

Suggesting Suitable Economic And Political Leaders Using Fuzzy-Analytic Hierarchy Process (Fahp)

AJAYI, Olusola Olajide¹,ADERELE, Tolulope Busayo²,ELEMESSE, Tolulope Olawale³,
ADETUYI, Tolu Emmanuel⁴

^{1,2,3,4} Department of Computer Science, Faculty of Science,
Adekunle Ajasin University, Akungba-Akoko, Ondo State, Nigeria.

Abstract — Suggesting suitable economic and political leaders has been an effort that electorates have been making but due to so many factors like godfatherism, prejudice, biasness and insecurity, it has not been effective. And these had subsequently produced contentious results which eventually led to political violence and insecurity. To this end, this study intends a predictive system that suggests suitable political and economic leaders based on attributes that match with the nation's present needs. Taking Nigeria as a case study, online survey was carried out to 'read' the minds of the populace/electorates by soliciting for information that shows the attributes of the type of leader they want. The study shall be making use of a multi-criteria decision-making algorithm which is based on Analytic Hierarchy Process (AHP) for quality leadership selection, free of strife and violence. Due to the unpredictable, blurriness of the data concerned, and the need to match attributes with requirements, Fuzzy Logic will be synergized with AHP to achieve appreciable level of predictability result. This will hope would eliminate an atmosphere of rancor, which may arise from unfair selection of suitable economic and political leaders and decision-making processes.

Keywords — leaders, AHP, Fuzzy, godfatherism, electorates, selection, suitable, decision.

I. INTRODUCTION

Leadership is a process by which a person influences other to accomplish an objective and directs the organization in a way that makes it more cohesive and coherent. (Northouse's, 2007), Leadership is a process whereby an individual influence a group of individuals to achieve a common goal. Leaders carry out this process by applying their leadership knowledge and skills (Jago, 1982). The U.S. military has studied leadership in depth. One of their definitions is a process by which a person influences other to accomplish a mission (U.S. Army, 1983). Leadership is inspiring others to pursue your vision within the parameters you set, to the extent that it becomes a shared effort, a

shared vision, and a shared success (Zeitchik, 2012). Leadership is a process of social influence, which maximizes the efforts of others, towards the achievement of a goal (Kruse, 2013).

Good leaders are made, not born. If you have the desire and willpower, you can become an effective leader. Good leaders develop through a never-ending process of self-study, education, training, and experience (Jago, 1982). While leadership is learned, the skills and knowledge possessed by the leader can be influenced by his or her attributes or traits; such as beliefs, values, ethics, and character. Knowledge and skills contribute directly to the process of leadership, while the other attributes give the leader certain characteristics that make him or her unique.

Leadership is a process of social influence, which maximizes the efforts of others, towards the achievement of a goal (Kruse, 2013). Good leaders develop through a never ending process of self-study, education, training, and experience (Jago, 1982). The need for a need-tie leader at a particular point in time, is to show us the way through difficulties, to make us experience the wow moments, to teach us the value of perseverance, to teach us the value of human relationships, to bring the best out of us, to show us the power of humility, to teach us power of discipline, to bring hope in place of despair, to bring happiness to the people they lead to make the world a little better.

When there was no King in Israel, everyman did that which was right in his own eyes'. This account of the scripture, it is believed, opens the passage of leadership; the quest to have people been led, to foster peace, orderliness and fulfillment. (Singh et al, 2012) described election as a process of selecting suitable candidate from a group of candidates.

However, where this quest is not systematically followed, the aim of enthroning a suitable leader is never achieved. Taking us memory lane, Israel clamored for David to dethrone Saul, because they needed a King that can fight their battles. USA decided for Obama, because what was paramount to them then, was

economic reform and not militarism as it was in the case of Bush.

A. Expected Qualities and Qualifications of Economic and Political Leaders

Vision: “Good business leaders create a vision, articulate the vision, passionately own the vision, and relentlessly drive it to completion.” – Jack Welch

Great leaders have vision. They can see into the future. They have a clear, exciting idea of where they are going and what they are trying to accomplish and are excellent at strategic planning. This quality separates them from managers. Having a clear vision turns the individual into a special type of person. This quality of vision changes a “transactional manager” into a “transformational leader.”

Courage: “Courage is rightly considered the foremost of the virtues, for upon it, all others depend.” – Winston Churchill

The quality of courage means that you are willing to take risks in the achievement of your goals with no assurance of success. Because there is no certainty in life or business, every commitment you make and every action you take entails a risk of some kind.

Integrity: “With integrity, you have nothing to fear, since you have nothing to hide. With integrity, you will do the right thing, so you will have no guilt.” – ZigZiglar

The core of integrity is truthfulness. Integrity requires that you always tell the truth, to all people, in every situation. Truthfulness is the foundation quality of the trust that is necessary for the success of any business.

Humility: Humility gets results. Larry Bossidy, the former CEO of Honeywell and author of the book *Execution*, explained why humility makes you a more effective leader:

“The more you can contain your ego, the more realistic you are about your problems. You learn how to listen, and admit that you don’t know all the answers. You exhibit the attitude that you can learn from anyone at any time. Your pride doesn’t get in the way of gathering the information you need to achieve the best results. It doesn’t keep you from sharing the credit that needs to be shared. Humility allows you to acknowledge your mistakes.” – Larry Bossidy

Great leaders are those who are strong and decisive but also humble. Humility doesn’t mean that you’re weak or unsure of yourself. It means that you have the self-confidence and self-awareness to recognize the value of others without feeling threatened. It means that you are willing to admit you could be wrong, that you recognize you may not have all the answers. And it means that you give credit where credit is due.

