Monitoring of electoral campaigning on social media

Tunisia

2019 presidential and legislative campaigns
Observation period: 15 May – 13 October 2019
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KEY FINDINGS

With 7.4 million users, Facebook is by far the social network most used by Tunisians. It is also their main source of information on electoral matters. Because of the platforms it offers to political actors, DRI and ATIDE decided to monitor how electoral campaigning took place on Facebook for the presidential and legislative elections of 2019.

- Of 291 public Facebook pages in Tunisia identified as having a high level of political engagement, 40% were not transparent about their affiliation, ownership or purpose. Typically, these pages had large audiences (from 20,000 to one million followers) and became engaged in political messaging only a few months before the elections. They generally presented themselves as entertainment or satirical pages, without any declared political leaning or affiliation, but their consistent posting and sponsoring of political messages showed a clear political intent. They produced two thirds of all political messaging generated by non-media related Facebook pages in the observation sample.

- We detected patterns of systematic posting of identical political content between pages, suggesting either networks of pages operated by a single administrator or some other form of coordinated action. Some of these networks changed political affiliation over the period surveyed.

- The official Facebook pages of political parties and candidates mostly complied with electoral regulations (no use of hate speech, respect spending regulations during the campaign, respect electoral silence period). Unofficial pages and networks largely ignored them, spreading defamation and disinformation. They also engaged in political advertising during the legislative elections as well as during electoral silence periods, against ISIE's regulations.

- A large part of the political campaigning that took place on Facebook was conducted by undeclared political actors, and therefore went undetected by monitoring bodies such as ISIE or HAICA. This included sponsored political messaging, which raises the question of who funded this hidden, often negative campaigning.

- Part of this political campaigning has been erased. Some relevant Facebook pages have been deleted entirely. Others have removed all their political content, reverting to their pre-campaign, non-political profile. Without a proper Ads Library from Facebook for Tunisia, the record of political advertising, including cases of defamation or disinformation, is disappearing.

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1 https://news.barralamantn/sondage-tunisiens-confiance-medias-fr/
2 By “political engagement” we mean sharing posts of a political nature or content. For this observation, 291 of the most politically active pages were identified.
3 ISIE: Instance Supérieure Indépendante des Élections, the Tunisian independent electoral commission.
4 HAICA: Haute autorité indépendante de la communication audiovisuelle, the high independent authority of media communication, responsible for monitoring the medias (radios, TV channels) content and regulations.
Presidential election:
  a. Political messaging varied depending on the candidate between informative (Mehdi Jomaa, Nabil Karoui) and negative content (mainly an online feud between Abdelkarim Zebidi and Youssef Chahed)
  b. Disinformation attempts were a feature but not on a large scale.
  c. No significant attacks against female candidates related to their gender.
  d. Most candidates ignored electoral regulations in at least one aspect: they continued communicating during the electoral silence period. The main exception was Kais Saied, who had no official presence on Facebook or any other social media. We did not identify page-networks acting to support his candidacy and did not observe sponsored ads in his favour.

Legislative elections:
  a. The campaign was mostly negative: attacking opponents, rather than introducing candidates or presenting electoral programs.
  b. This included disinformation and misogyny towards some female candidates.
  c. In the sample we surveyed and in comparison, with the presidential campaign, the legislative campaign made a larger use of sponsored messages. It did not show the same level of organic messaging (normal use of Facebook pages and posts, without using paid alternatives to boost a post) as the presidential campaign.
  d. Big political parties campaigned at a national level. Constituency-level campaigning in local pages was mostly carried out by independent electoral lists and smaller parties, which ran in few constituencies only.
  e. The legislative campaign introduced also a newcomer on Facebook: Ennahda, who had mostly been absent during the first round of the presidential election.
  f. Most parties ignored electoral regulations in at least two aspects: (i) they continued communicating during electoral silence and (ii) they used illegal political advertising.

RECOMMENDATIONS

Facebook should build a proper Ads Library for Tunisia, on a par with what it provides in other countries. This Ads Library should provide a history of all political sponsored messages (past and current) for each page and should provide a full, open-access report that allows anyone to “explore, filter and download data for ads about social issues, elections or politics. See overall spending totals, spending by specific advertisers and spend data by geographic location”.

This information would be indispensable for ISIE and any citizen to be able to see who is running advertising, who is being targeted, what messages are being disseminated, how many people are being reached and how much is being spent on such campaigns. In the current context where page administrators are erasing content, and where some pages are disappearing entirely, such a library is also indispensable to maintain a record of what was said and whether there were attempts at disinformation.

5 https://www.facebook.com/ads/library/report/?country=US
Facebook should enforce its own regulations on political advertising, i.e. that it should be restricted to verified administrators and released with a proper disclaimer.

Facebook should enforce Tunisian electoral regulations, notably, during electoral silence days, by refusing sponsored political messages and making efforts to take down organic political messages from identified political pages. Even without a proper Ads Library to identify political ads, it is difficult to understand how Facebook could justify not suspending during the electoral silence period political ads and messaging from those pages that political parties had officially declared to ISIE.

ISIE should revise electoral regulations to better account for the fact that a large part of political campaigning now takes place on social media. This should be based on a post-mortem of the 2019 elections, building on emerging lessons and good practices from other countries. Social media evolve quickly. Revised regulations should thus be adaptable enough to accommodate for possible new uses of social media or for the arrival of new social media platforms on the political scene.

ISIE should inform Facebook and political candidates and parties of the pages it considers political, irrespective of whether they are acknowledged by a political candidate. Facebook could keep a record of all activity on such pages, allowing ISIE to investigate candidate behaviour even after posts or pages have been deleted. This would also incite political candidates to be more transparent and forthcoming on which Facebook pages are part of their campaigning, and to distance themselves more clearly from pages that are not, thus allowing ISIE to request their deletion from Facebook when they breach regulations.

Things move fast on social media. ISIE should demand from Facebook a contact point allowing for a permanently open communication channel during the pre-electoral and electoral periods. This contact point should have authority to act immediately on ISIE’s instructions to take down designated pages.

Electoral observation missions planning to survey what happens on social media should start preparatory work long in advance, to build up a picture of the political landscape on social media. This work, necessarily conducted by nationals of the country with a good understanding of local politics, allows for an understanding of which channels are used and how, who the main actors are, which data extraction tools will be appropriate and, perhaps most importantly, what metaphors are being used that would be immediately understandable to a local voter but not to an outside observer and that cannot be captured properly by any automated tool.
GENERAL CONTEXT

Social media platforms have evolved remarkably over the last nine years and have become an essential space for public and semi-public discourse.6 In Tunisia they are often used to engage citizens and share news about demonstrations and political activities in the various governorates that are not always covered by the mainstream media.7 This made Facebook “the media of the people and the revolution” that helped to end the reign of former President Ben Ali, on 14 January 2011.8 Ever since, social media, and Facebook in particular, have gained credibility among Tunisians, becoming their primary source of information on electoral matters.9

However, the last few years have also shown the risks that are present in social media. The low barriers to participation have been used throughout the world by various actors attempting to undermine electoral integrity by spreading disinformation, intimidating stakeholders and suppressing free speech. Democracy Reporting International (DRI) has been working in several countries on methods to monitor in real time and to understand how debates take place on social media and what rules are being applied.

