Big Data Analytics in Forecasting Voters' Sentiment Vis-À-Vis Decision Making in Future General Elections and By-Elections in Malaysia Post-2021

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Abstract

Barack Obama had practically won the 2012 US Presidential Elections on Big Data Analytics. While he was busy addressing a big rally in downtown Chicago or elsewhere, his teams were engaged in data mining on millions of American voters whom they believed to have the tendency to support their Democrat candidate against Republican Mitt Romney. If in the 2008 elections Obama was nicknamed *The Social Media President*, the Washington Post had in the 2012 US presidential re-elections dubbed him *The Big Data President*. Obama's campaign has often been said to have revolutionised the American democracy, thus giving credence to his digital election campaign strategies, which were not only innovative but also effective. Such was innovation in today's politics and elections, which is the subject of this paper. Big Data Analytics is all but new in Malaysian politics, rearing its infinitesimal presence only in the 2013 General Elections and then poised to become a *game changer* in the succeeding 14ᵗʰ General in Elections in 2018. However, the potential of big data analytics was not fully realised in local Malaysian politics as yet, and as much as it was in the Malaysian business sector which has been leveraging on data mining to push their products especially in the fast moving consumer goods (FMCG) segment. This paper shall discuss the prospective maximisation of big data analytics in the next general elections, possibly the GE-15 and how it will tremendously effect the level playing field of political parties which were still wrapped in the age-old traditional-conventional method of predicting voters' tendency and their voting pattern. As proven to be an effective political campaign tool for Obama and his presidential victory in 2012, Big Data Analytics should now be seen and anticipated as the inevitable for political parties in Malaysia to intelligently win the next general elections and by-elections.

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1.0. INTRODUCTION TO BIG DATA ANALYTICS

Big Data Analytics is defined as the use of advanced analytic techniques against very large, diverse data sets that include structured, semi-structured and unstructured data, from different sources, and in different sizes from terabytes to zettabytes. Big data is a term applied to data sets whose size or type is beyond the ability of traditional relational databases to capture, manage and process the data with low latency. Big data has one or more of the following characteristics: high volume, high velocity or high variety. Artificial intelligence or AI, mobile, social and the Internet of Things are driving data complexity through new forms and sources of data. For example, big data comes from sensors, devices, video/audio, networks, log files, transactional applications, web, and social media - much of it generated in real time and at a very large scale. Analysis of big data allows analysts, researchers and business users to make better and faster decisions using data that was previously inaccessible or unusable. Businesses can use advanced analytics techniques such as text analytics, machine learning, predictive analytics, data mining, statistics and natural language processing to gain new insights from previously untapped data sources independently or together with existing enterprise data.

1.1. Big data analytics (BDA) is the often complex process of examining big data to uncover information: such as hidden patterns, correlations, market trends and customer preferences - that can help business organisations make intelligent decisions. On a broad scale, data analytics technologies and techniques give organisations a way to analyse data sets and gather new information. Business intelligence (BI) queries answer basic questions about business operations and performance.

1.2. Big data analytics is also a form of advanced analytics, which involve complex applications with elements such as predictive models, statistical algorithms and what-if analysis powered by analytics systems. Organisations can use big data analytics systems and software to make data-driven decisions that can improve business-related

outcomes. The benefits may include more effective marketing, new revenue opportunities, customer personalisation and improved operational efficiency. With an effective strategy, these benefits can provide competitive advantages over rivals.

> *"There are many applications of data analytics. This technology can also be used in business intelligence, artificial intelligence, machine learning and so on. By looking at a range of data requirements, it can collect, process, clean, explore, model, interpret and predict information and trends,"* **M. J. Premaratne**

1.3. Former Minister of Communications and Multimedia Dato' Seri Ahmad Shabery Cheek had once said that Malaysia's aspiration towards becoming a developed nation and fully-developed digital economy will depend heavily on how well it adopts big data analytics. The explosion of data does not mean much if businesses are not capturing, integrating and analysing the wealth of data to uncover new insights about their customers, products, markets and operations, he said, adding that it was imperative for key public and private players in Malaysia's digital economy to unlock the value driven by data to create spillover multiplier benefits such as game-changing innovations, productivity gains and competitive enhancement.

As part of Malaysia's efforts to boost big data analytics use in the public sector, four government-initiated pilot projects have been started. The four initiatives were;

> (i).Price Watch to reduce potential profiteering arising from policy changes
>
> (ii)Sentiment Analysis to better gauge public sentiment on key issues.
>
> (iii) Crime Prevention, and
>
> (iv) Infectious Disease monitoring.