Strategic Planning: “Strategy is not the consequence of planning, but the opposite: it’s the starting point.” – Henry Mintzberg

Great leaders are outstanding at strategic planning. They can look ahead, to anticipate with some accuracy where the industry and the markets are going. Leaders can anticipate trends, well in advance of their competitors.

Cooperation: “If your imagination leads you to understand how quickly people grant your requests when those requests appeal to their self-interest, you can have practically anything you go after.” – Napoleon Hill

Your ability to get everyone working and pulling together is essential to your success. Leadership is the ability to get people to work for you because they want to.

Bass' theory of leadership states that there are three basic ways to explain how people become leaders (Stogdill, 1989). These theories are:

Some personality traits may lead people naturally into leadership roles. This is the Trait Theory,

A crisis or important event may cause a person to rise to the occasion, which brings out extraordinary leadership qualities in an ordinary person.

This is the Great Events Theory,

People can choose to become leaders. People can learn leadership skills. This is the Transformational or Process Leadership Theory. It is the most widely accepted theory today and the premise on which this guide is based.

Personal qualities of leaders such as honesty, integrity and competence are potentially important, especially in environments where leaders face limited formal sanctions. Equally, in environments where ethnicity is central to the economic organization of the society, a leader’s group identity is likely to matter. Electing quality leaders is presented to solve crisis and insecurity. In election contests, it is the expectation of the electorates to have a leader that will care for the welfare at the grass root. The need for a need-tie leader at a point in time, is to show us the way through difficulties, to make us experience the wow moments, to teach us the value of perseverance, to teach us the value of human relationships, to bring the best out of us, to show us the power of humility, to teach us power of discipline, to bring hope in place of despair, to bring happiness to the people they lead. to make the world a little better.

The leader must possess some qualities of life that can offer these demands of the electorates. These qualities are not hidden from the electorates since the office seekers are also members of the public. Since leaderships of groups, unions or and organizations greatly determine the growth and image of such associations and governments are very critical in

electing leaders. In most cases, election is based on many criteria. These criteria must be evaluated among various alternative candidates who are aspiring to take the responsibility of such leadership. Both in the olden and contemporary, leaders are known to be chosen based on the current needs of the nation, and not on the ‘personality’ or ‘purse’ of the candidate.

Suggesting suitable economic and political leaders has been an effort that electorates have been making but due to so many factors like godfatherism, prejudice, biasness and insecurity, it has not been effective. And these had subsequently produced contentious results which eventually led to violence and insecurity. The concept of election prediction is to make a guess as to whether a candidate will emerge or not. Generally, it is assumed that if a candidate possesses some certain desired characteristics, then the candidate has a very strong chance to win. Howbeit, the table can still be turned where the possessed qualities do not really match with the current needs of the nation. However, the situation is contrary in Africa and Nigeria. Without canvassing for any, but just having the interest of the nation at heart, this project work seeks to evaluate some parameters that determine the suitability of candidates for political and economic offices.

This research work considers some salient and key factors from where the best candidacy is assessed and suggested. This project work proposes a multi-criteria decision-making algorithm which is based on Fuzzy-Analytic Hierarchy Process (Fuzzy-AHP) for quality leadership selection, free of strife and violence. The practical application of this project work would eliminate an atmosphere of rancor, which may arise from unfair selection of suitable economic and political leaders and aid the populace’s decision-making processes as they march to the poll.

I. MOTIVATION

The celebration of one year of president Buhari’s administration was marked with mixed feelings, to some; ThisDay Newspaper (May 29, 2016) “Economy Suffered Severe Decline Under Buhari’s One Year Administration”. The woeful outcome of the nation’s economic performance was the result of “the absence of well structured, broad-based and synergized economic blueprint with clearly stated goals, plans, policies and strategies to drive the economy”.

However, positive comments include Naira Devaluation: naira was kept steady, Anti-Corruption: EFCC was given the freedom to pursue corrupt officials and the judiciary was alerted on what Nigeria expect of them in the fight against corruption, Increasing Foreign Reserve and Strengthening Naira, and some other positives talks about Increasing Foreign Reserve and Strengthening, Stolen Asset Recovery (www.nta.ng).

The West African nation of Gambia has been on a political rollercoaster for the last two weeks. A December 1 election handed a stunning defeat to the sitting president, a dictator who’s ruled the country for 22 years. He publicly conceded defeat to the leader of the opposition coalition and pledged his support. Then he made a political U-turn, plunging Gambia into uncertainty and a post-election crisis. Retrieved from: <http://www.npr.org/2016/12/14/505592280/gambias-president-contests-election-results-after-conceding-defeat>.

In the light of the above expressions it could be said that there was an unsystematic approach in electoral procedure in term of right candidacy that meets the yearnings of the people. This study is meant to contribute computationally in suggesting and presenting an approach that map economic and political candidate’s attributes with the nation’s requirements as it relates to the positions they are to fill.

II. STATEMENT OF PROBLEM

From the literature reviewed, the researcher found out that some issues are yet unsolved and therefore the researcher deduced the following problems.

