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빅데이터 기반 선거캠페인 전략에 관한 탐색적 연구

노규성*
선문대학교 경영학부*

A Exploratory Study on Big-data based Election Campaign Strategy Model in South Korea

Kyoo-Sung Noh*
Department of Business Administration, Sunmoon University*

요 약 미 대통령 선거에서 데이터 기반의 과학적 선거 전략에 의해 유권자들에게 보다 밀착한 바락 오바마는 승리를 거둠으로써 과학적 선거 메커니즘이라는 새로운 패러다임을 제공하게 되었다. 그러나 한국선거는 감정적 대립 기반의 선거전략이 데이터나 정책 대결 및 후보자의 자질 검증보다 우선해 왔다고 해도 과언이 아니다. 본 연구는 한국선거의 유해한 결과를 초래하는 방식을 줄이고 나아가 바람직한 선거문화를 정착시키고자 하는 노력의 일환으로 빅데이터 기반의 선거 캠페인을 제시하고자 한다. 이를 위하여 본 연구는 한국 정치와 선거캠페인의 현황과 문제점을 살펴보고자 한다. 그런 다음 그와 같은 문제들을 해소하기 위한 대안으로 빅데이터를 활용한 선거전략 모델을 설계하고 나아가 빅데이터 활용방안에 대해 논의하고자 한다.

주제어 : 선거캠페인, 빅데이터, 타겟팅, 데이터분석, 캠페인 전략

Abstract The victory of Barack Obama in the presidential reelection, in which he got closer to voters by scientific election strategy based on data, is making a new paradigm of this scientific election mechanism. But it is within bounds to say that Korean election has developed based on emotional confrontation, rather than on the confrontation of policy or personal qualification. This study suggests a Big data-based election campaign strategy in an effort to reduce the harmful consequences of Korean election and to settle down a desirable campaign culture. To do so, this study examines the actual status and problems of Korean politics and election campaign. And then it designs a Korean election strategy model using Big data as an alternative to break through the problems. Last, it discusses the plan to utilize Big data.

Key Words : Election Campaign, Big data, Targeting, Data Analysis, Campaign Strategy

1. Introduction

It has been a long time since American election moved from partisan-based election mechanism to scientific one. Furthermore, the victory of Barack Obama in the presidential reelection, in which he got closer to voters by scientific election strategy based on data, is making a new paradigm of this scientific election mechanism. In the election, Obama camp analyzed the data of his advocates and used the insights for the election effectively. Since his election campaigners already had information about the voters before meeting them, they could apply a customized campaign strategy to them. Even a single message was

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Corresponding Author: Kyoo-Sung Noh(Sunmoon University)
Email: ksnoh@sunmoon.ac.kr

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sent after several tests. As a result, Obama made a clean sweep in the presidential reelection. 2012 American presidential election clearly showed what data-based election campaign was. Obama election camp spared no investment in making digital election strategy; quintupling the size of the data analysis team and tripling the digital campaign budge in 4 years.

Meanwhile, it is within bounds to say that Korean election has developed depended on emotional confrontation, rather than on the confrontation of policy or personal qualification. It is because the propensity of Korean voters is oriented to a certain region, generation, and social class. This inclination was clearly demonstrated in the local election on June 2, 2010, the 19th general election on April 11, 2012, and the 18th presidential election on December 19, 2012[14]. However this election mechanism failed in suggesting a promising picture of future nation and didn't develop to a festival. They wasted a lot of budge in the election process for nothing but the aftereffect of the confrontation and aggravated sentiment. Although there have been studies and efforts to correct this inefficiency, Korean election hasn't much been improved[8,10].

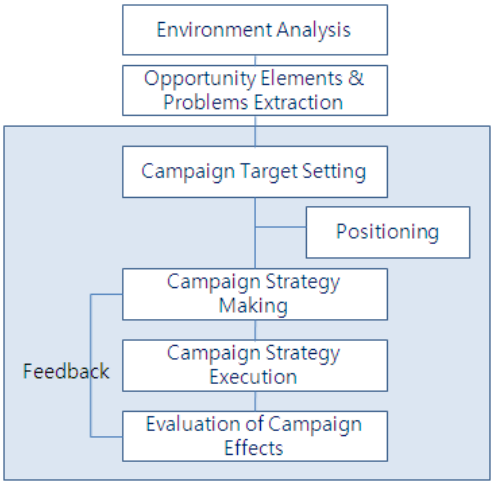
In this respect, the study suggests a Big data-based election campaign strategy in an effort to reduce the harmful consequences of Korean election and to settle down a desirable campaign culture. To do so, this study examines the actual status and problems of Korean politics and election campaign. And then it designs a Korean election strategy model using Big data as an alternative to break through the problems. Last, it discusses the plan to utilize Big data.

