reputation shown first



The analysis and interpretation of the false information differed from one voter group to another according to the ideological bias (i.e. political views; for example, when the refutation was shown, 21% of National Front supporters still considered that the information negatively affected their perception of the candidate) and, as we will see, open-mindedness of the respondents.

Table 5 shows, by voter group, the evaluation of the credibility of the information with and without refutation. We can see that the perception of the credibility of the information, and the reaction to the refutation, are qualitatively very different from one group to another. Emmanuel Macron and François Fillon's respective electorates constituents were predisposed to think that the information was false; the refutation only confirmed their analysis. However, Marine Le Pen's electorate was much more predisposed to believe that the information could be true. In addition, the refutation only had a very slight impact on their perception of the credibility of the information (especially when the information was tweeted by Le Pen's niece Marion Maréchal Le Pen).

Table 5. Responses to the question about the credibility of the information, with and without refutation shown first, and according to the candidate supported

WITHOUT A REFUTATION					
This information is					
	false	don't know	true		
Fillon	39.7%	36.4%	23.8%		
Le Pen	13.8%	46.4%	39.8%		
Macron	57.5%	33.6%	9.0%		
Mélenchon	34.2%	45.2%	20.6%		
	WITHOUT A	REFUTATION			
	This inforr	nation is			
	false	don't know	true		
Fillon	47.0%	31.4%	21.6%		
Le Pen	26.4%	39.2%	34.4%		
Macron	70.7%	25.2%	4.1%		
Mélenchon	47.9%	42.2%	10.0%		
	EFFECT OF TH	E REFUTATION			
	This inforr	nation is			
	false	don't know	true		
Fillon	7.3	-5.0	-2.2		
Le Pen	12.6	-7.2	-5.4		
Macron	13.2	-8.4	-4.9		
Mélenchon	13.7	-3.0	-10.6		

The difference between the voters of Marine Le Pen, Emmanuel Macron, and François Fillon can be explained by the idea of motivated reasoning (Kahan, 2013). Motivated reasoning is a reasoning that leads to the conclusion that we first want to believe. Marine Le Pen's voters probably hoped more than other voters that Emmanuel Macron's campaign would become embroiled in a scandal. They therefore were probably motivated in their analysis of the information to look for reasonings that could give credibility to the story. What is striking is that, for this group of voters, providing a refutation (new, more accurate information) did not counterbalance this motivated reasoning.

This was not the case of Jean-Luc Mélenchon's voters, who probably were just as ideologically motivated to think that the information was true. Indeed, the results of the group of Jean-Luc Mélenchon voters who were not shown the refutation indicated that they were predisposed to think that the information was probably true. However, unlike Le Pen's voters, Melenchon's voters took more seriously the publication of information that was assumed to be more accurate.

We can therefore see that ideological biases have an effect on the impact of misinformation via motivated reasoning. While some voters correct their bias when they receive new information, others do not. Just as with the homogeneity of the estimated vote of the social circle, this tendency in the 2017 presidential election to keep to bias is correlated with the far-right vote. The last portion of the results of the survey show that these two tendencies – the acceptance of false information confirming one's own ideology and the homogeneity of one's political circle – are moreover related to lower scores in a cognitive open-mindedness test.

Cognitive profiles

In this survey, we used three cognitive test that were developed in the U.S.A.:

- 1. The actively open-mindedness test (AOT), which measures attention to information and the tendency to change one's mind. In statistical judgment and prediction exercises, the AOT is correlated with a diligent search for new information that results in better judgment (Haran *et al.* 2013). In the field of politics, it is negatively correlated with conservative attitudes (Yilmaz and Saribay 2017).
- 2. The cognitive reflection test, used in English-speaking countries to assess the tendency to use one's analytic reasoning and override intuitive gut feelings (Pennycook *et al.* 2015). It, too, is negatively correlated with conservative attitudes in English-speaking countries (Deppe *et al.* 2015)
- 3. The cognitive closure test, which measures aversion to ambiguity and uncertainty and the search for definitive answers.

Figure 13 shows the variations in score by political group. These three tests follow a common pattern in that scores become higher the further voters fall to the left of the political spectrum. However, only the AOT varies in a statistically significant manner between groups of voters. We will therefore focus on the AOT in the rest of this paper.



Figure 13. Average of the AOT scores by voter group

The AOT score is positively correlated with the heterogeneity of the political opinions in social circle (figure 14). Also, the AOT score has a strong relationship with the probability of believing the misinformation to be false, including for the sample that knew that the information had been refuted (figure 15). In other terms, the tendency of the respondents to critically assess information shared by social media sites and assimilate new information that could go against their ideological preferences seems to be related to a more general attitude of open-mindedness characterized by greater attention to information and a willingness to change one's mind.

Figure 14. Effect of the heterogeneity of the opinion in the social circle on the AOT score with the confidence intervals (80% and 95%), based on linear regression (controlling for education level)



Figure 15. Effect of the AOT score on the probability of recognizing false information as being effectively false, with the confidence levels (80% and 95%), based on a logistic regression (controlling for education)



- Blue lines: group that did not know that the information had been refuted;
- Orange lines: group that knew that the information had been refuted.