Several methods had been adopted in the past at local, national and international scene but in most cases with prejudice and biasness. Electing quality leaders is presented to solve crisis and insecurity. In election contests, it is the expectation of the electorates to have a leader that will care for the welfare at the grass root. Suggesting suitable economic and political leaders has been an effort that electorates have been making but due to so many factors like godfatherism, prejudice, biasness and insecurity, it has not been effective. And these had subsequently produced contentious results which eventually led to political violence and insecurity. To this end, this study intends a predictive system that suggests suitable political and economic leaders based on attributes that match with the nation’s present needs. The study shall be making use of a multi-criteria decision-making algorithm which is based on Analytic Hierarchy Process (AHP) for quality leadership selection, free of strife and violence. Due to the unpredictable, blurriness of the data concerned, and the need to match attributes with requirements, Fuzzy Logic will be synergizing with AHP to achieve appreciable level of predictability. This will hope would eliminate an atmosphere of rancor, which may arise from unfair selection of suitable economic and political leaders and decision-making processes. The aim of this project work is to design and implement a Fuzzy-AHP based system that classifies and suggest suitable economic and political leaders based on their attributes and matching nation’s requirements criteria.

III. METHODOLOGY

Phase 1: Literature Search:

This phase is the first step that enables the researcher to gather information about how leaders are selected / elected based on some parameters as deemed fit by the populace and the resultant effects- when it is followed and when it is not.

Phase 2: Information Gathering:

Online Survey; it was adopted to increase the population reached.

Phase 3: Collection and Collation of people's view

Phase 4: Prediction:

Fuzzy AHP (Soft-Computing Technique) will be deployed to predict and suggest suitable candidate based on set of criteria evaluated.

IV. RELATED LITERATURE

Besley et al (2002) examined how individuals' economic and group characteristics affect political selection, and politician behavior in office. The approach was the usage of simple citizen-candidate model of politics to identify possible reasons why low-quality politicians can be elected to office. The results cast light on the process of decentralization as it is occurring throughout the developing world. This has attached a lot of weight in the virtues of local decision-making processes in targeting beneficiaries. It further emphasizes the need to have adequate models of the political economy of targeting to shed light on the merits of decentralization. The paper was a first effort to use household level data to study this issue empirically. But clearly there is much more to be done to gain a deeper understanding of political selection in democratic settings.

'Project Selection by Using Fuzzy AHP and TOPSIS Technique' was carried out by MahmoodZadeh et al (2007), where the main objective was to determine the "best" project or projects. Four mentioned methods consider as criteria to evaluate and select projects. Authors proposed a new methodology to provide a simple approach to assess alternative projects and help decision maker to select the best one. The major focus was on components selection; though reusability was still tested, some factors (e.g. Adaptability) were still left out untested.

Ballı et al (2009) worked on 'Operating System Selection Using Fuzzy AHP and Topsis Methods'. The aim of study was developing a fuzzy decision model to select appropriate system for computer systems of the firms by taking subjective judgments of decision makers into consideration, the approach is based on Fuzzy Analytic Hierarchy Process (FAHP) and TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) methods. FAHP method is used in determining the weights of the criteria by decision makers and then

rankings of the operating systems are determined by TOPSIS method. The integration of FAHP and TOPSIS approaches enables experts and users to efficiently select a more suitable operating system for specific purpose and requirements. In future studies other multi-criteria methods can be used to select operating systems.

Using fuzzy multi criteria decision making approach for ranking the web browsers was the research work done by (Shaverdi et al, 2012). The aim of this paper was selecting the best web browser to help web users to reduce their time and cost while they are working at cyber environment. The purpose is to identify and select optimum web browsers based on Fuzzy AHP calculations. And forevaluation and ranking the five criteria of technological support, speed and consistency, security, work comfortableness and Add-ons were considered. A practical approach based on Fuzzy analytical hierarchy process was able to identify and select optimum web browsers based on Fuzzy AHP calculations. The research specified future research to consider more comprehensive criteria for evaluating Web browsers.

Another related work, Rouyendegh et al (2012) provided an adequate MCDM on academic staff selection. A MCDM algorithm based on the TFN is designed in the selection of academic staff selection. To achieve consensus among the decision-makers, all pair-wise comparisons were converted into triangular fuzzy numbers to adjust the fuzzy rating and the fuzzy attribute weight. The fuzzy set theory in the decision-making process implies that this practice is not absolute. The FAHP method adopted here uses Triangular Fuzzy Numbers (TFN). In the paper, Analytic Hierarchy Process (AHP) was suggested to solve academic staff selection based on Triangular Fuzzy Numbers (TFN) in the analysis. The problem of selecting academic staff is a process that also contains uncertainties and it was overcome by using fuzzy numbers and linguistic variables to achieve accuracy and consistency. The limitation of the work was the inability of AHP to deal with the impression and subjectiveness in the pair-wise comparison process has been improved in the FAHP.

Ayhan (2013) worked on A Fuzzy AHP Approach for Supplier Selection Problem: A Case Study in a Gearmotor Company. The study aim was to solve the supplier selection problem of a manufacturing company, which should determine the best supplier among 3 alternatives. These alternative suppliers are inspected with respect to 5 criteria namely; Quality, Origin of the raw material, Cost, Delivery Time, and After Sales Services. Therefore, an extensively used multi criteria decision making tool Fuzzy AHP was utilized as an approach for supplier selection problem. The paper reveals the application of Fuzzy AHP in a gear motor

company determining the best supplier with respect to selected criteria. The contribution of the study is not only the application of the Fuzzy AHP methodology for supplier selection problem, but also releasing a comprehensive literature review of multi criteria decision making problems.