1.4. Ahmad Shabery had also said that Malaysia needed additional experts to manage data that is more systematic and orderly as data can become new sources of wealth for the country. Prossessing a variety of data and an orderly

data management could be an edge for a particular country, because "in this age of sophistication, the way to manage data is very important, so we require more experts and, because of that, a chief data scientist is needed," he told reporters after the 26th MSC Malaysia Implementation Council Meeting on 23 Oct, 2014. At the same meeting Prime Minister Dato' Sri Najib Tun Razak announced that the Government was considering to appoint a chief data scientist soon. The government will also provide scholarships to enable more people in the country to be trained as data scientists, noting that at present not all data pertaining to the government was secret as some could be informed to the public. Besides data scientists to develop the Big Data Analytics industry, the country needed more data professionals by 2020, as the country has only over 1,000 data profesionals when it requires between 6,000-8,000. Ahmad Shabery said Malaysia's aspiration towards becoming a developed nation and fullydeveloped digital economy will depend heavily on how well it adopts big data analytics.

1.5. Explosion of data does not mean much if businesses are not capturing, integrating and analysing the wealth of data to uncover new insights about their customers, products, markets and operations. It is imperative for key public and private players in Malaysia's digital economy to unlock the value driven by data to create spillover multiplier benefits such as gamechanging innovations, productivity gains and competitive enhancement. As part of Malaysia's efforts to boost big data analytics use in the public sector, 4 government-initiated pilot projects have been implemented.

1.6. Big Data in The Malaysian Government Sector

Big Data is an explosion and overloading of information parallel to the ecosystem growth of mobile and Internet data usage. Various types of structured and unstructured data from the social media such as blog, Facebook, Twitter supported the growth of Big Data in terms of volume, variety, velocity and value up to terabytes and petabytes of data. Parallel to the Big Data phenomenon and the Malaysian

Government's plan to drive the ICT service, the Malaysian government announced the implementation of the Public Sector Big Data Analytics Pilot Project. In the Malaysian MSC Implementation Ceremony Meeting No. 25 on 14 November 2013, Prime Minister Dato' Sri Najib announced that the Ministry of Communications and Multimedia in collaboration with MAMPU and Malaysia Digital Economy Corporation (MDeC) will lead the implementation of Malaysia's Big Data Analytics (BDA). The meeting also reached an agreement that the Ministry of Communications and Multimedia will develop the Malaysia's Big Data Framework in collaboration with MAMPU and Mdec.

2.0. BIG DATA IN POLITICAL CAMPAIGNS

Data consulting services to political campaign is a fast-developing area in Indian political elections scenario. Data driven political campaign was initiated in a big way by the US Presidential election were the campaign managers of Barack Obama has used the big data for his election campaign. Since then election campaigns started to develop bigger data bases in many of the nations including India. It was in 2014 General Election were BJP has relayed more on big data and the campaign managers to develop the political strategies to win the election. The sweeping victory of BJP in this election has opened new big doors to political marketing in India. It is the techniques of Big Data Analytics that help the campaign managers to analyses the bigger databases and come out with the most suitable strategies to win the votes. The techniques of such micro targeting political campaigns were unimaginable and alien to the biggest democracy of the world because of the highly diverse big population of this nation. This paper is a humble attempt to understand the significant nature Big Data Analytics in modern election campaigns in India. With India's 16th national election under way, some parties appear to have an edge as technology, social media and big data play a key role in connecting with voters.

2.1. The era of big data analytics in Indian politics has arrived, said J Ramachandra, CEO of Gramener, a data analytics startup that is working with media companies to digest the huge chunks of election information to provide voters with userfriendly maps of the state of play. At the opposition Bharatiya Janata Party's (BJP) election backroom in

New Delhi, a team of over 100 young techies and consultants have propelled prime ministerial candidate Narendra Modi to the lead position.

2.2. Through data analysis they have helped raise funds, rework advertisements and create detailed models for voter engagement in swing states as well as gender and minority voter clusters to increase the power of their micro-targeted strategy. The result: a data-driven election campaign not very different from that of U.S. President Obama's, albeit somewhat smaller in size, scale and perhaps style.