2. Theoretical Background

2.1 System and Method of Korean Election Campaign

Election campaign is a political act that a certain political candidate persuades voters to vote for him. And election campaign strategy is to guide the campaign to operate systematically. The strategy provides a framework for consistent images to be pursued in advertisement for an election campaign and for the efficient operation of election funds. It also becomes a guideline for the operation and management of an election organization[15].

Basically, election campaign begins with the analysis of internal and external environmental factors of election, finding strength and weakness. The results from the analysis are used to set the voter targets of the campaign. After targeting and positioning, a strategy is planned and implemented. The campaign is measured and evaluated for its performance to determine if it should be continued or modified(refer to Fig. 1). During an election campaign, such actions have been conventionally employed as advertisement, PR, personal contact, discussion/talk using a variety of prints, facilities and informational communication media [3]. Informational communication media for election campaign have mainly included telephone, information network, and internet advertisement. But recently mobile SNS election campaign based on smart phone is getting very popular.



[Fig. 1] Election campaign basic system
(Source; Man-Ki Kim, 2012, p. 286, modified)

Fundamentally, the starting point of the election campaign for a candidate is positioning based on analysis. It includes the analysis of situation, competition, and voter's political taste. To do such analyses, an election camp collects data in diverse ways. FGI(Focus Group Interview) and opinion survey have been conventionally employed[12]

Then, when making a campaign strategy, the camp decides voter target and conceives persuasive tactics and messages. However, the problem of Korean election campaign lies on too broad targeting. For example, an election camp segment and target voters at 30's to 40's, in humble class and in middle class, then it makes a campaign strategy for the large target groups. If so, it is easy to practice. But this way has several problems; factional approach and hardship in measuring the performance, etc.

2.2 The Actual Status and Problems of Korean Election Campaign

After target groups of voters are determined in an election campaign, each strategy is set for the target groups accordingly. Then the strategies are implemented in accordance with plan and schedule. Of course, it is natural that the operation of an election campaign can be changed when concerned strategies and tactics change in election process. However, it is true that Korean election campaign hasn't been planned so far on the basis of detailed analysis about voters and scientific decision making. In fact, there have been studies on voting tendency and approval factors of voters in Korean election[5,6]. But it has almost been rare to see the cases where such scientific analyses of voters(segmenting and targeting) based on data analysis are actually applied to an election campaign strategy. At the most, They say that a election campaign to match sex and age of voters and social tendency is a creative targeting strategy[14]. In short, there was no political party or election runner that employed a real customized campaign, completely understanding voters (a target segment).

In principle, a political candidate or party can win an election and realize the politics to pursue, when he or they read the mind of voters to. To do so, they should have infrastructure on which they can implement an election strategy to meet voters' propensity. Establishing such a strategy requires the massive data of voters such as demographics, emotion, political and voting inclination, lifestyle and so on. The diverse data of voter helps to find their political tendency and the reasons to support a certain candidate.

However, Korea strictly limits the collection and use of personal data institutionally. Therefore, it is very hard for political parties and campaign runners to obtain and access the data of voters on individual base. They should read and share the minds of voters, but it is impossible in practice. Accordingly, they need to alter their campaign strategies in a way to win the minds of a small group of segmented voters rather individual voters. Namely, they should segment and target voters at micro level, such as loyal voter group and potential voter group, and apply a campaign strategy suitable for each of the target groups.

2.3 The Necessity of Big data in Election

Data collection and readjustment related to election was started by US Republican Party in the late 1970s. However, it had to take 10 years to collect US voters' data into one DB since the data was dispersed all over the country. Finally, in the late 1990s, the Voter Vault, nationwide voters' DB, was completed and used in elections since 2002. Continuously, US Democratic Party started to make DB on US voters. But it was not easy. VoteBulder, the 166 millions of voters' datamart built by enduring persuasion and negotiations, was completed in 2004[2]. Despite these efforts and results, there was no each voter-customized election campaigns executed through analyzing voters' attitudes and preferences and political ground by using data.