‘Supplier Assessment and Selection Using Fuzzy Analytic Hierarchy Process in a Steel Manufacturing Company’ was done by Tahriri1 (2014). The main goal of the research was to develop a systematic model towards the best supplier selection. To facilitate the aim of the research, the Fuzzy Analytic Hierarchy Process was utilized, which was a combination of AHP and Fuzzy Theory to deal with the uncertainties and vagueness of decision makers’ judgment. The results indicate that the model can assist decision makers to examine the strengths and weaknesses of supplier selection by comparing them with appropriate criteria, sub-criteria and sub-sub-criteria. Limitation of the work cut across uncertainties and ambiguities associated with the judgments of different decision makers.

V. ARCHITECTURAL MODEL

Fuzzy Analytic Hierarchy Process (F-AHP) embeds the fuzzy theory to basic Analytic Hierarchy Process (AHP), which was developed by (Saaty, 1980). AHP is a widely used decision making tool in various multi-criteria decision-making problems. It takes the pair-wise comparisons of differential alternatives with respect to various criteria and provides a decision support tool for multi-criteria decision problems. In a general AHP model, the objective is in the first level, the criteria and sub criteria are in the second and third levels respectively. Finally, the alternatives are found in the fourth level (Kilincci et al, 2011).

Since basic AHP does not include vagueness for personal judgments, it has been improved by benefiting from fuzzy logic approach. In F-AHP, the pair wise comparisons of both criteria and the alternatives are performed through the linguistic variables, which are represented by triangular numbers (Kilincci et al, 2011). One of the first fuzzy AHP applications was performed by (Laarhoven et al, 1983). They defined the triangular membership functions for the pair wise comparisons. Afterwards, Buckley (1985) has contributed to the subject by determining the fuzzy priorities of comparison ratios having triangular membership functions. (Chang, 1996) also introduced a new method related with the usage of triangular numbers in pair-wise comparisons.

The FAHP (Zhu et al, 1999) method is an advanced analytical method which is developed from the AHP. In spite of the popularity of AHP, this method is often criticized for its inability to adequately handle the inherent uncertainty and imprecision associated with the

mapping of the decision-makers perception to exact numbers. In FAHP method, the fuzzy comparison ratios are used to be able to tolerate vagueness.

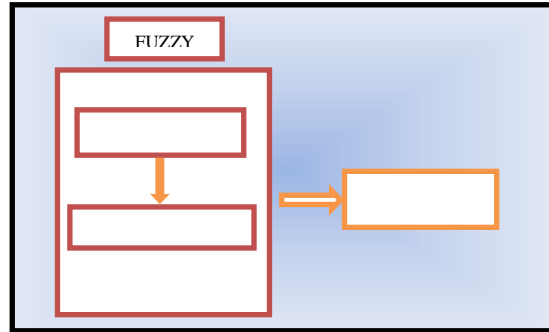


Fig.1: Architectural model for FUZZY-AHP

VI. POPULATION OF THE STUDY

The population of this study comprises of the citizens of Nigeria from different geo political zones and different ethnic group with their identity. The population covers only Nigeria Citizens.

A. Table 1: Study Population

S/N	POSITION	CLASSIFICATION	NUMBER OF USERS
1	Sex	Male	31
		Female	74
		Total	105
2	Age	<18	0
		Btw 18 & 30	55
		Btw 31 & 45	40
		Above 46	10
		Total	105
3	Geo Political Zones	North Central	19
		North East	4
		North West	6
		South East	10
		South South	15
		South West	51
		Total	105

B. Sample and Sampling Techniques

The sample of the study was drawn from different people from different zones in Nigeria. A form was designed online using Google form, some parameters were spelt out to enable any respondent to indicate their choice for the purpose of selecting suitable and economic leaders in Nigeria. The questionnaire that was designed using Google form generated a link; the link was shared across several social media sites, such as

Facebook, WhatsApp, e-mails and so on, making it accessible to several people to indicate their choice.

The 4-Sectioned questionnaire generated over one hundred (100) valid responses, from different state in Nigeria, (4) responses were not regarded because the respondent submitted twice, only one of the response was regarded, (2) out of the response were not valid because the respondents were not from Nigeria since the suggestion is only for Nigeria.

C. Research Instrument

The instrument for data collection is questionnaire which was self-designed by the researcher. The first section consists of the demography data (Gender, Age, etc.). The second section consists of the descriptive question that had thirty (30) questions. The questionnaire consists of relevant parameters which are meant to draw the choice of Nigeria Citizen in selecting a political and economic leader. Thirty (30) parameters were spelt out with each one having three (3) or (4) options such as LOW, MEDIUM, HIGH, another is GOOD, FAIR, NEUTRAL. The correspondents gave their details such as names, address, state, age, etc. However, all details were treated with utmost confidentiality.

1) **Validity of the instrument:** The questionnaire used for this research was subjected to content validation. The instrument was tested by giving a copy to the researcher's supervisor. His scrutiny, corrections, suggestions, comments, observations and approval ensure the content validity of the instruments.

2) **Reliability of the instrument:** To test the reliability of the instrument, the researcher subjected the items and data of the questionnaire to SPSS' Reliability Analysis tool, using Alpha Cronbach. The result of the test shows an output of 0.618. The calculated value was high and so was considered to have high degree of correlation. This indicates that the questionnaire was reliable for obtaining information for this study.