> *"We have developed our own customised digital tools based on both commissioned and open source data that puts us in direct touch with voters", said Arvind Gupta, the BJP master strategist behind Modi's 3.67 million followers on Twitter, 12 million likes on Facebook and the party's 68 million page views on Google Plus.*

2.3. Modi's unique digital events like *Chai pe Charcha* or Talk Over Tea are unprecedented election events that put the political leader directly in touch with people at tea stalls in villages at publicised localities through a combination of satellite, DTH, internet and mobile. Modi is perhaps one of the most tech-savvy politicians in the world and certainly the most active in India," says Amit Sheth, a professor at Wright State University's Knowledge Computing Center in Ohio. Sheth, with the help of his students, is mining real-time data on the ongoing elections, which include voter sentiment, emotions and concerns in different constituencies and states. India's political parties then use this data to drive donations, enroll volunteers, and organize resources on the ground to improve the effectiveness of everything from door knocks and phone calls, to micromessaging and social media. Technology and data analysis have come to play a crucial role in this election which will use over 930,000 polling booths and 1.7 million voting machines, with 11 million personnel participating.

2.4. Modern political campaigns today developed databases of detailed information about citizens or voters to inform electoral strategy and to guide tactical efforts. Despite

sensational reports about the value of individual consumer data, the most valuable information campaigns acquire comes from the behaviors and direct responses provided by citizens themselves. Campaign data analysts develop models using this information to produce individual-level predictions about citizens' likelihoods of performing certain political behaviors, of supporting candidates and issues, and of changing their support conditional on being targeted with specific campaign interventions. The pattern was also being tergeted as an important element in the predictions. The use of these predictive scores or *elections by the wire* has increased dramatically since 2004, and their use could yield sizable gains to campaigns that harness them. At the same time, their widespread use effectively creates a coordination game with incomplete information between allied organisations. As such, organisations would benefit from partitioning the electorate to not duplicate efforts, but legal and political constraints preclude that possibility. **Nickerson**, David W.& **Rogers**, T (2014)

2.5. Barack Obama, The Big Data US President

Big Data analytics contributed to US president Barack Obama's victory in the 2012 US presidential re-elections campaign. Obama's team raised US$1 billion using this technology. Data analytics is a process of inspecting, cleaning, transforming, and modelling data. The goal is to discover useful information, suggest ideas, and support decision-making.

2.6. Decision makers use the technology to change policies quickly in response to trends identified in the data sets. How did Team Obama utilise this technology in his political activities? A great proportion of online donations during fundraising drives for his presidential bid came through an *intricate, metric-driven e-mail campaign*. In this process, many of the emails sent to supporters came under different subject lines and messages, and were from different senders. After collecting the results, the Obama team noticed that emails from Obama's wife, Michelle, had the best effect, while

those from Obama's political adviser Jim Messina were better received than those from Obama's running mate Joe Biden.

2.6. What's more, the analysts noticed that people who joined the campaign's Quick Donate programme gave almost four times more than other donors. Based on these discoveries, the team optimised its strategies and managed to raise US$1 billion, a sum that at the start of the campaign had not been thought possible. Another example of data analytics is turnout prediction. Obama's team built four streams of voting data to analyse voters' movements in key states. This large database kept track of voters' attitudes and possible voting behaviour. The data also helped in ad buying. Ads were placed in unconventional media rather than just in local news programming, enabling Obama to reach out to more voters who could be persuaded to vote for the Democrat. Faith in data's power is, no doubt, part of Obama's political genealogy. Both his 2008 campaign and the 2018 presidential reelection bid made extensive use of organised and analysed information. His team's data-mining and microtargeting became one of the big stories of those campaigns.

2.7. Obama campaign teams dismiss the idea that they were using data to sell the president like soda pop by burrowing into our brains with targeted appeals. In political campaign, they say, the power of data is in making the most of resources, whether ad dollars or volunteer enthusiasm. Obama didn't first learn about the power of data on the campaign trail. One of his legislative accomplishments during his brief time in the Senate was a bill co-authored with Sen. Tom Coburn that called for the creation of an online federal spending database. At the time, they called it *a significant tool that will make it much easier to hold elected officials accountable for the way taxpayer money is spent*. The transparency bill helped establish Obama's bona fides as bipartisan as well as tech-savvy. But belief in the clarifying power of data is its own kind of faith, and it is one Obama has embraced, even before winning the presidency. And now, with the revelation that the National Security Agency is processing huge caches of telephone records and Internet data, the American public is being asked to take on faith how data: and how much data is being gathered and used in Washington. The White House's utilisation of big data is meant to suggest

that ideology is less important than inarguable facts. In some ways, this faith in data over ideology defines what it means to be part of Team Obama.