Even in the case of US presidential election, the main decisions relied on the intuition of consultants who have many experiences about the political events and elections. However, US Democratic Party decided to carry out innovative actions in 2012 Presidential Election on the basis of data. It began to use so-called Big data for politics.

Throughout the entire period of the election, the data system of data analysis team had been connected to smart phones of field volunteers for Obama. The application provided them with information of where to visit and whom to talk with and about. The volunteers who already knew about the personal information of voters such as age, tendency, and issues in interest met the voters in intimate manner, carrying smart phone, Tablet PC, and laptop computer in every alley. And they uploaded the result of the contacts on Web in real time. The daily change of status and states reflected by data allowed the camp to adjust input variables to voters. In addition, election was simulated 66,000 times every night by computer-based simulator. The simulation results were analyzed and monitored for change in every and each part of the whole country and manpower and fields to be focused were decided on the basis of the result every morning[2,4].

As a result, Democratic Party found Obama blow out his opponents and reelected as US president, which was not anticipated by any press and media. It is considered that the victory was attributable to Big data-based election strategy that claimed to the slogan 'Any of election should be measured by numbers[4,11]. Owing to the Obama's election strategy, the paradigm of the Western elections is shifting to the direction of the scientific approach reflecting the attributes and decision factors of voters.

However, Korean election campaign is still left behind, away from one that buys the minds of voters. In fact, Korean voters have very different attributes and show different decision behaviors from others'. Especially as Korean society is diversified and evolved, the voters show diverse tendencies and attributes in election. It might be true that Korean voters have already had decision making criteria which can't be predicted by a certain norm. Establishing election campaign strategy simply with opinion survey of a research company or consultation with professional consulting company might be equal to going into a battle of election without knowing the changed decision criteria of voters. That is to say, Korean parties and political candidates need a customized election campaign to individual voters or more refined and segmented groups of voters.

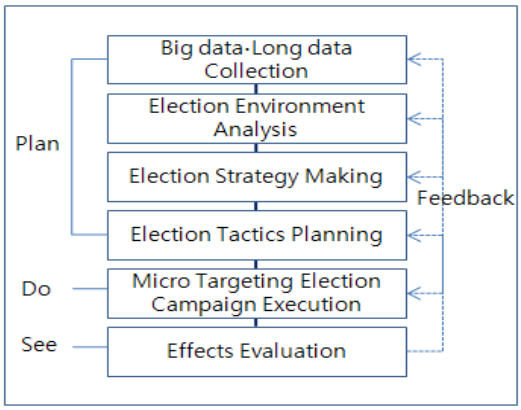
In conclusion, as though John Hagel Ⅲ, John Seely Brown & Lang Davison written in their book, 'The Power of Pull', political power shifted from political institute to citizens. Therefore, when we read and meet their voices from the tremendous volume and speed of data derived from citizens and consumers, we can create political value and meaningfulness[14].

3. Big data-Based Election Campaign Strategy Model

The framework for election campaign is election campaign strategy. Election campaign strategy is like 'a guide leading to the path to the summit named election'. Election campaign strategy provides not only a guideline for the operation and control of an election campaign, but also the consistent image that election media should seek to deliver to voters. In addition, it is the framework for the efficient operation of election budget[15]. Fig. 2 shows the Big data-based election campaign strategy model, which consists of 4 stages: Plan, Do, See, and Feedback.

The first task in 'Plan' stage is to collect Big data and long data that bridge past and present. The next is the analysis of election environment. The analysis is to know 'what factors' have (how much) impact on the approval for a certain candidate and how probable it is

that the voters would support the candidate. Last, campaign strategy and tactics are designed based on the outcome of the analysis.