3) **Methods of data collection:** The researcher made use of an online survey research questionnaire, the online questionnaire made use of Google form, so as to cover wider range of respondents. The questionnaire was designed on Google form, which comprises of two (2) sections, the first section was the biography of the respondents and the second section consist of thirty (30) parameters that was spelt out by the researcher so as to enable the respondents to choose their choice from the parameters that was already spelt out.

After the design of the form, it was shared using the link that was gotten from the form to several social media sites such as Facebook, Twitter, WhatsApp groups, and so on, the links were also sent to different emails. The researcher guides the respondents on how to fill in the questionnaire in the case of respondents who

need some explanations by providing instructions on the form and below the link while sharing the link to the questionnaire. After the responses hit over a hundred (100), the researcher logs in to the admin panel to retrieve all the responses gotten from the respondents.

VII. RESEARCH DESIGN

In the proposed model, Fuzzy AHP is developed, tested using MATLAB toolbox. The steps involved in the development of the system are:

- i. Information Gathered
- ii. Online survey, to gather people's view
- iii. Represent the view in Fuzzy format
- iv. Load view into the Fuzzy using MATLAB toolbox
- v. Generating Rules
- vi. Find Aggregates
- vii. Apply the AHP to suggest the selection

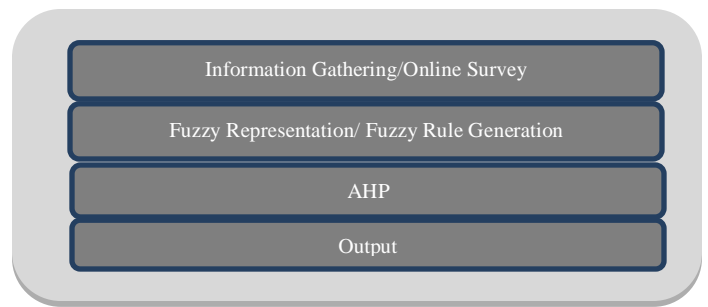


Fig. 2: A diagrammatic representation of the above process

A. Detailed Architectural Design

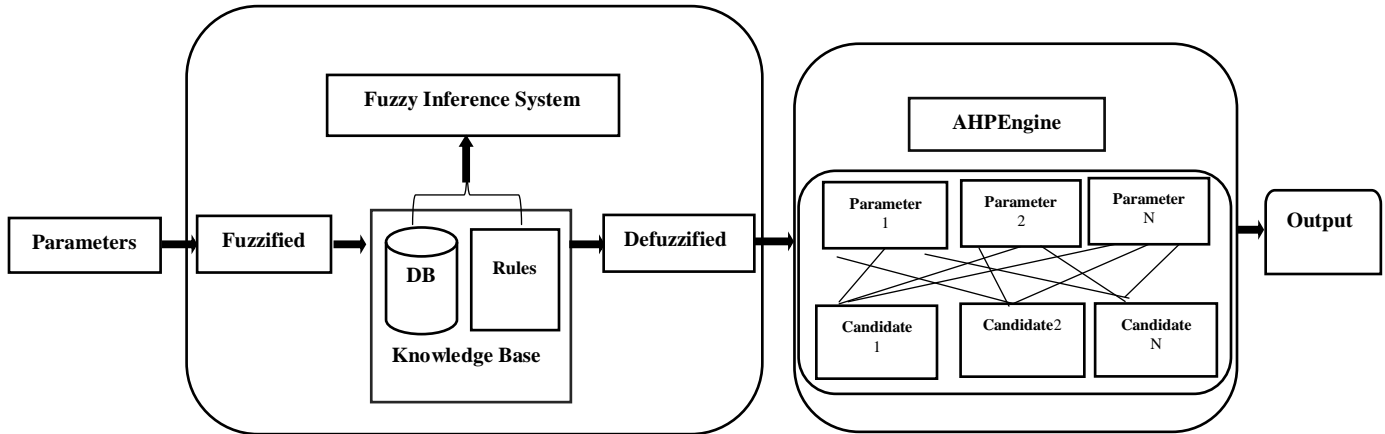


Fig. 3: System's Architectural Mode

B. Rule Base

The rule base was constructed to control the output variable, using the simple IF-THEN rule with a condition/antecedence and a conclusion/consequence. The rules are as shown below:

- 1) IF AGE IS BTW 50 & 60 AND REGION IS SOUTH WEST AND RELIGION IS CHRISTIANITY AND ETHNIC GROUP IS YORUBA AND HIGHEST DEGREE IS B.A/B.SC/B.ED AND EDUCATION TYPE IS WESTERN AND YEARS OF EXPERIENCE IN CIVIL SERVICE IS <15YRS AND YEARS OF EXPERIENCE IN POLITICAL SERVICE IS <10YRS AND MILITARY INVOLVEMENT IS LOWLY INVOLVED AND CHILDREN EDUCATION IS AFRICA BASED AND TEMPERAMENT IS LOW AND INDIETMENT IS NONE AND HEALTH STATUS IS STABLE AND SOCIALIZATION IS MEDIUM AND ICT COMPLIANCE/ICT LITERATE LEVEL IS HIGH AND ASSET LEVEL IS MILLIONS AND MARITAL TYPE IS MONOGAMY AND FIGURE IS NATIONAL FIGURE AND SPORTING STATUS IS NEUTRAL AND FIELD OF STUDY IS AGRIC AND OCCUPATION IS BUSINESS AND POPULARITY/ FRIENDLINESS IS MEDIUM AND WELFARISM/ PHILANTROPHICAL IS MEDIUM AND PARTY IS MINORITY AND CHARISMA IS HIGH OR MEDIUM AND LEADERSHIP SKILL IS HIGH AND CONVICTED IS NO AND GROUPS IS