2.8. The *big data presidency* transcends intelligence-gathering and surveillance, encompassing the White House's approach on matters from health care to reelection. A big-data fact sheet the White House put out in March 2012 - upon the launch of its $200 million Big Data Research and Development Initiative - listed more than 85 examples of such efforts across a number of agencies.

3.0. POLITICAL SCENARIO IN MALAYSIA

The past 3 general elections in Malaysia - the 12th, 13th and 14th (GE14, 2018) marked an stimulating turn in Malaysia's political landscape. Malaysia had, prior to this, concluded its general election in March 2004 with a landslide victory for Barisan Nasional or BN, being the most successful victories since Merdeka in 1957. The 12th General Election which was held in March 2008, turned out to be its total opposite when BN its customary two-thirds majority in the Dewan Rakyat for the first time in Malaysian history. This swing in electoral outcome marked a significant period in the country's political development, with a number of reasons were attributed to this development. The 2013 general election further facilitated BN losing its two-third majority with a winning of 133 seats while the opposition, calling themselves Pakatan Rakyat secured 89 seats in the Dewan Rakyat. The main reason for this outcome was the uprising of better informed Malaysian voters that resulted in the highest voter turnout in Malaysia's history, which was 84.4%.

3.1. Fast forward to the GE-14 in 2018 for the very first time BN lost the majority in the Parliament to the opposition coalition which was led by former Prime Minister Tun Dr. Mahathir Mohamed. The opposition calling themselves Pakatan Harapan or PH secured a majority of 122 seats in the 222-member Dewan Rakyat, giving them power in Putrajaya, the country's administrative capital. The 14th Malaysian General Election was perhaps the most competitive general elections ever and many owed the defeat of the BN in terms of seats and popular votes to the rising inflation, cost of living, debt in the country, coupled with the massive 1MDB financial scandal and

mismanagement of government-linked companies. Due to the large role played by the social media, political communication messages took a different turn, **Idid** (2018), adding that another factor was the ongoing decline in the trust of traditionalconventional media which they claimed to be Governmentcontrolled.

3.2. Dubbed *The Whatsapp Elections*, in the 2018 general elections

BN political communication materials which included brochures - pamphlets, publications, leaflets, political ceramahs and publications and reports on the BN voters were no match for the sophistication of the social media networking application. BN's political campaign materials in 2018 were premised upon the usual deliverables - country's progress report and manifesto themed *With BN for a Greater Malaysia*. The key campaign messages were disseminated in the form of brochures, political talks, banners, buntings to influence potential voters, **Idid & Wok** (2010). In 2013, BN's political campaign unveiled a peoplecentric manifesto focusing on an action plan to raise the quality of life for all Malaysians in the next five years. Unlike previous manifestos which provided a broad overview of the coalition's policies, the new manifesto was themed *A Promise of Hope*. The opposition coalition, PH consisted of three parties: Parti Keadilan Rakyat (PKR), the Democratic Action Party (DAP) and Parti Islam SeMalaysia (PAS). The most recent general elections in 2018 witnessed BN launching its most inclusive general election manifesto containing 364 pledges and carrying the theme *With BN for a Greater Malaysia*. The first chapter of the manifesto tackled the issue of living cost which was the greatest concern for Malaysians in the wake of 2018. One of the promises in BN's lavish election manifesto was the promise of cash benefits targeting rural ethnic Malays. PH unveiled its own manifesto called *Book of Hope: Building the Nation, Fulfilling Hopes* to tackle the rising inflation, cost of living and debt in the country.

3.3. PH's *10 pledges in 100 Days* were promised to take place within 100 days of its governance (abolishing the goods and services tax (GST), reintroducing petrol subsidy, introducing Employees Provident Fund subscription for housewives, abolishing debts of Felda settlers, giving leeway to PTPTN loan borrowers by not blacklisting defaulters, increasing monthly wages and annual subsidies for low

income family and setting up a special committee to review the 1MDB financial scandal as well as other controversial projects and to review the Malaysia Agreement 1963 or MA63. Thus, the 14th General Election witnessed, on one hand, the opposition's political campaign messages focusing on *hope* while on the other, BN's political campaign messages focusing on the central theme *Make Malaysia Great*. The Malaysian voters were awashed with the coice of standing by the traditional BN or taking a chance with the new political coalition with both teams promising manifestos difficult to refuse and contemplated on. It was a Hobson Choice of sort for the voters at the water-shed general elections but at the end of the day the PH coalition ttitled the balance of power and romped to victory on May 9, 2018.