In Tunisia, the Association Tunisienne pour l’Intégrité et la Démocratie des Elections (ATIDE) and DRI entered into a partnership for the duration of the pre-campaign and electoral campaign periods of 2019, to assist ATIDE with its electoral observation mandate and to expand its capacity to monitor how the campaigns evolved on social media. Under this partnership, DRI assisted with the methodology and with the data extraction and processing, while ATIDE provided analysis and interpretation.

The questions that ATIDE and DRI focused on under this project are:

- Was there a disconnect between the official Facebook pages of political actors and unofficial ones, suggesting that political actors and their supporters held a different discourse when they were not speaking under their own name?
- Were there coordinated attempts to manipulate or polarise opinion?
- What types of messages elicited most reactions?
- How did political actors use sponsored messages to target potential voters?
- What was the level of negative campaigning?

This report provides an overview of the monitoring conducted by both organisations over the period from 15 May to 13 October 2019, covering the pre-campaign period as well as the presidential and the legislative elections in Tunisia.
Tunisia had 7.4 million active Facebook users as of January 2019.\footnote{https://napoleoncat.com/stats/facebook-users-in-tunisia/01/2019}

This can be compared to 1.9 million Instagram users and 193,000 Twitter users in Tunisia.\footnote{https://fr.slideshare.net/DataReportal/digital-2019-tunisia-january-2019-v01} Given Facebook’s overwhelming dominance among social media users, we decided to limit our observation of political campaigning to this platform.

Like many social media platforms, Facebook can be used as a vehicle for individuals’ freedom of speech and for wider outreach for groups and causes, without intermediation and without the need to secure access to mainstream or traditional media outlets. Political actors can directly interact with Facebook users. This provides political parties with the opportunity to promote their ideas on social media to a growing audience and to expand their influence.

Tunisian political parties invested in developing their outreach on social media platforms through creating pages, groups, and online communities that share a common political content. Since it became an inescapable platform to shape public opinion, Facebook has been deliberately used by political parties and other stakeholders as a primary channel for political communication.
As in other countries, Tunisian political parties and individual politicians use political advertising on Facebook. ISIE (Instance Supérieure Indépendante pour les Élections - the Tunisian independent electoral commission) authorised this type of advertising for the presidential campaign (up to a ceiling of 10,000 TND) but prohibited it for the legislative campaign.

After the Cambridge Analytica scandal, Facebook agreed to make information related to political advertising more easily available to the general public. This is mainly done through its Ads Library, which - in the countries where it is fully implemented - provides a history of all political sponsored messages (past and current) for each page. Facebook also requires that political ads be only placed by verified page administrators and be identified as such, and states that it will remove ads that do not comply with this requirement.
Examples of information provided by political page and by ad:
Facebook even provides an openly accessible full report that allows anyone to "explore, filter and download data for ads about social issues, elections or politics. See overall spending totals, spending by specific advertisers and spend data by geographic location". With this information, one can see who is running the advertising, who is being targeted, what messages are being disseminated, how many people have been reached and how much is being spent on such campaigns.

This type of information is however not available for all countries. When we began this work, it was not available for Tunisia. On 22 August 2019, Facebook started making elements of the political Ads Library accessible for Tunisia. However, as can be seen below, the information that was made available was unreliable and incomplete.

i. Political ads were not identified as such, except for Nabil Karoui’s official campaign. Because of this, unofficial pages run by unverified administrators could pay for political messaging, contrary to Facebook’s own rules – in effect, they were the main source of online political advertising, since official pages barely engaged in such spending.

ii. The Ads Library provided no reliable record of past ads history. It could feature political ads one day that would disappear the next day.

iii. The Ads Library could not even be relied upon for identifying active ads. The screen captures below were taken on the same day (13 September 2019). Yet the active ads of this page do not appear in its Library, which states “this page isn’t running any ads right now”.

16 At the time of writing this report, the full Ads Library is available only for Austria, Brazil, Canada, the EU, India, Israel, Poland, the UK, the Ukraine and the US.
iv. The Ads Library did not provide access to ads that appear in stories, Messenger, Instagram and video feeds.

It was thus impossible to draw a comprehensive, let alone complete, picture of political advertising on Facebook. The findings included in the sections on legislative and presidential elections in this report were obtained from direct observation of pages and of team members’ timelines. Team members and observers systematically took screen captures of all ads they recognised as political. This provided valuable information, which remains, however, limited to what the team could capture and to what they were exposed: if ads were targeted at locations where we did not have observers or at age groups different to those of our observers, we could not record them since they did not appear in any page’s Ads Library history.

Tunisia’s electoral regulations restrict political advertising, regardless of its source. This was monitored closely by the electoral authorities in the case of official media. Yet, the absence of control on advertisers and the lack of information that a fully functioning Facebook Ads Library could have provided meant that Facebook was in effect providing political actors with a space for unfettered and at times illegal political advertising, while not giving ISIE the basic information it needed to monitor and sanction.

At a minimum, Facebook could have at least abided by its own rules and taken down all political ads run without a disclaimer or from pages without a verified administrator as well as all political ads run during electoral silence days.
METHODOLOGY

1 Pre-monitoring

In March 2019, six months before the anticipated elections, DRI’s data analysts and project coordinator, who have a strong understanding of Tunisia’s political scene, history and stakeholders, started monitoring the activity of the Facebook pages of prominent Tunisian political figures, through normal daily use of Facebook. The aim was to identify the different stakeholders on the platform active in political messaging, to document the language and key words used, and to understand the behaviour of their pages.

2 Mapping the creators of political content

Based on the results of the pre-monitoring process, we established the criteria for selecting the pages to be observed during the more in-depth social media monitoring phase. The main criteria were identifiable political content, regular sharing of political messages and capacity for influence (measured by the number of followers or whether the page is sponsoring political messages). This led us to a number of monitored pages varying between 179 and 291 (see Annex 1) depending on the monitoring tool and time period. We continuously revised this list of pages, due to the dynamic nature of the media ecosystem: as an election approaches, new pages are created, and some are deleted, for example if Facebook finds that they are violating its code of conduct.17

3 Data collection

To answer the questions identified under this project (see Introduction), we needed to decide on the following:

- **Which social media platform(s) to monitor?**
  The monitoring focused on Facebook because it is by far the most used social media platform in Tunisia.