HUMAN RIGHT ACTIVIST AND FAMILY POLITICAL HISTORY IS MEDIUM THEN CANDIDATE IS HIGHLY SUITABLE

- 2) AGE IS BTW 60 & 70 AND REGION IS SOUTH EAST AND RELIGION IS ISLAM AND HIGHEST DEGREE IS M.SC/M.SC.ED/M.ED/M.A AND EDUCATION TYPE IS MILITARY YEARS OF EXPERIENCE IN CIVIL SERVICE IS <15YRS YEARS OF EXPERIENCE IN POLITICAL SERVICE IS <5YRS MILITARY INVOLVEMENT IS HIGHLY INVOLVED CHILDREN EDUCATION IS HOME BASED TEMPERAMENT IS MEDIUM INDIETMENT IS ONCE BUT EXONERATED HEALTH STATUS IS NOT STABLE SOCIALIZATION IS HIGH ICT COMPLIANCE/ ICT LITERATE LEVEL IS MEDIUM AND ASSET LEVEL IS BILLIONS MARITAL TYPE IS POLYGAMY FIGURE IS INTERNATIONAL FIGURE SPORTING STATUS IS SPORT LOVER FIELD OF STUDY IS SCIENCE OCCUPATION IS POLITICIAN POPULARITY/FRIENDLINESS IS HIGH WELFARISM/PHILANTROPHICAL IS HIGH PARTY IS MAJORITY CHARISMA IS HIGH LEADERSHIP SKILL IS FAIR CONVICTED IS YES GROUPS IS HUMAN RIGHT GROUP FAMILY POLITICAL HISTORY IS HIGH THEN CANDIDATE IS AVERAGELY SUITABLE

- 3) AGE IS BTW 40 & 50 REGION IS CORE-NORTH RELIGION IS TRADITIONAL
- 4) HIGHEST DEGREE IS OND/NCE EDUCATION TYPE IS ARABIC OF EXPERIENCE IN CIVIL SERVICE IS <20YRS AND YEARS OF EXPERIENCE IN POLITICAL SERVICE IS <15YRS AND MILITARY INVOLVEMENT IS NO LEVEL-RAW CIVILIAN AND CHILDREN EDUCATION IS FOREIGN BASED AND TEMPERAMENT IS HIGH AND INDIETMENT IS ONCE AND PENALISED/PUNISHED AND HEALTH STATUS IS NOT STABLE AND SOCIALIZATION IS LOW AND ICT COMPLIANCE/ ICT LITERATE LEVEL IS LOW AND ASSET LEVEL IS TRILLIONS AND MARITAL TYPE IS NOT MARRIED AND FIGURE IS LOCAL FIGURE AND SPORTING STATUS IS NEUTRAL AND FIELD OF STUDY IS LAW AND OCCUPATION IS EDUCATIONALIST AND POPULARITY/FRIENDLINESS IS LOW AND WELFARISM/PHILANTROPHICAL IS LOW AND PARTY IS NEW AND CHARISMA IS HIGH OR LOW AND LEADERSHIP SKILL IS LOW AND CONVICTED IS YES AND GROUPS IS MILLITANT AND FAMILY POLITICAL HISTORY IS LOW THEN CANDIDATE IS LOWLY SUITABLE

VIII. IMPLEMENTATION

A. Main Menu

Below is the system’s control center.



Fig. 4: The system’s control center.

From the main page, user can access the attribute page to feed in and test the candidate’s suitability.

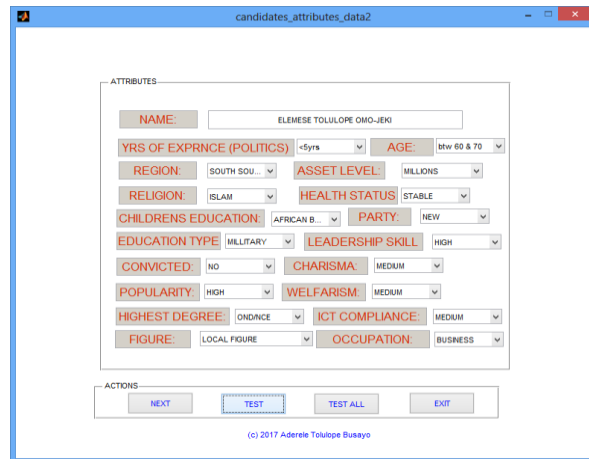


Fig. 5: Candidate’s attributes data & testing for suitability.

The figure below presents the system documentation pages.

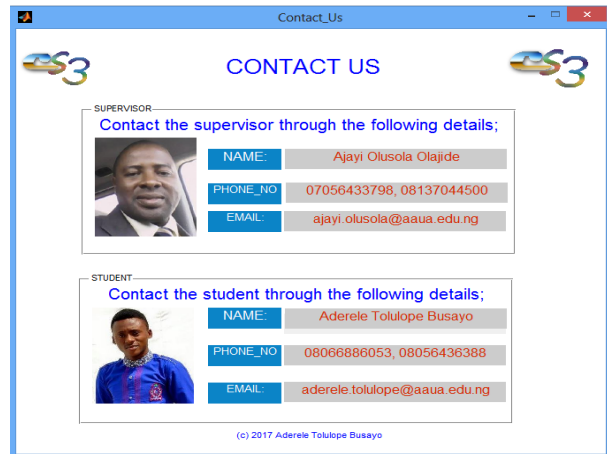




Fig. 6: System Documentation

B. Result of Findings

a). **Test:** This test output gives the suitability of an individual candidate, without comparing with other candidates (Fig. 7). The output of the “TEST” is given in either of the three options given below:

- ✓ Candidate is Highly Suitable
- ✓ Candidate is Averagely Suitable
- ✓ Candidate is Lowly Suitable

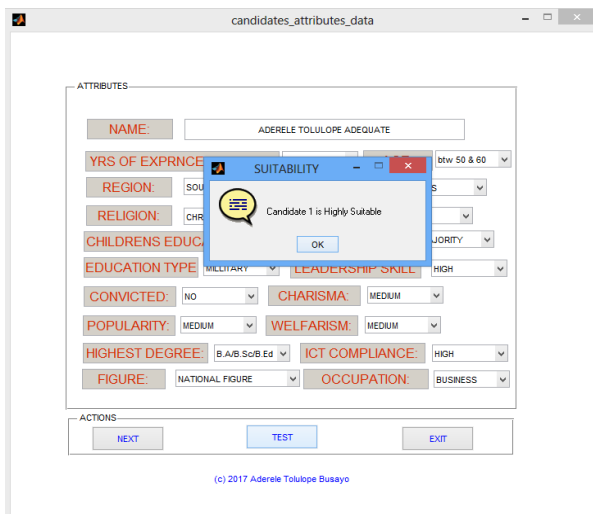


Fig. 7: Single-Candidate Suitability Test Output

b). **Test All:** This test output gives the output of the most suitable candidate, after comparing with other candidates (Fig. 8). The output of the “TEST ALL” is given as only one option which is: Candidate 1 is the “MOST SUITABLE”(Fig. 9).

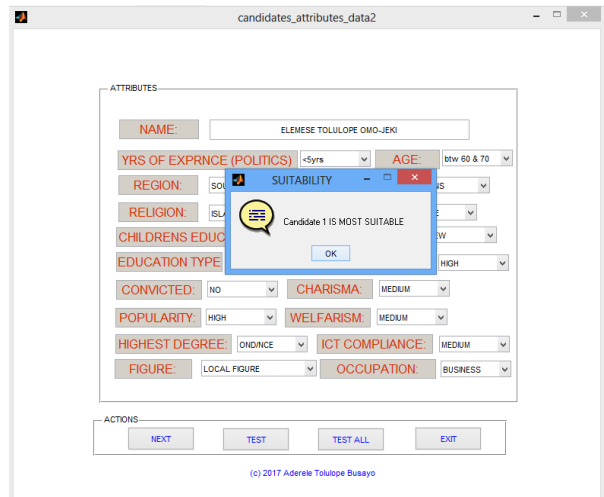
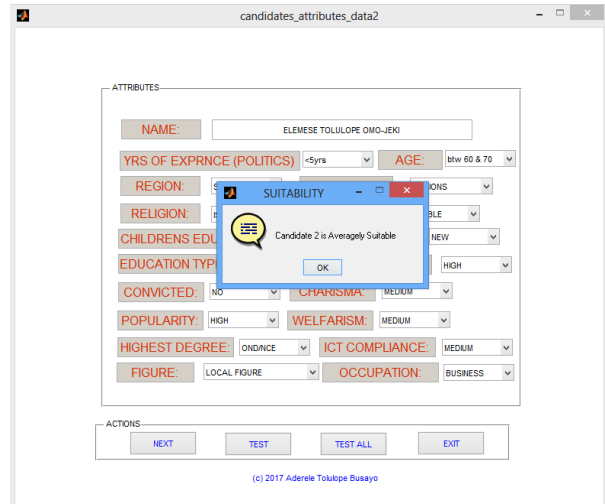


Fig. 8: Candidate Suitability Comparison Test Output

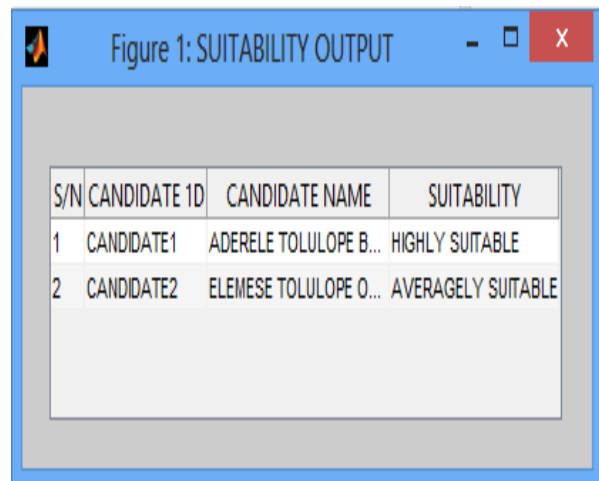


Fig. 9: Suitability Output

C. Justification For Choice Of Programming Language

MATLAB programming language is appropriate for the implementation of CS3 system for it is a high-performance language for technical computing, which have a Graphical user interphase for building a stand-alone system with high and technical functionalities.