3.4. The results of the GE-14 in 2018 were exceptional. Barisan Nasional or BN was ousted from power after over six decades of rule by Pakatan Harapan. In this historic election, BN lost all the federal states in Peninsular Malaysia except for the two less developed ones of Perlis and Pahang. The then ruling party was also defeated in Sabah for the second time since its dramatic recapture in 1995. However, these results are not as surprising if one looks at the outcome from its historical and developmental perspectives. The indication of the breakdown of the one-party dominant state of Malaysia can (at least) be traced back to 10 years ago – since the GE-12 in 2008.

3.5. BN then lost several parliamentary seats in the urban centres, even with a less unified opposition. It had also lost four states on the west coast of Peninsular Malaysia, and had been fairly incompetent in reclaiming control over Selangor and Penang since that particular election. Five years later, in the 2013 general election or GE13, the results aggravated BN. It had lost its popular votes to the then opposition coalition – the Pakatan Rakyat (PR). This time around, the opposition managed to reshape the multiparty electoral system to a *two-plus-one party system* from late 2016, which boosted the level of political competition between the two main parties in Malaysia - namely BN and PH in GE-14. BN was made to struggle all the way with its effort of firstly to maintain its customary two third majority in the Parliament and secondly to protect several states of which it used to have the two thirds majority in the State Assembly. The decline from the 2008 general elections had proceeded to the 2013

elections saw that BN can no longer take things for granted and had to work hard more than ever to maintain those two elements and it was not an easy task, given several compounding factors that are holding back voters' support for the ruling coalition.

3.6. On the other hand, the opposition was getting better at play. Smarting from elections defeats and quickly learning several important lessons in the 2008 and 2013 general elections (and several by-elections in between) which they had denied the BN its customary two-thirds majority in the Parliament and th state assemblies the opposition began to reposition themselves as the alternative force, fit to be elected to replace the long-standing ruling party which has been in power for 61 years. The opposition now wants to be the next Federal Government, which they did.

4.0. BIG DATA ANALYTICS IN MALAYSIA'S GENERAL ELECTIONS AND BY ELECTIONS POST 2012

GE-14 was not nicknamed the *The WhatsApp Election* without a reason. While instant messaging platforms were the most potent campaigns tool, political parties are doubling down not only on social media platforms but also on big data analytics and other new technologies. Most Pakatan Harapan ceramah were streamed live on Facebook. Its chairman Tun Dr Mahathir Mohamad made his Instagram debut a month before Nomination Day. In the previous election, political parties were posting on social media organically, meaning they were not sponsored posts, however during the run-up to the GE-14, many political parties already have bigger budgets to buy ads, sponsored posts or videos to reach a larger audience. The digital campaigning had in fact, has gone beyond targeting a wider audience, which means political parties are also going after very specific demographics using big data analytics. Data helped to analyse voter sentiment, voting trends and statistics on voter demographics, allowing the user to micro-target fence-sitters and customise social media campaigns to individual voters. This means different voters will have vastly different experiences and interaction with the political advertisements they are served on social media.

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4.1. WhatsApp and mobile media are more important tools in GE-14 rather than in GE-13 as more people are accessing news through social media. The Digital News Report 2017 by the Reuters Institute for the Study of Journalism at Oxford University found that Malaysia is the global leader for WhatsApp in terms of news consumption. WhatsApp messages may be effective in reaching a wide audience but they have also become a channel for fake news. The most interesting digital trend for GE14 is how it has empowered out-of-state voters to participate in the elections despite the challenges of distance, postal voting and a mid-week polling day. Social media as a new tool for political communication influences current developments in political campaigning. In combination with mainstream media, social media is increasingly used for purposes such as political marketing, mobilisation of voters, and public debate.

4.2. Social media helped the main opposition coalition, called Alliance of Hope or Pakatan Harapan (PH) which managed to defeat the ruling party Barisan Nasional which had ruled Malaysia for the last 61 years. Social media plays a crucial role in extending the dissemination of information to voters. However, PH's smart and strategic campaign in which they had to rely on social media for their political marketing in reaching out to both urban and rural constituencies gave them good dividends. Backed by big data analytics PH was able to segment voters and focus on;

   (a) Marginalised constituencies
   (b) Young voters
   (c) Middle-class urban voters, and
   (d) Rural constituencies which were then the ruling party's so-called "fixed-deposit", contributing to 57% of the vote.