- **What information is needed from this platform?**
  Information was required on all posts from pre-defined Facebook pages (organic and sponsored18): page identifier, post identifier, post link, content link, picture link, number/type of comments, publishing date, number/type of reactions) and information on sponsored messaging (target, reach, amount of spending, origin).

- **What technical means are available?**
  Netvizz19 was initially identified as the application best suited to provide this level of granularity in data extraction. However, since the Cambridge Analytica scandal became public, Facebook has been implementing a close surveillance of data extraction apps. They eventually shut down Netvizz’ access in August 2019, which forced our team to use different tools had to be used for the remaining observation period.

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18 An organic message is shared by being posted on its author’s page and by being shared / reposted by other pages. It appears on a person’s timeline only if that person follows the page of its author or a page that reposts the same content. A sponsored message is shared because its author paid for its circulation. It appears on a person’s timeline because this person belongs to a demographic category targeted by the author, not because that persons follows the author’s page.
19 https://dighumlab.org/netvizz-for-facebook-data-extraction-and-analysis/
The data collection process from 15 May to 15 October 2019 therefore combined different methods according to the technical availability and the electoral events:

**Netvizz: 15 May to 15 July 2019**
During this period, the information needed from each page was collected automatically via Netvizz, an app used to extract raw data from Facebook (see Annex 3). This data was then filtered and verified randomly. Data collected for each post included: page identifier, post identifier, post link, content type, content link, picture link, number of comments, number of reactions, publishing date, number/type of reactions).

The data from this period was extracted from 52,512 posts from 291 Facebook pages. Posts generated by media pages (referring to pages that belong to various media outlets, such as TV channels, radio stations, journals, e-magazines) were set aside, and the remaining 29,329 posts were analysed for their political content using a second application that extracts the text content, created by DRI’s technical team of coders specifically for this monitoring. Another application developed by DRI’s coders extracted 12,078 pictures from the posts originally collected.

**Awario: 16 July to 1 September 2019**
After the shutdown of Netvizz, the team used a paid version of a product visibility tracking application Awario\(^\text{20}\), which finds data based on keyword searches. We used this application to track the mentions of the presidential candidates during the pre-campaign period in Arabic, French and English. It shows Facebook posts as results of the search.

The application offered ready-to-use graphics about the presence/outreach of each candidate and the ability to download tables of data according to which these graphics are created. With this tool, the team collected 981 posts from 81 unofficial pages.

**Manual data collection: 2 September to 15 October 2019**
Since Awario does not provide the same level of detailed information as Netvizz did, we supplemented the data collection with manual work, with a team of specially recruited analysts. Information collected manually covered: page identifier, post identifier, post link, content type, content link, picture link, number of comments, number of reactions, publishing date, number/type of reactions of the posts of 185 Facebook pages. During the whole period of monitoring, 14,692 posts were collected.
Collecting data on sponsored messages

The lack of a functional and reliable Ads Library made it more difficult to collect systematic data on paid political ads. To compensate for this, a team of six individuals was recruited (two male/four female, aged 18-35, located in Ariana, Tunis, Monastir, Nabeul) allowing us to track political messaging targeting Tunisian Facebook users. The team was tasked with taking screenshots of all sponsored political content that appeared on their timeline.

This manual random monitoring resulted in 314 screenshots of political content during the legislative elections campaign period (14 September to 6 October 2019) with extra screenshots during the whole process.

Several other technical tools were also used occasionally. They are described in Annex 4.
4 Data cleaning

To ensure the accuracy of the content, the extracted raw data was cleaned either manually or programmatically.

5 Data vocabulary analysis

The words employed in the content were classified according to an Arabic/Tunisian Arabic dictionary of words established by the team based on the observation of Facebook pages during the pre-monitoring and monitoring phases (see Annex 2).

6 Data analysis

The collected content was analysed by:

- Analysing the Facebook posts’ text content to classify the posts into political or not; connection to political figures; sentiment analysis.
- Analysing websites articles for the same classification.
- Analysing the collected pictures with facial recognition techniques to identify political figures.
- Qualitative/quantitative analysis of the posts shared around offline events, which were online activity peaks during the period covered (pre-campaign period)
- Comparing timing and similarities of text content and pictures between postings to identify signs of coordinated action and evidence of existing page networks, thanks to an application coded for this purpose.

7 Outputs

- Identification of the main players in political campaigning on Facebook.
- Analysis of their individual or coordinated behaviour, per type of player.

8 Limits encountered

- Content analysis relies on a glossary of keywords. The words used are from the Tunisian dialect, which has no fixed written form. This means that the same word will be used by different users with different spellings (including transliteration in the roman alphabet and in the “Codeswitching”\(^{21}\) Franco-Arabic chat alphabet). Efforts were made to capture all spelling occurrences of keywords but it cannot be ensured this was exhaustive (see Annex 2).

• Influential Facebook pages were identified through observation: following major accounts, exploring suggested links and sponsored political ads. By starting this activity in March 2019, the team is confident that it captured most actors who actively reached out to Facebook users. It is however possible that some pages that did not advertise messages, that were very recently created or were not captured by Facebook’s “pages you might like” algorithm may have escaped observation.

• A detailed analysis of sponsored messages requires access to a fully functional Ads Library from Facebook. As explained in the introduction, the information that Facebook eventually made available through its Ads Library remained flawed and incomplete. This made it impossible – to us and to any other observer of social media – to fully measure the importance of political advertising on Facebook.

• Observation was limited to public pages. We could not observe political discourse that took place in open and closed groups. Given that the winner of the presidential election is said to have benefited from the campaigning of supporters very active in such closed groups, it is a significant limitation that we could not verify whether this was the case. 22

• Observation of political advertising during the legislative campaign was limited to what our observers captured on Facebook in five constituencies. This provides a valuable indication of candidate behaviour but cannot be generalised to all 33 constituencies.
INITIAL OBSERVATION PERIOD

While scrolling their timeline, a typical Tunisian Facebook user gets different types of content: entertaining (funny videos, written jokes, memes, celebrity gossip), informative (news, educational), and political. The type of political posts varies depending on whether the source is the personal page of a political figure/activist or the page of a political party, NGO or media outlet and on their respective resources.

To better understand this landscape, the team monitored political messaging on Facebook starting from March 2019. We started by following the pages of the main news sources and political actors and expanded our scrutiny to pages suggested / recommended by Facebook based on their profile. The number of pages followed thus grew organically (see details in the Methodology section). Eventually, we selected 291 Facebook pages we considered noteworthy, for which we conducted a detailed observation over the period from 15 May to 15 July. These pages can be categorised as follows:

- **Official and political**: pages that are clearly aligned with or supportive of a political party or candidate. This can be deduced from their declared purpose, their verified status (where applicable), their name, their stated affiliation, or their communication. The “page transparency” information provided by Facebook also gives more insights about the pages (previous page names, the locations of page administrators, creation date). Pages declared by political parties and candidates to ISIE or Independent High Authority for Audiovisual Communication (HAICA) belong to this category.