What emerges from this survey is a coherent pattern: the respondents whose social circles are the most heterogeneous also tend to be more open to changing their minds (AOT measure). This is also connected to a greater ability to correctly suss out false information shared on social media sites. It also seems that the tendency to be prisoners of "social bubbles" differs from one voter group to another. These results are linked to the 2017 French presidential election and therefore need to be confirmed by other experiments on reactions to fake news. But, for illustrative purposes, if we consider that nearly two out of ten French citizens were exposed to fake news (17% according to our measure just before the first round, making up a very significant recall with respect to web campaign benchmarks), out of the entire sample, then between 1.5% and 4.4% of French citizens believe that fake news had a negatively impacted the image of their candidate (depending on whether they were informed of a refutation). This translates to a potential number of 700,000 to 2 million votes. Of course, this calculation is theoretical. Although nothing indicates that this negative effect had an effect on the French public's voting intentions, it is possible to measure the extent of the phenomenon. All the more so considering that 29% of French voters were undecided before the first round and that only 1.6 million votes separated the leading candidate (Emmanuel Macron) from the fourth-place runner (Jean-Luc Mélenchon).

Concluding remarks

This 2017 French presidential campaign showed that the hybridization of knowledge can also prevail over technological disruption and that sometimes there is no point in trying to fix something that isn't broken. That said, seeking to enrich our knowledge via the potentialities offered by technology remains an effort that pays off. The joint exploration of new sources of digital insight has become a systematic way of "augmenting" the analyses of our polls. For us, it remains an open quest as new sources of data showing a social behavior or relationship (and not just an opinion) appear. However, the sensitivity of the election issue means that our industry's credibility rides on total control over the genuineness of data and a real consensus on the nature of what is being measured. The talents of individuals and expertise in the industry must therefore continue to be hybridized in order to subsequently put technology to work for what is being sought.

The experiments conducted with our partners at the Santa Fe Institute also show that the conceptual framework of the analysis of behaviors (and not just opinions) can also change through contributions from the social, cognitive, and behavioral sciences besides political science. Indeed, the bringing together of perspectives from across disciplines provide new insights on opinion-formation phenomena in a landscape where the relationship between citizens, the media, institutions, and information is undergoing a profound change. The election of Donald Trump and the passing of Brexit have definitively put an end to the myth of the rational citizen who is able to process information from various sources and make a decision that is beneficial to them and their country. This observation echoes all the more the emergence of behavioral economics because a new variable – time – came into play in the monitoring of the campaign. Its acceleration linked to technological advances begs the question of how to decipher the way in which each voter makes a choice, i.e. by calling on system 1 (brain fast heuristics, including emotion, loss aversion, etc.) or slower (by evaluating arguments with system 2). The context of an election (duration, choice architecture of the candidates, access to polling stations, dates, etc.) as well as factors such as each individual's social environment and personal history are crucial to making such a decision. Voting is a series of choices that starts with one behavior – that of going to the polls. And the literature in behavioral economics on how to encourage voting is abundant and inspiring.

Given the new stakes for democracy set by new media (social media and online sites in general, direct means of political communication, propaganda, fake news, social bubbles, algorithms, etc.), we are on the cusp of a radical change in sincere methods of informing citizens. The media, institutions, and platforms (especially Facebook) are on the front lines of this task. Given the history of our industry, we also have a part to play. We have only just started, but the adventure that lies before us promises to be a passionate one!

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Technical note

This field research consisted of a survey conducted between April 18-21, 2017, on representative sample of 1003 individuals aged 18 and up. The representativeness of the sample was ensured using the quota method applied to the following the variables: sex, age, profession of the respondent, area and urban agglomeration category.

The main candidates in the 2017 French presidential election

Emmanuel Macron: Former Prime Minister of France under President François Hollande; founded the centrist En Marche ! (On The Move!) Party (2016); first run for the presidency.

Marine Le Pen: President of the far-right National Front party; second run for the presidency.

François Fillon: Former Prime Minister of France under President Nicolas Sarkozy; candidate of the center-right The Republicans Party (party of former President Sarkozy); first run for the presidency; won the first presidential primary election held by The Republicans.

Jean-Luc Mélenchon: Former socialist minister (2000-2002); founded the Left Party in 2009, then the political movement known as La France Insoumise (Unbowed France) in 2016; ally of the Communist Party; second run for the presidency.

Benoît Hamon: Former Prime Minister under President François Hollande; candidate of the Socialist Party (party of outgoing President Hollande); first run for the presidency; won the primary held by the Socialist Party.

Votes obtained by the main candidates in the presidential race (percentage of votes cast):

Votes obtained by the main candidates in the presidential race (percentage of votes cast):

Candidates	First	Second
Calluluates	round	round
Emmanuel Macron	24.01%	66.1%
Marine Le Pen	21.3%	33.9%
François Fillon	20.01%	
Jean-Luc Mélenchon	19.58%	
Benoît Hamon	6.36%	

Endnotes

- 1. That said, the size of this implicit sample is uncertain because the size of the social circles is not known and because the social circles consisted of individuals who were not sampled separately.
- 2. Translator's note: Departments are the administrative divisions of France. There are 97 departments in France and five overseas departments.
- 3. Poll conducted on April 23, 2017, among a representative sample of 3,000 individuals aged 18 and up. The representativeness of the sample was ensured using the quota method applied to the following the variables: sex, age, profession of the respondent, area and urban agglomeration category.

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