4.3. One of the misconceptions many politicians and political parties have is that merely using social media will win them the election. Ultimately, what had matter more in this case was whether political parties could register the currents of change permeating within an evolving Malaysian society and address voter grievances accordingly, something that BN, even with control over mainstream media and superior usage of social media, did not do so.

4.4. On the other hand, Pakatan Harapan was being helped tremendously by *Invoke*, a big data analytics outfit started by PKR vice-president Rafizi Ramli in August 2017 who was then working with 50 candidates for GE-14, precisely - 39 from PKR, 10 from Amanah and one from DAP, mostly federal seats and some state constituencies in Negri Sembilan and Kedah that are deemed crucial for Pakatan to take over the state. Through big data analytics, Invoke obtained information on voters from basic details like age, residential post code, gender, race and religion, to their political leaning, stand on issues like Shariah law and whether their votes are transferable between Opposition parties, so that parties can use it to come up with a *microtargeting strategy* and identify swing voters with a 40 to 60 per cent likelihood of voting for them.

4.5. The *big data trend* has finally arrived in Malaysia, with PAS and parties from both Barisan Nasional and Pakatan Harapan telling journalists that after Election 2013, they started using data analytics services provided by companies and think-tanks. Most of the data that Invoke collects comes from surveys. The electoral roll provides information like the voter's date of birth, address, polling station, race and religion. Invoke conducted a survey last January with 104,000 respondents on which party they would vote for in a three-cornered fight. Invoke said it had to call 8 million people to get these respondents. The organisation was then working on a survey with 10,000 respondents to determine vote transferability among Opposition parties, trying to find out, for example, if those who vote for PKR may not necessarily vote for Amanah or Parti Pribumi Bersatu Malaysia (BERSATU, amid Pakatan Harapan's plan to contest the 14th general elections under a common logo and coalition name.

4.6. Invoke, which was using an automated telephone service for surveys with large sample sizes, was then planning to conduct socio-economic profiling of voters to get data like their job, household income, personal income, spending habits, education, assets, their children, what kind of house they live in, and whether they are living in a rented or purchased property. One of the

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highlights of Invoke's modus operandi was that they do not use big data analytics on prospective voters, saying that it might not be necessary as the point of the exercise was to profile *marginal* and *persuadable* voters. An example given was that if a female worker in Kedah with certain traits only has 30% chance of voting Pakatan, Invoke shall ignore her. PH candidate will not even talk about her because it would take so much effort to convert her. PH has just to focus on who were in the marginal category, which meant persons in the probablity of 70% to 85%. The strategy worked in favour of the PH coalition tremendously as it helped precisely the decision of voters, as well as the campaign managers who were running the successful campaigns to make decision rightly. Targeting the marginal voters has always been the traits of a smart campaign, because lesser effort would be involved to persuade him or her and the remaining time would be spent to convert and strengthen the decision of voters most favoured to make decision in favour of the candidates, in this case from the the opposition parties.

4.7. It was therefore a concerted effort by Invoke to be helping candidates from all components of the opposition coalition, and not just those of Parti Keadilan Rakyat or PKR. It was a strategic move by the opposition parties to have one joint effort to take on the BN this time around, and the result has been anything but dismal.

5.0. DISCUSSION: INSTINCT VS BIG DATA ANALYTICS

Instinct has been the primary dependency and reliance of political campaigns all over the world, Malaysia included. Then, politicians across the board like to think that they have advantages over the their rivals based on instinct, which they will always say was developed over the eyars of political experience and street-smart intelligence. Instinct paved the way for political calculations, and miscalculations as well. Instinct had also been critically acclaimed as the biggest factor of political campaign strategies, campaign materials, campaign tools and even selection of campaign workers and perhaps even candidates, because according to the experienced politicians nothing beats instinct, a God-given. Malaysia and Malaysians polticians from across the divide are not excluded in this age-old peculiarity. Gut feeling is

far too important to them to be ignored, sometimes it was the final decider in decision making process that seemed to be difficult to make based on simple premise, or situation. However, sometimes gut feeling could be wrong too. Gut feeling could also be off tangent and off target completely, as were the cases of certain political episodes. Political campaign experiences in the US and India as well as the UK have shown it was better to rely on Big Data rather than gut feeling or instinct to predict voters' tendency.