- **Media**: pages belonging to different media outlets (TV channels, radio stations, newspapers, e-magazines).

- **Unofficial and political**: pages that appear to share regularly consistent political messages and to sponsor political ads, although their stated purpose is not political. Typically, they present themselves as entertainment or satirical pages, whose declared administrators show no discernible link to political actors. Their audience ranges from 1,000 fans (but these pages reach more people through sponsored posts) to over a million followers. It is an important and unexpected finding of this report that, when building a sample of Facebook’s most influential/active political pages, the largest group are pages that have no ostensible purpose of discussing political issues. Those are also pages that do not appear on the radars of monitoring bodies such as HAICA or ISIE. They are sometimes referred to as ”shadow pages”.

1 Creators of political content
Ministries and institutions: pages belonging to various ministries, constitutional institutions and governmental institutions. These pages are also official, in the sense that there is no doubt about who is operating them. We included them in our initial sample, because they communicate about government and public action and there was an assumption that this could be instrumentalised, particularly for those belonging to a ministry or institution whose leader was a candidate in upcoming elections. Our initial observation showed this not to be the case. In the rest of the report, ”official pages” will only refer to pages openly affiliated with a political party or candidate.

All these pages, regardless of the category they belong to, shared political content during the monitoring period.

Examples of entertainment pages sharing sponsored political content

Text: People wonder: why is Sami Fehri doing everything he can to defend Nabil Karoui, when they used to be fierce enemies?

Text: Chahed is pretending to have integrity. He resigned from his post as prime minister, leaving it to Kamel Morjen, who is actually the president of the national council of his party. Poor Tunisia

Text: How can the smuggler of Tunisia become the heart of Tunisia (a rhyme of words in Arabic)

Hashtag: 25 M.TND of taxes

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23 https://www.facebook.com/IllegalStreetMoto A page dedicated to news and pictures about motorcycles and cars, created in 2016, started sponsoring content with political messages before the elections.


25 https://www.facebook.com/AntiPopulisme/ “Anti-populism” created on 29 May 2019, a few months before the elections, sharing political content against some political stakeholders only.
Unofficial political social media accounts in Tunisia

One would expect influential political messaging on Facebook to be mostly produced by media and by pages with a declared political agenda. However, we observed that one group of new Facebook actors had become increasingly politically active as the elections get closer: the unofficial pages mentioned above, which shared %38.5 of all political messages collected during this project. The graph below, which follows the sharing of political content by types of pages, illustrates this trend. Media pages became more active as the elections approach, which was to be expected. But it is more surprising that the other category that picked up activity was the group of pages that did not have a declared political affiliation or purpose, while official political pages seem to remain constant in their level of activity.

![Graph showing the growth of shared content by different types of pages](image)

The growth of shared content by the different types of pages (x: date, y: number of posts)

Given their high numbers of followers and/or their practice of sponsoring political messages, these unofficial pages have the potential to be influential political messengers. In contrast to official social media outlets, such unofficial channels can offer the opportunity for political actors or their supporters to communicate freely without reservations while not being held accountable for their discourse, since there is no proof that they are associated with these political stakeholders. As unofficial pages do not have a verified status, it is impossible to know who is behind them. We do not know whether they are simply run by politically conscious individuals with a desire to get involved during the electoral period or whether there is a wider strategy behind the creation or the political use of such pages. In any case, it is worrying that a high level of political messaging, including paid-for messaging, was carried out on Tunisia’s most used social platform in an opaque manner, by unknown actors and below the radar of Tunisia’s electoral monitoring bodies.

It is further concerning that keyword analysis showed the content of their messages to be on average more negative than the messages shared by official political pages.
After collecting, filtering and analysing the data of unofficial pages, it became apparent that several similar posts were being shared on many pages with close timing. This suggests a possible coordination between the administrators of these pages or that the pages might even belong to the same owner. We identified 13 such networks, or groups of pages sharing similar content at short intervals. Given their weight, in terms of activity and outreach (networks varying from 0.5 to 3 million followers, all pages combined), a full chapter has been dedicated to this phenomenon in this report.

At the end of this initial observation period, we had made two significant discoveries: (i) the large presence and role of unofficial and undeclared political pages and (ii) the existence of coordinated action between certain pages belonging to networks. For the campaign periods, we decided to restrict our observation to political (official and unofficial) pages and networks, since pages belonging to the media are already under the scrutiny of HAICA.
THE ELECTIONS

The presidential elections were planned for October/November 2019, to take place after the legislative elections of 6 October. The death of President Beji Caid Sebsi on 25 July 2019 changed the calendar, forcing ISIE to hold the first round of the presidential elections earlier, on 15 September, so that the country would not remain with an ad interim president for more than 90 days, in accordance with the Constitution.

By the end of August, 27 candidates out of nearly 100 submissions for the presidential election were deemed eligible by ISIE.

Presidential elections first round : 2 to 15 September 2019

The data for this period was collected manually as explained in the methodology section. **5,541 posts** of political content were extracted from **120 pages**.

The campaign: 2 to 13 September 2019

ISIE had asked candidates to submit one official Facebook page, which would be monitored by ISIE. In the graphs below, we compare, for various candidates, the behaviour of their officially declared Facebook page with the behaviour of the numerous unofficial pages that supported them. For top candidates, the identified unofficial pages continued to be much more active than the official political pages, as can be seen in the graph below. Nabil Karoui is an exception in this graphic, due to the high activity on his official page, while supporters of other candidates share content on their unofficial networks up to 18 times more than the official page. The other exception is Abdelfattah Mourou, who was not included in the sample because too few Facebook pages appeared to support his candidacy.
While official pages refrained from direct attacks on other candidates, unofficial pages showed no inhibition in this respect:

<table>
<thead>
<tr>
<th>Negative Word</th>
<th>Official Count</th>
<th>Unofficial Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>corruption</td>
<td>142</td>
<td></td>
</tr>
<tr>
<td>mafia</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>terrorism</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>robbery</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>killing</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>smuggler</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>gang</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>corrupt</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>chaos</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>liar</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

The most used negative words in the official vs unofficial pages during the presidential elections campaign

26. Created on 11 October 2010, this page of 12K fans, used to be revolutionary during the times of Ben Ali, then specialised in “conspiracy-theory” content. It never previously shared sponsored political content.

27. By the time the team started collecting additional information about the pages, some pages had vanished totally or deleted all of their political content to regain their “normal” behaviour (posts on entertainment, etc.). This page was one of those that disappeared shortly after the election (its content was entirely pro Nabil Karoui and his party).
Silence and voting day: 14 & 15 September 2019

Despite the prohibition of all types of campaigning during the electoral silence day and election day (14 and 15 September 2019), the number of political posts did not decrease and even increased significantly for some candidates.