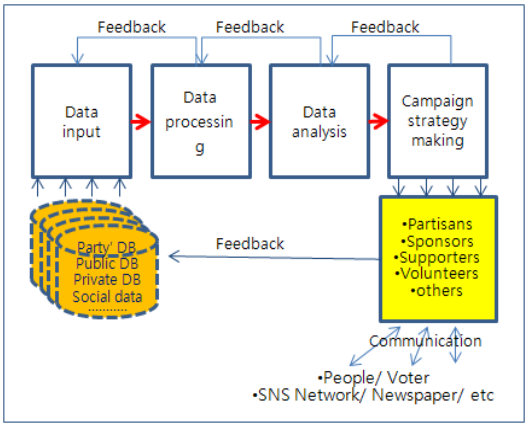


[Fig. 2] Big data based election campaign strategy model
(Source; Man-Ki Kim, 2012, modified)

In 'Do' stage, micro-targeting campaigns are implemented. Micro-targeting based on Big data consists of 5 phases. The first phase is to plan the implementation of a strategy and tactics. In the second phase, a system is built. The system connects the field organizations of an election camp in the following order: local election campaign office → field activists → leaders in dong and myun → core team members → volunteers.[2] In the third phase, data is collected and integrated. Target segments are determined in the fourth phase. In the fourth phase, voter groups are segmented and the segmented groups are analyzed for their political propensity and degree of support. Different and customized campaign strategies and tactics are planned on each of target segments. In the fifth phase, the campaign strategies and tactics are tested and placed in operation. In this stage all of the activities and messages to be delivered must be tested and verified. All of alternatives for both positive and negative reaction should be prepared and then a campaign begins accordingly. In 'See' stage, the effect of a campaign strategy and tactics are measured and confirmed. The accurate assessment of the effects enables the campaign to be reinforced and relatively more efficient in implementation.

4. Application of Big data in Election Campaign

As seen in Fig. 3, data of a political party which take place while various political subjects communicate and data derived from SNS, public and private databases is integrated, and then processed, analyzed and used to know the needs of voters and the alternatives of election campaign. Those alternatives are delivered to politicians, party members, advocates, and volunteers through an election platform, and to voters through a variety of communities and networks for communication.



[Fig. 3] Big data Utilization Method
(Source; Kyoo-Sung Noh, Seung-Hee Lee, 2013, modified)

4.1 Collection and Management of Data

Data of a political party can be collected through a variety of channels and in diverse forms. For example, each individual party can play a role of platform as regular communication window to citizens' opinions and complaints, policy suggestion, and political

complaints and build a database of them. In addition, it can be window to listen to the opinions from civic groups, interest groups, and various organizations. It can also build a database of them. Furthermore, it can do a variety of data-related tasks: obtaining and updating data of the results from regular political party activity in real time (such as organizing PR force, converging opinions, and settling civil complaints), obtaining data that contains core information through various types of survey and building a database of them, searching and building a database of various kinds of data (such as SNS, online community, and news particle contributors), associating political data with social data and building a linkage database, and association with public opinion research agencies.

Obama camp built a comprehensive database including the voter DB of the National Democratic Party committee, the list of donators, the list of volunteers and their political tendency, the members and advocates of civic groups and commercial consumers. In addition, as the volunteers met voters in local field, data were collected in real time and the data collected from newspapers, magazines, radio broadcastings and SNS were continuously updated and modified[2].

However, Korean political parties cannot help but to collect data on limited base for election under a strict personal information protection laws. In other words, they have to set data collection sources within the limited system. They include the statistics of government based on census output area, geographical data, public data, data of public opinion research agencies, commercial consumer data, data derived from SNS, data of party members and advocates and public opinion data. Of course, the collection and use of data should be agreed by personal data providers in advance.

The collected data should be reconstructed to be suitable in form for analysis model to carry out aimed analysis. General data management techniques are Data Cleaning, Data Integrating, Data Restructuring, Data Transforming, Data Filtering, Data Merging, Data Combining, Data Verifying, Data Deleting and etc[17].

4.2 Data Analysis and Verification

Data analysis has a broad range of categories, from a simple analysis like structured data analysis to optimized data analysis. Obama camp tried to understand approval rating through Big data analysis and used the results to prepare for customized campaign strategies and tactics to individual voters. First, cluster analysis was applied to classify groups. And then a certain number of voter samples was extracted from each cluster and telephone survey was conducted to ask them about politics and policies in favor and disfavor. The responses enabled correlation analysis between clusters and their political tendency. The approval rating for Obama was set as an independent variable and multivariate regression analysis was carried out to find out what factors had impact on the approval rating of the voters by cluster[2].