5.1. In today's politics and political campaigns which are driven by data and powered by technology not seen and used regularly before and technology which had emerged with potentials to improve things especially the way political campaigns were conducted previously, *the era of relying on gut feeling and instinct is practically over*. This is a clear demonstration of analytics fuelled by big data and advancement in software technology is now an integral part of the political campaigns and the campaigning process.

5.2. Gut feelings had in a way shown the door to Barisan Nasional at GE-14 because without having to depend on numbers, Barisan Nasional higher ups made decision on the selection of candidates based on their gut feelings, and candidates to be contesting in the fiercely-fought GE-14 did not have their numbers crunched by the software application. It was purely gut feeling decision and turned out to be disastrous completely. For example, the voters-rejected BN candidate in the Kuala Pilah Parliamentary constituency Hassan Malek was a has been and by any normal standard the BN top brass should not have gambled its fate with this candidate, but unfortunately they did and it was based pure gut feeling that his past services to the constituency would help endear him with with the voters including young voters whom had never heard nor having any contact with him. He lost badly in GE-14 and along with that BN lost several more Parliament seats on the exact same premise when they fielded candidate not based on realtime information or analytics but simply gut feeling of the higher ups in the party. BN lost all parliamentary candidates in Kedah, all 15 BN men and women were defeated soundly so much so that the party had no participation at all in the Pakatan Nasional ruling government's Cabinet from the state of Kedah which replaced Pakatan Harapan mid-way through the term. This was the worst ever performance by BN in Kedah by BN since Merdeka 1957.

5.3. Gut feeling or instinct was also the reason Barisan Nasional lost the Gombak parliamentary seat three times in a row since GE12 in 2008. The unknown candidate Abdul Rahim Kamaruddin who was the Gombak Umno Division Head was soundly defeated by Mohd Azmin Ali, then the Selangor Mentri Besar who was also contesting a state seat at Bukit Antarabangsa in

the neighbouring parliamentary constituency of Ampang. PKR's Azmin did not have the problem to walk over Abdul Rahim who should not have been selected as candidate at all, but he was, sadly, based on instinct.

5.4. For certain and certainly, big data analytics and its resultant analysis is able to profoundly affect election political campaigns and may even go on to determine winners at general elections and by-elections, and making digital footprints to design electoral strategies should be the utmost priority to political parties which have studied the success of US President Barack Obama and Indian Prime Minister Modi. The incredible case studies of how Obama, Modi and even President Donald Trump won the digital battle will remain fresh for some time to come and to be intelligently emulated. With big data analytics, campaign managers could perhaps do a bit of wonders - such as *realtime personality profiling*, right down to attitudinal factors revealed in consumer and lifestyle habits whom the party could be targeting with ads directed at voters. *Decision making* would be much easier with realtime data on hand to consider.Besides that campaign managers could also be focussing on macro issues such as law and order, and education as well as economic matters involving the electorates. However, a more important aspect in these general elections was to get first-time voters to come out to vote and that could be successful given the aggressive digital engagement strategies by campaign managers across divide and from all political parties. Irrespective of who wins or loses, the data from these elections will become important fodder for the next big elections - the GE15 or the 15th General Elections, which is expected to be called a little over two years away.

5.5. As the ecosystem matures, expect more customised ads targeting specific groups rather than single ads being targeted at an entire demographic in the run-up to the general elections. Data analytics allow this eventuality and will even more drive a better and effective campaign as the elections could end up being personal and general in many platforms, depending on the strategies worked out by campaign managers based on the digital information they have with them from real sampling. These samplings were also not derived from gut feelings but realtime surveys with specific objectives in mind, getting the voters directly engaged with the candidate and party machinery.

5.6. Are there any lessons to draw from the success of big data mining in elections? To begin with, *the era of relying on gut feeling and instinct, usually predictions made by so-called political experts is completely over* - a clear demonstration of analytics fuelled by big data and advancement in computing technology *has now become an integral part of the campaigning process,* where a data-driven approach is more likely to create meaningful impact than a non-data-driven one. It worked for Obama and Modi, it could very well work for others too. And there is only one way to find it out, by applying this strategy in the next General Elections or GE-15 which is expected to be called anytime within the next 2 years in Malaysia. Gut feeling or instinct already has no place in modern day political campaigns even at the state or by-elections level at which stakes were lesser than that of the Parliament. And going by the rate of things going down at this stage of developing democracy and economy in Malaysia, it is about time big data analytics has prominent if not the primary role to play in deciding tracking voters, predicting their voting pattern, sentiment as well as organising party activities.