This graphic shows the number of Facebook political ads shared by supporters of parties having released 5 ads as a minimum. Negative ads are ads directed against the party in the legend.

Not only organic content but also ads/sponsored political posts kept showing up in Tunisian Facebook users’ timelines from the first minutes of 14 September to a few hours after the closing of polling stations on 15 September, coming from both official and unofficial pages of candidates.
Screenshots taken from the official Facebook pages of the candidates Selma Loumi, Youssef Chahed, Hamma Hammami & Mehdi Jomaa: 14 September 2019 (electoral silence day)
Screenshots taken from unofficial Facebook pages supporting the candidates Selma Loumi, Ilyes Fakhfakh, Moncef Marzouki & Youssef Chahed: 14-15 September 2019
Legislative elections: 14 September – 6 October 2019

The inversion of the electoral calendar caused by the death of President Beji Caid Sebsi affected the legislative elections. Political parties and media gave priority to the presidential campaign, which led to fewer resources being allocated to campaigning for the legislative elections.

Comprehensive monitoring of legislative elections on social media is nearly impossible, especially with limited human resources. The presidential elections saw 26 candidates addressing a single constituency, unlike the legislative elections which had 15,737 candidates on 1,572 electoral lists targeting 33 constituencies to win the 217 seats of the parliament. For this reason, we followed 185 pages identified as influential but limited our observation of sponsored messaging to five constituencies selected by ATIDE: Tunis 1 & 2, Ariana, Nabeul and Monastir.

The data was collected manually as explained in the methodology section. A total of 5,541 posts of political content were extracted from 185 pages.

The campaign: 14 September – 4 October 2019

The campaign for the legislative elections officially started on 14 September, which was also the day of electoral silence for the first round of the presidential election. Contrary to the presidential election, all types of political advertising were illegal for the legislative campaign on the explicit order of the ISIE. This included sponsored content on social media. Nevertheless, many political parties used sponsored ads to promote their candidates on Facebook. Prominent among them was “El Nahdha” party, although it had not used sponsored messaging in the first round of the presidential elections.

The lack of a functional and reliable Ads Library made it impossible to collect systematic and comprehensive data on paid political ads. To compensate for this, we recruited a team of six individuals (two male/four female, aged 18-35, located in Ariana, Tunis, Monastir, Nabeul) to track political messaging targeted at Tunisian Facebook users. They were tasked with taking screenshots of all sponsored political content that appeared on their timelines. This method is limited but captured the most frequently appearing ads during this period in a sample of urban and rural constituencies. A total of 314 screenshots were collected in this way, from 14 September to 6 October.
ATIDE sorted each ad by political party/electoral list and categorised them into positive or negative content. Positive ads came from official pages of these candidates (name of the page, content), but all the negative content came from unofficial pages.
Random samples of sponsored political content campaigning for various electoral lists in legislatives. Text: Page names differ Head of the list name – Party’s name – List name, constituency, number – List name – Party’s name, circumscription

The ads were used to campaign (positively) for the electoral lists, make the voters aware of the list number, the candidates on the list or even the programme and promises, but they were also an important tool used to attack the other candidates, mainly rival political parties.
Random samples of sponsored political content attacking other candidates/political parties.
From their names, these pages are non-affiliated.
The screenshot in the right top corner is explicitly misogynistic making fun of Olfa Terras (a candidate) about her picture/dress.

---

Text: Pages names
- Tunisia24 - Idership - Secrets of the fawning - The diary of a Tunisian citizen - Tn Medias - News of the social movement
**Campaign silence day and election day: 5 & 6 October**

As with the presidential election, despite the prohibition of campaigning during the electoral silence day and on election day itself, the number of political posts increased notably for most candidates. We counted 285 organic political posts in the 185 monitored pages published over the period of silence (an increase of nearly +33% on the average number of posts shared during the campaign period). The ads/sponsored posts were also active during these days, on the official and unofficial pages of the candidates/parties. We captured 71 ads:

- **Positive**
  “El Nahdha” and “9alb Tounes” shared more political ads than the others, but they were not the only ones to break the rules.

- **Negative**
  Some chose to attack their political rivals, mainly against “Karama” and “3ich Tounsi”.

The graphic summarises 51 political ads captured on Facebook during the silence and voting days, showing parties having at least 2 ads.
Screenshots taken from unofficial Facebook pages supporting El Nahdha party:

5-6 October 2019 It is important to mention that the ads of El Nahdha party were on every internet platform available (websites, Facebook stories, Youtube ads, google ads)
Screenshots taken from official/unofficial Facebook pages: 5-6 October 2019
Conclusion:

Political messaging during the legislative campaign:

• Was mostly negative based on attacking opponents, while not explaining electoral programmes.
• Included disinformation and misogyny towards some female candidates.
• Did not show the same level of organic messaging as the presidential campaign.
• Was carried out at a national level for the big parties. Constituency-level campaigning in local pages was mostly carried out by independent electoral lists and smaller parties which ran in a few constituencies only.

Most parties ignored electoral regulations in at least two aspects: (i) they kept communicating during the electoral silence period and (ii) they used illegal political advertising.

The legislative campaign also introduced a newcomer to Facebook: “El Nahdha”, which had mostly been absent during the first round of the presidential election.
The data of this period was collected manually as explained in the methodology. We succeeded in extracting 1,549 political posts out of 3,378 posts from 185 pages.

**Campaign: 3 to 11 October 2019**

Two candidates passed to the second round of the presidential election, with very different communication strategies on social media. Nabil Karouï, despite being in jail during the first round, ran an extensive campaign, with several supporting pages, specific content for each page, and high-resolution content (videos and pictures).

He competed against Kais Saied in the presidential run-off, who remained largely invisible on public social media pages during the first round of the election.

This graphic summarises the number of posts mentioning the candidates Nabil Karouï and Kais Saied by name or related keyword (see dictionary) (in the sample of pages monitored between 2 and 13 October 2019). The two finalist candidates, surprisingly, are not very apparent on this graph due to the legislative elections happening in parallel and some political posts for or against them not mentioning their names.

**Silence and voting day: 12 and 13 October**

Despite the prohibition of all campaigning during the electoral silence day and election day (13-12 October), political posts continued to appear on the Facebook pages of the candidates and the networks supporting them, but especially those against them.