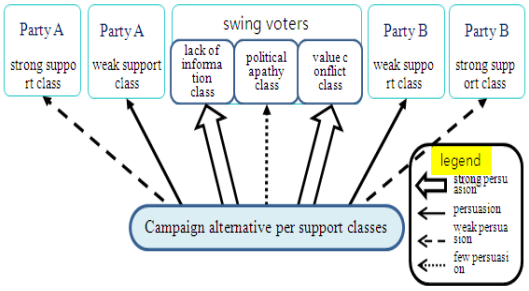
As for Korea, however, different approval factors work from those of America due to different political environment. Therefore, regression equation can be different. The results from such regression analysis should be verified with telephone survey for its accuracy in a real situation. While telephone survey is conducted, another survey is added to it to know approval rating and its change when a specific political issue is applied. The outcome is included again in the regression equation right away. In case that a significant change in voting behavior is verified, a specific campaign can be implemented for the issue. To the process of such data analyses, data mining, predictive analytics, prescriptive analytics and simulation can be applied[13].

In the meantime, Korean ICT industry is forming Big data market by solution type[5]. The tools provided by Big data-related solution vendors will be applied

with tools and technologies necessary to meet the requirements of Big data analysis (size, diversity and analysis). They can be summarized as follows. First, when data is necessary for dispersed storage and process, Hadoop, NoSQL and MapReduce are used. Second, when unstructured SNS data is processed, Text Mining and Natural Language Processing are employed. Third, data analysis of a large scale and the visualization of the output are necessary, R and API or Query provided by Goggle are used. Fourth, when Clusters/Grid(Cloud), MPP(Massively Parallel Processing) and HPC(High Performance Computing) are available as the options for system platform, the most suitable system platform can be chosen in consideration of cost, flexibility, scalability and security.

4.3 Application of Analyzed Information

The campaign strategy which is established on the basis of the analyzed information divides voter groups by approval rating and is differently applied by cluster, as seen in Fig. 4.



[Fig. 4] Voters' campaign alternatives per support classes
(source; Han-Seok Ko, 2013, modified)

First, it is used to find a way to mange voters to support the party in favor consistently through the diverse classification of their political disposition. It can also be used to attract swing votes or the layer of weak supporters for opponent parties and/or reinforce the layer of weak supporters for our party and/or candidate by appealing to their tendency in contents and ways to sooth them. Second, it can be used to classify voters into two groups: a responsive group to a campaign and a non-responsive group. And then campaigners intensively approach and persuade only the responsive group of voters who can respond only to face-to-face contact. They approach the responsive group with election policies related to them through the most effective media[1].

5. Conclusion

This study proposed Big data analysis system model as a base of scientific election campaign and in consideration of the necessity of Big data in election process. Particularly, this study is expected to provide substantial benefits to Korean political parties by proposing Big data-based election campaign model in terms of systemizing their party members, advocates, volunteers and supporters, implanting targeted strategy, saving political costs and building the environment for good-faith competition.

To conclude, the utilization of Big Data in election campaign has meanings mainly in three aspects. First, the utilization of Big Data will enhance the opportunity of communication for the political parties to understand political attitude and mind of each person more specifically in an election. Secondly, Big Data may contribute to create and form agendas in the political parties and to improve the ability of policy service for voters. That is, as the result of the survey by Big Data is more accurate than those by the socio-scientifically established traditional opinion polls, exact opinions of the public can be reflected to the policies. Third, a voter-centric election model using Big Data can be established, and the waste of huge cost of politics can be prevented[9].

However, this study has the limitation of not having the empirical study based survey in political area, but

having the theoretical study and expert Delphi method. Accordingly, there is a need to discuss these areas in greater details in the future studies.

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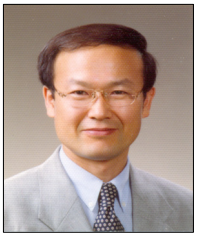

- 1984년 2월 : 한국외대 경영학과 (경영학사)
- 1995년 8월 : 한국외대 대학원 경영정보학과(경영정보학 박사)
- 2003년 7월 ~ 2010년 12월 : 中國 延邊科學技術大學 兼職教授
- 1997년 9월~현재 : 선문대학교 경영학부 교수
- 2003년 4월 ~ 현재 : 한국디지털정책학회 회장
- 2011년 1월 ~ 현재 : 스마트융합학술전국연합 의장
- 관심분야 : 디지털정책&스마트융합, 디지털경제민주화, 빅데이터
- E-Mail : ksnoh@sunmoon.ac.kr