6.0. CONCLUSION: BIG DATA ANALYTICS IS GAME CHANGER

These days, political campaigns, as proven clearly in US President Baracak Obama, Prime Minister Modi, Donald J. Trump and even Pakatan Harapan's GE-14 electoral successes based on campaign managers amassing enormous databases on individual citizens and hire

campaign data analysts to create models predicting citizens' behaviors, dispositions, and responses to campaign strategies. Technology allows campaigns to simultaneously target campaign outreach tactically at particular individuals and aggregate these predictive estimates up to the jurisdiction-level to inform large-scale strategic decisions. This new form of data-driven campaigning gives candidates and their campaign managers most powerful tools for plotting electoral strategy. Reactions to this new approach to campaigning have ranged from over-hyping the performance of the tools, **Scherer** (2012), to alarmist concerns about personal privacy, **Duhigg** (2012).

6.1. On our local front, Pakatan Harapan (PH)'s smart campaigan strategy driven by big data (as processed and plotted by former Pandan Member of Parliament Rafizi Ramli's Invoke) had helped them propelled in front of the erstwhile arch-rival in GE-14, leaving the adversary with numbers of Parliament seats won in the wee hours of 9 May 2018. It was only expected that PH's campaign was to be powerfully driven by big data technology compared with Barisan Nasional's gut-wrenching persona backed by traditional-conventional method of campaigning based on 80% gut feeling and instinct and 20% numbers provided by campaign managers. It was only expected that BN would lose in GE-14 based on so many factors, chief among which was the fact that their campaign all over the country was

not based on numbers crunched by the sophistication of big data analytics, and it was a terrible and inglorious let down.

6.2. Advertising and promotion, and even political branding and communication can only do so much in today's politics and big data should be the primary factor to decide what campaign goes to whom, where, how and why, when. Obama, Modi, Trump did it immaculately, and their experiences paved the way for big data analytics (BDA) to be the cornerstone in future political campaigns, be it general or by-elections including in Malaysia. Contemporary campaigns use data in a number of creative ways, but the ultimate purpose of political data has been and will always be in the foreseeable future, as simply providing a electoral rolls to contact and for contact purposes. At bare minimum, campaigns need accurate contact information on registered voters, volunteers and donors. Procuring and maintaining large databases

of voters with up-to-date information from multiple sources may seem straightforward, but it is a non-trivial logistical obstacle and requires a large amount of financial commitment. Campaigns would like to record which citizen-voters engage in specific campaignsupporting actions like donating money, volunteering, attending rallies, signing petitions, or expressing support for candidates or issues in tracking polls. These were already done by PH in the run-up to the GE-14, about six months prior to the event.

6.3. Looking forward, we should be expecting that Big Data would feature importantly in the coming GE-15, with both sides of the divide to fully utilise the data and numbers on their hands. Organically big data would be the vital decision making tool for political campaign for the purposes mentioned above, and those who do believe in the application and utilisation of big data would eventually pay a heavy price for not being strategic, far

less successful than the other side. Heavy price means that all stakes will diminish and seats lost severely due to not having realtime data involving the electorates especially in the impending and to be hotly contested GE-15 in which all political parties to have equal claim to the the seat of power - Putrajaya.

6.4. Big Data is actually data science, and no, it will not kill democracy, and we do not agree with Jamie Bartlett's findings in his book in 2018 *"The People Vs Tech: How The Internet Is Killing Democracy"*, because we know all along that Big Data Analytics is *a game changer* and will unmistakenly facilitate strategic campaigns and render election campaigns as a craft, and science as well. It is however not inconceiveable that science kills democracy, rather it would spur and propell it to be a form of art as it was supposed to be.

In time to come, big data analytics will be a much sought after political campaign tools even for local elections such as at state level and state by-elections, even for the university students representation. It would tremendously help campaign managers to craft strategic campaign with bountiful results, as was proven time and again before. Malaysia might be a bit late in embracing cutting-edge technology in political

campaigns compared with the US (Obama in 2012), India (Modi in 2016) and UK in 2017 but we shall be there among the advanced democracies decided and assisted by big data analytics.

And, in short and as we agree, *Big Data Analytics is game changer* and will definitely and strategically decide the next Government of Malaysia in the impending 15th General

Elections. This is a certainty.

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