This negative content, entirely directed against Kais Saied in the samples we surveyed, appeared in organic posts but also in sponsored ones.
Monitoring of electoral campaigning on social media – Tunisia

Screenshots taken from random unofficial Facebook pages. The sponsored posts are political

- **Elections 2019**: Reactions survey

- **Tunisian ambassador**: When the nation is in danger, being neutral is treason

- **The political ghost**: the will of Bourguiba for the elections day (content pro voting for Nabil Karoui)

- **Tunisia is with Nabil Karoui**: post comparing the opinions of the two candidates about the financial law project, inspired by the TV debate they had 2 days earlier (content pro Nabil Karoui)

- **Si Chaklala (urban legend Tunisian name)**: This is what El Nahdha will do, go vote! (Remark: this content and page disappeared the next day)

- **51 folders**: A message to mr nobody who wants to be president (negative content about Kais Saied) 12-13 October 2019

Most remarkably, false information was sponsored during the election day, entirely directed against Kais Saied. These pages disappeared the next day (some reappeared later, after having deleted all the political content they shared during the electoral campaigns).
The page "100 ans Tunis" (100k followers) was supporting Nabil Karoui, as can be seen from the post on the right (video of his lawyer denying claims that his candidate had signed a lobbying contract with a Canadian firm). From 11 to 13 October, it ran a sponsored message spreading disinformation, claiming Kais Saied had important hidden assets and liquidities. Since this post did not appear in Facebook’s Ads Library, it is impossible to estimate how many people saw it. However, this accusation (which was never substantiated) was taken seriously enough that journalists questioned Kais Saied over it during the electoral debate of 11 October.
Conclusion:

Political messaging during the presidential campaign:

- Varied depending on the candidate and their communication strategy ranging from informative (Mehdi Jomaa, Nabil Karoui) to negative content on the networks supportive of other candidates (mainly a war of criticism between Abdelkarim Zebidi and Youssef Chahed).
- Contained little disinformation, apart from the last two days.
- The organic vs sponsored content varied also from one candidate to another. Unfortunately, no comparison is possible here since there is insufficient access to Facebook’s Ads Library.

Most candidates ignored electoral regulations in at least one aspect: they continued communicating during the electoral silence period, including with paid advertising. The main exception was Kais Saied, who had no official presence on Facebook or any other social media platform. We could not identify page networks acting to support his candidacy and could not spot sponsored ads in his favour. This is not to say that nothing was done to support him on Facebook, where he had numerous, active supporters, as can be seen from the fact that the page of the TV Channel ElHiwar Ettounsi lost close to 1 million followers in a day for having aired a programme critical of him. It seems, however, that most of the campaigning by his supporters took place in closed groups rather than on public pages, which made it impossible for us to observe.

The original video shows supporters of Attahrir (Islamic party) celebrating four years of revolution on 2015/1/14. It was circulated through paid advertising on 13 October with a doctored soundtrack, claiming the video was recent and hinting at what would happen (a return of Islamic extremists) if Saied was elected. This post and one of the pages that sponsored it disappeared the following day.

After collecting, filtering and analysing the data of the unofficial pages during the observation phase, it became apparent that several almost identical posts were being shared on many pages closely timed together. This suggested a possible coordination between the administrators of these pages or that the pages might even belong to the same owner. DRI coined the term “page-network” to describe these groups of pages sharing similar content within a certain time period.

To rule out any coincidence, DRI’s coders created an application to explore this phenomenon. The application analysed the content of all 53,494 posts collected over the period of 15 May to 1 September 2019, by comparing text content and pictures (facial recognition was used for this process).

The results were taken into consideration only if:
- The pictures were 98% identical
- The text content was 70% identical
- There was a pattern of sharing repeated posts across the same group (at least 2 posts)
- The network contained at least 3 identified pages
- The period of sharing between posts was less than 8 hours

This may seem like a long period for network posting. Discussions with administrators of page-networks showed, however, that they tend to stagger posting between their network pages over time. Their pages tend to share fans and they want to avoid “spamming” the fans’ timelines with similar or identical posts from different sources. The criterion of a repeated pattern of sharing across the same group of pages allows us to eliminate cases of coincidental re-sharing.
What we found:

- Page-networks were only made up of unofficial pages. Like non-networked unofficial pages, they tended to share content of a more negative nature.
- We identified initially at least 13 page-networks, with the largest network containing 24 pages, while the other networks were made up of between 6 and 16 pages. These networks reached some 500,000 to 3 million fans/followers each (with all of their respective pages combined).
- Some networks were interlinked. A message would be shared by a page to its network, then would be picked up and reshared by a page that acts as the mother-page of another network. Upon further analysis, the previously mentioned 13 networks turned out to belong to 5 overarching “super-networks”, according to a manual verification by ATIDE. A super-network is a group of at least two networks that share similar content separately, but also have common content for the bigger cause/candidate. See annex 5 for a list of networks.

This graphic summarises the number of posts mentioning the candidates Nabil Karoui and Kais Saied by name or related keyword (see dictionary) (in the sample of pages monitored between 2 and 13 October 2019)

The two finalist candidates, surprisingly, are not very apparent on this graph due to the legislative elections happening in parallel and some political posts for or against them not mentioning their names.

The figure above illustrates the complexity of links, sharing and cross-sharing of messages between page-networks.

We analyse below their behaviour during election time. Because the legislative elections took place between the first and the second round of the presidential elections, we follow chronology, rather than analyse the elections separately.
Two different pages (Tunisian Icons – For Tunisia) with names not related to any political party or candidate, sharing a sponsored content (video) pro a candidate for the presidential elections: Abdelkarim Zebidi

Text: positive video from an interview for the candidate AbdelKarim Zebidi

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As explained in the previous chapter, these pages were created especially for the campaign of Abdelkarim Zebidi. Created in July and August 2019, with an average of 10K-15K fans by the time of the elections.
Five super-networks shared the most similar content. These super-networks can be linked to:

7 Pages
2 networks: 3 / 4 pages
Salma Elloumi

Total outreach
approximately 450,000 fans

3 posts uploaded similarly
61 times

The most used hashtag: #Salma_elloumi

Examples of pro-Elloumi posts

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Monitoring of electoral campaigning on social media – Tunisia

Examples of pro-Jomaa posts

Total outreach
approximately 900,000 fans

5 networks: 3 - 13 pages

33 X 5 X
page
networks of 3 to 13 pages

1,054 total posts

52 posts uploaded similarly 635 times

The most used hashtag:
#مستقبل_تونس_مع_مفيدي_جمعة
Translation: Tunisia’s future with Mehdi Jomaa

34 https://www.facebook.com/Fheemt.officielle/posts/2535187983370765/
Examples of pro-Zebidi posts

The most used hashtag: #الزبيدي مرشح الوحدة الوطنية
Translation: Zebidi the candidate of national unity
30 Pages
6 networks: 4 - 9 pages

Youssef Chahed

Total outreach
approximately 3.7 million fans

30
posts uploaded similarly
140 times

1087 total posts

Examples of pro-Chahed posts

The most used hashtags:

#الطرطور_الجديد
#يوسف_الشاهد

Translation: Youssef Chahed

Translation: The new buffoon (A hashtag used against Abdelkarim Zebidi)

36 https://www.facebook.com/lepresident.org/videos/487893832046258/
37 https://www.facebook.com/rue.tunisien/videos/2779931958684316/
Note on all networks: The content of many of these pages has been deleted. Some entire pages have also been deleted since the elections.
The networks of shadow pages continued sharing political content during the legislative campaign but significantly less than during the presidential elections, as can be seen in the graph below.