IX. CONCLUSION

Leadership is the quest to have people been led, in order to foster peace, orderliness and fulfillment. (Singh et al, 2012). Leadership is a process by which a person influences other to accomplish an objective and directs the organization in a way that makes it more cohesive and coherent. Suggesting suitable economic and political leaders has been an effort that electorates have been making but due to so many factors like godfatherism, prejudice, biasness and insecurity, it has not been effective. And these had subsequently produced contentious results which eventually led to political violence and insecurity. This project work considers some salient and key factors from where the best candidacy is assessed and suggested. This project work proposes a multi-criteria decision-making algorithm which is based on Fuzzy-Analytic Hierarchy Process (Fuzzy-AHP) for quality leadership selection, free of strife and violence by designing a standalone application CS3 (Candidates suitability suggestive system). Parameters for selecting leaders was first spelt out and given to the public to make their choice, their choice was set as rules that was compared with candidates and outputs were given based on the attributes filled into the system by the user, the system also suggest the most suitable candidates after several candidates was tested on the system. Result obtained show that the system is able to suggest suitable candidate for any political or economic post with an acceptable accuracy.

A. Suggestion For Future Work

In the present study, data used to set the rules was gotten from an online survey using google form to capture people's opinion about choosing a leader, for furtherance of the study, more accessible method of capturing data of people with little or no access to the internet should be considered. Aside Fuzzy AHP, which this study has proved to be important in the suggestion of suitable candidates, other approaches such as fuzzy TODIM (the acronym for Interactive and Multi-criteria Decision Making in Portuguese), the Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS), etc. can be deployed in suggesting the best candidate for several positions.

REFERENCES

- [1] Ayhan, M. B. (2013). "a fuzzy ahp approach for supplier selection problem: a case study in a gearmotor company" International Journal of Managing Value and Supply Chains (IJMVSC) Vol.4, No. 3, September 2013
- [2] Balli. S. and Korukoğlu. S. (2009). "Operating system selection using fuzzy ahp and topsis methods" Mathematical and Computational Applications, Vol. 14, No. 2, pp. 119-130, 2009.
- [3] Besley, T. and Burgess, R. (2002). "economic and group characteristics affect political selection, and politician behavior in office" The quarterly journal of economics, qje.oxfordjournals.org
- [4] Buckley, J.J. (1985). Fuzzy Hierarchical Analysis, Fuzzy Sets and Systems, Vol.17, 233-247
- [5] Chang, D. Y. (1996) "Applications of the extent analysis method on fuzzy AHP", *European Journal of Operational Research*, Vol. 95(3), 649-655.
- [6] Farzad, T., Mohammad, D., and Nader. A. E. (2014). "Supplier Assessment and Selection Using Fuzzy Analytic Hierarchy Process in a steel Manufacturing Company" *Journal of Scientific Research & Reports 3 (10): 1319-1338, 2014; Article no. JSRR.2014.10.003*
- [7] Jago, A. G. (1982). Leadership: Perspectives in theory and research. *Management Science*, 28(3), 315-336.
- [8] Kilincci, O., and Onal, S. A. (2011) "Fuzzy AHP approach for supplier selection in a washingmachine company", *Expert Systems with Applications*, Vol. 38(8), 9656-9664.
- [9] Laarhoven, P.J.M., and Pedrycz, W. (1983). "A fuzzy extension of Saaty's priority Theory", *Fuzzy Sets and Systems*, Vol. 11(1-3), 199-227.
- [10] Mahmoodzadeh, S., Shahrabi, J., Pariazar, M., and Zaeri, M., S. (2007). Project Selection by Using Fuzzy AHP and TOPSIS Technique" *World Academy of Science, Engineering and Technology* 30. Pg.333 -338
- [11] Meysam, S. and Marsha A. (2012). "using fuzzy multi criteria decision making approach for ranking the web browsers" *International Journal of Economics and Management Sciences* Vol. 1, No. 8, pp. 72-86
- [12] Northouse, G. (2007). Leadership theory and practice. (3rd.) Thousand Oak, London, New Delhi, Sage Publications, Inc.
- [13] Rouyendegh, B. D., and Erkan, T. E., (2012). "selection of academic staff using the fuzzy analytic hierarchy process (fahp): a pilot study" ISSN 1330-3651 udc/udk 658.310.8-057.4:65.012.123 Pg. 923-929
- [14] Saaty, T.L. (1980). The Analytic Hierarchy Process, Planning, Priority Setting, Resource Allocation. McGraw-Hill, New York.
- [15] Shaverdi, M., Akbari, M., and Emamipour, S. (2012). Using Fuzzy MultiCriteria Decision Making Approach for Ranking the Web Browsers. *International Journal of Economics and Management Sciences*. Vol. 1, No. 8, pp. 72-86
- [16] Stogdill, R. M. (1989). *Stogdill's Handbook of Leadership: A Survey of Theory and Research*. Bass, B. (ed.) New York: Free Press.
- [17] U.S. Army. (1983). *Military Leadership* (FM 22-100). Washington DC: U.S. Government Printing Office.
- [18] Yu-Cheng T., and Thomas. W. L. (2011). "Application of the fuzzy analytic hierarchy process to the lead-free equipment selection decision" *Int. J. Business and Systems Research*, Vol. 5, No. 1, 2011 Pg. 35-55.
- [19] Zadeh, L. A. (1971). Toward a Theory of Fuzzy Systems, in: *Aspects of Network and System Theory*, Kalman, R.E., DeClaris, N. eds., Holt, Rinehart and Winston, New York, pp. 469-490
- [20] Zeitchik, S. (2012). 10 ways to define leadership. *Business News Daily*.
- [21] Zhu, K. J., Jing, Y., and Chang, D. Y. (1999). "A Discussion on Extent Analysis Method and Applications of Fuzzy-AHP", *European Journal of Operational Research*, 116, pp. 450-456