Comparing the number of (organic) political posts vs all the posts in unofficial Facebook pages during the presidential (September 2nd to 15th) and legislative (September 14th to October 6th) campaigns

Some of the candidates for the first round of presidential elections belonged to political parties (Youssef Chahed to “Tahya Tounes”, Nabil Karoui to “Qalb Tounes”, Abdelfattah Mourou to “El Nahda”, Seifedidine Makhlouf to “Al Karama coalition”) which were also running for the legislative elections. Some, like Seifedidine Makhlouf, Mongi Rahoui, and Safi Said were also heading legislative lists. We thus expected to see the networks of pages that promoted a candidate during the presidential elections to also promote their affiliated party during the legislative election. This was the case with Youssef Chahed’s support network. However, we observed an unexpected behaviour with the networks of Abdelkarim Zebidi and Mehdi Jomaa, which converted to support other political parties or remained silent.

Page administrations apparently changed allegiance. ATIDE describes this phenomenon as “mercenary behaviour”, as the administrators appeared to act as if they had been supporting whichever party made the best offer. It seems indeed that political actors would at times prefer to use the services of well-followed existing pages rather than create new pages.

By “Youssef Chahed’s network” we mean several pages that appeared to act in a coordinated manner to support his candidacy. We do not intend to imply that these pages belong to him or his party – by definition, unofficial pages cannot be attributed to a political party and their administrators remain unknown.
We noticed also the creation of two new networks, but we unfortunately could not track the activity of all their component pages due to insufficient human resources and time constraints. The pages mentioned below are the ones we are sure of, according to their repetitive, apparently coordinated activity and to their regular appearance on our monitoring team’s screens.

- **“El Nahdha” party**
  1. https://www.facebook.com/Matenseech/

- **The movement “3ish Tounsi” (Live Tunisian)**
The networks that had changed allegiance between the first presidential round and the legislative election day (see chapter V for details) morphed again during this second round.

Their "editorial line" could be categorised as: Pro Kais Saied, Pro Nabil Karoui, Anti Kais Saied, Anti Nabil Karoui. Logically speaking, supporting one of these candidates means being against the other, but some supported a candidate and remained neutral against the other, while others attacked one candidate and remained neutral towards the other.

2 Presidential elections - Second round: 3 to 13 October 2019

Conclusion:

At the time of writing this report, these networks were no longer functioning as political electoral tools. The most noteworthy pages, especially the most virulent ones in either defending their candidates or attacking their rivals completely disappeared two days after the elections. Others changed their administrators or hid their administrators’ locations (see Annex 6– Pages). Some pages deleted all of their organic political content. They no longer sponsor political messages. Although much has been happening on the political scene since the elections, they hardly mention it and have reverted to their usual, pre-campaign type of posting, (fun, entertainment, jokes, news, etc.) This is further evidence that these pages and networks were set up specifically for the election season, as political communication tools that presented the dual advantage of being cheap and largely undetected by electoral monitoring bodies.
LESSONS LEARNT

Key findings and recommendations are stated in the opening section of this report. Here are other lessons learnt by DRI and ATIDE.

- When dealing with social media, it is tempting to think that work will be easy: all you would need is to configure a data extraction app, add findings from Facebook’s Ads Library and the report would write itself. Even with good access to data and a well-built Ads Library, this would only yield poor results. The work done here could only be achieved because it combined the technical expertise of a data analysts’ team with the human understanding of Tunisian politics provided by DRI’s and ATIDE’s teams. If our team had not started to observe political action on Facebook months in advance of the elections, it would not have been able to draw a proper picture of the political landscape: who speaks, through which channels, through which pages (declared or not), through which metaphors. Without this understanding, data analysts would not have known what to look for. Without the input of ATIDE, an organisation with years of expertise in monitoring Tunisian elections and in-depth understanding of political behaviour, conclusions would have been poorer.

- Observing political campaigning on social media is a new addition to the discipline of electoral observation. Contrary to traditional media, social media is a very fluid environment: rules of engagement can change with little notice, public records of communication can disappear and access to data and monitoring tools depends on the good will of private companies. National legislations to regulate political messaging that were designed for traditional media do not transfer well to social media. Specific national regulations on social media are scarce and, where they exist, can be difficult to apply to platforms that operate on a global scale, with no physical presence in the country where the legislation applies. We referred ourselves for our methodology to what has been done elsewhere and to DRI’s previous experience in other countries, but good practices are only just emerging in this field and there are few established, go-to state-of-the-art approaches. It is thus important when embarking on such initiative to (i) research the most recent developments and reports from other elections and (ii) acknowledge that methodology may have to be adjusted in the course of the observation work and plan adequately for this in terms of human and financial resources.

- Political advertising on social media may contribute to victory but is no substitute to political engagement in real life with voters and to the organic debates it can spontaneously elicit on social media. The victory of Kais Saied, who did not invest at all in political spending, demonstrates this.

- Electoral observation missions planning to survey what happens on social media should start preparatory work long in advance, to build up a picture of the political landscape on social media. This work, necessarily conducted by nationals of the country with a good understanding of local politics, allows for an understanding of which channels are used and how, who the main actors are, which data extraction tools will be appropriate and, perhaps most importantly, what metaphors are being used, that would be immediately understandable to a local voter but not to an outside observer and that cannot be captured properly by any automated tool.
ANNEXES

ANNEX 1 - FACEBOOK PAGES
THE FULL LIST OF LINKS TO THE FACEBOOK PAGES WE MONITORED SINCE THE PREMONITORING PERIOD

URL
HTTP://BIT.LY/2SD3FWQ

SCAN IT
FOR DOWNLOAD

ANNEX 2 - CODING DICTIONARY
THE FULL LIST OF WORDS (POLITICAL JARGON, NAMES) USED DURING THE DATA EXTRACTION PROCESS TO IDENTIFY AND EXTRACT POLITICAL CONTENT

URL
HTTP://BIT.LY/2RYMF2V

SCAN IT
FOR DOWNLOAD

ANNEX 3 - NETVIZZ
AN EXPLANATION OF THE DATA STRUCTURE. THE SPECIFIC DATA WE EXTRACTED THANKS TO NETVIZZ APPLICATION AMONG ALL THE DATA IT COULD EXTRACT

URL
HTTP://BIT.LY/2RA3HNZ

SCAN IT
FOR DOWNLOAD
Netvizz application offers the ability to extract data from Facebook pages, but it does not offer the ability to choose what to extract exactly. The extracted data from the different pages, contain links, shared basically from media outlets websites. These links are then treated by the created application to extract the textual content and pictures.

id_Page: Unique identifier page
id_Post: Unique identifier post
url_Post: Link to post
Type_content: Type of content (photo, video, link, user, note, status) link: Direct link to the content, if the post is an external link
Picture: Direct link to the shared picture.
nb_comment: Number of comments on the post
nb_reactions: Number of reactions on the post
Post_published: post date
nb_Type_reactions: Number of reactions on the post by type of emoji (‘like’, ‘love’, ‘haha’, ‘angry’, ‘wow’, ‘sad’)

ANEXE 3
DATA STRUCTURE
Monitoring of electoral campaigning on social media – Tunisia

TOOLS

Operating System

Ubuntu 18.04 LTS
Windows 10 professionnell

Data Collection app

Netvizz
Awario

Data analytics tools

Python: a scripting language. It is an interpreted and high-level programming language for the purpose of general programming requirements. It is object-oriented, functional, procedural, reflective and imperative. It is also a multi-paradigm programming language. Python provides great functionality to deal with mathematics, statistics and scientific function. When it comes to data science application, it provides extensive libraries to deal with. Not to mention it is open-source, interpreted, high-level tool! Most importantly, Python is widely used in the scientific and research communities because of its ease of use.

In the project, we used Python 3.6 https://www.python.org/

Platform

Spyder: a powerful scientific environment written in Python, for Python, and designed by and for scientists, engineers and data analysts. It offers a unique combination of the advanced editing, analysis, debugging, and profiling functionality of a comprehensive development tool with the data exploration, interactive execution, deep inspection, and beautiful visualization capabilities of a scientific package.

https://www.spyder-ide.org/

Jupyter: an open-source web application that allows you to create and share documents that contain live code, equations, visualizations and narrative text. Uses include: data cleaning and transformation, numerical simulation, statistical modeling, data visualization, machine learning, and much more.

Jupyter supports many languages, including Python. Which was the case in this project.

https://jupyter.org/

Power BI is a business analytics service by Microsoft. It aims to provide interactive visualizations and business intelligence capabilities with an interface simple enough for end users to create their own reports and dashboards.

Power BI provides cloud-based BI services, known as "Power BI Services", along with a desktop-based interface, called "Power BI Desktop". It offers data warehouse capabilities including data preparation, data discovery and interactive dashboards.

https://powerbi.microsoft.com/fr-fr/

Scripts

Data preprocessing: a data mining technique that involves transforming raw data into an understandable format. Real-world data is often incomplete, inconsistent, and/or lacking in certain behaviors or trends, and is likely to contain many errors. Data preprocessing is a proven method of resolving such issues. In this phase, we used Package Pandas: A library written for the Python programming language for manipulating and analyzing data. In particular, it proposes data structures and operations for manipulating digital arrays and time series.

https://pypi.org/project/pandas/

Package Numpy: An extension of the Python programming language, intended to manipulate matrices or multidimensional arrays as well as mathematical functions operating on these arrays.

https://pypi.org/project/numpy/

Package Sklearn: Scikit-learn is a free Python library for machine learning and data mining

https://pypi.org/project/sklearn/

Face Recognition: Package face_recognition

From open CV, Cascade Classification:
haarcascade_frontalface_default.xml

A Haar Cascade is basically a classifier which is used to detect particular objects from the source. The haarcascade_frontalface_default.xml is a haar cascade designed by OpenCV to detect the frontal face.

https://github.com/opencv/opencv/tree/master/data/haarcascades

Arabic treatment: Package pyarabic.araby:

https://pypi.org/project/PyArabic/

Text Mining

Package NLTK: a leading platform for building Python programs to work with human language data. It provides easy-to-use interfaces.

https://www.nltk.org/

Word cloud & visualisation: Package WordCloudFa

you can generate word clouds from texts those are including Persian and English words.

https://pypi.org/project/wordcloud-fa/

Package PIL for the visualisation.


Image similarity: Since the images are not exactly the same, there will be some differences. With the package PIL (https://pillow.readthedocs.io/en/stable/) the images are resized, compressed, different file formats or with adjusted contrast or colors. To identify similar images with accuracy of %80, we used TensorFlow Package (https://www.tensorflow.org/install/pip) to load images, classify images, vectorizing them. Then find the nearest vectors (neighbors) and regrouping them.

Screenshot: Using Selenium (https://pypi.org/project/selenium/) with a Google chrome webdriver (https://chromedriver.chromium.org/getting-started) the Selenium package is used to automate web browser interaction from Python. With selenium, we were connected automatically on Facebook and capture the URL given with the desired dimensions.

Others: besides these predefined functions, we used our own algorithms, such as detecting political content, finding the candidates mentioned with the help of dictionaries created by ourselves.

Translation from Arabic to English:
When it comes to an Arabic publication, it’s easier to detect the polarity of it. We used in this case the translation provided by an online translation API, which is Google Translate API.

https://cloud.google.com/translate/docs/

Now that we’ve transformed our data, we built a classifier using NLTK

For the base model, we used the Naive Bayes classifier module from NLTK. The model had an accuracy of %81

https://www.nltk.org/_modules/nltk/classify/naivebayes.html

Web Scraping: Since we have posts that contains links, we must analyze the content of these links. But before that, we had to extract or scrape the content of the websites containing the article.

With JavaScript (https://www.javascript.com/) which is a scripting language mainly used in interactive web pages and the Requests package from Python (https://pypi.org/project/requests/), we were able to determine a GET action (HTTP request) THEN, to get or retrieve data from a specified resource.

Negative & Positive keywords in Tunisian Dialect:
To detect whether a post is positive or negative, also known as the Polarity of the content and extract social media user’s opinion, we applied 2 different methods.

Sentiment Analysis: To detect whether a post is positive or negative, also known as the Polarity of the content and extract social media user’s opinion, we applied 2 different methods.

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ANNEXES

ANNEX 5 - PAGES NETWORKS
A DETAILED TABLE SHEET EXPLAINING THE CHANGE OF HEART OF SEVERAL FACEBOOK PAGES DURING THE THREE DIFFERENT ELECTIONS, PER PAGE.

URL
HTTP://BIT.LY/3PVZBQ

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ANNEX 6 - FACEBOOK PAGES + DETAILS
A DETAILED TABLE SHEET OF THE MONITORED FACEBOOK PAGES DURING THE ELECTORAL CAMPAIGNS WITH AN ATTEMPT TO IDENTIFY THEIR POLITICAL AFFILIATION DURING AND AFTER THE ELECTIONS WITH OTHER DETAILS (NUMBER OF FANS, DATE OF CREATION, NUMBER AND LOCATION OF ADMINS)

URL
HTTP://BIT.LY/3ARLT9W

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