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Investigating the Implementation of ICT Tool to Electoral Process in Nigeria

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Abstract. *This study is aimed at understanding the implementation of Information Communication Technology (ICT) tool to electoral process and its challenges in Nigeria using actor-network theory (ANT) as a lens. Moment of translation of ANT was applied to gain an insight of the phenomenon. Empirical data was used for the analysis in the context of social behavior between human and non-human actors following inductive research approach. Case study methodology was carried out at Independent National Electoral Commission (INEC). The methods of data collection were through interview, participant observation and reviewing organizational documents. Challenges of the Smart Card Reader (SCR) in Nigeria's electoral process are highlighted. Results of the study indicated that the challenges in implementation of the SCR emanated from the heterogeneous actors "human and non-human", which lack synchrony during the process. Apart from the success of the card reader during accreditation, there was inadequate manpower training by INEC body and insufficient ICT infrastructure that weakened the ANT process.*

Keywords: Actor-Network Theory, Smart Card Reader, Independent National Electoral Commission.

1 Introduction

Developing countries, Nigeria, in particular, is currently facing enormous challenges relating to poor governance [1]. Infrastructural decay, economic mismanagement, and system collapse are some consequences of the systemic corruption that for so long permeated the system. Similarly, as with other developing nations especially in the African continent, the utility of ICT in the administration of organizations is low with a high level of suspicion and mistrust [2]. Implementation of ICT tool in Nigeria's electoral process though recorded some level of success in the 2015 general elections is still bedeviled with multifaceted challenges. As in the case of many other developing nations, the challenges range from the ICT tools failure to many other human rights violations [3, 4]. Many have argued that the implementation of ICTs to electoral process has brought about great improvement [5, 6] resulting to reducing electoral malpractice [7]. However, there is little understanding on the implementation of ICTs to electoral process [8]. The failure is envisaged to have emanated from the implementation of ICT and the relationship between human and non-human actors in the electoral process [6]. This study is aimed at understanding the implementation of ICT tool on the electoral process and its challenges. This study contributes to the use of actor-network theory in e-government research in developing nations, Nigeria's electoral process in particular; to investigate the Smart Card Reader implementation

and its challenges. It will further improve the understanding of employing ANT in information systems research, its limitation and, challenges. A qualitative research approach using the interpretive method with “intrinsic” case study approach was adopted [9, 10]. Authentication of voters using Smart Card Reader (SCR) in relation to human actors and challenges to the electoral process was the focus of the investigation. The underlying objectives lead to posing the research questions as to how do the implementation of Smart Card Reader emerged and its challenges?

2 Theoretical framework

ANT is regarded as the sociology of translation [11, 12, 13]. It explains the interaction of actors towards achieving goals or objectives. ANT serves as a theoretical lens through which the underpinning reality of the implementation phenomenon under investigation is viewed. It is of the view that knowledge is the end product of a heterogeneous network of aligned interest. The theory considers the process of a heterogeneous network as pieces from technical, textual, social and conceptual which are put together and translated to produce an end product [13]. In addition, it is concerned with the relationship between human and non-human (institutions, organization, society, machines and, agent) actors. It is regarded as the “*sociology of translation*” and it is worried about the “*Mechanics of Power*” [13]. The “*Mechanics of Power*” and its relationship to organization believe that there is a Macrosocial or Macroactor, and Microsocial or Microactor in translation [14, 13]. The Macro and Micro actor is referring to human and non-human. Both human and non-human actors are not separated from each other in the translation process [11].

The translation model is described as a generalized process that includes several phases and the phases are interrelated with one another. All actors are identical and they interact with one another in the moment of translation [11]. Similarly, ANT provides an in-depth understanding of the relation between actors in the implementation of ICT tool and its challenges relevant to the objective of this study. In addition, it provides an insight into the challenges of electoral technology relevant to the non-human artifacts through the concepts of the moments of translation as a lens to building the network. The challenges can be attributed to the weaknesses of the actors in building the network as it is evident from the work of [15]. [15] Traces the weaknesses of government to realize the capabilities of services in the administration. [6] Explains the “failure of Thailand Smart ID Card project” that led to total abandonment of the project. This failure is attributed to the cumulative process of different actors that resulted in undesirable outcomes. [11] Applied ANT as a lens to study the falling of scallop in St. Brieuc Bay. Some of the actors (Scallops and fishermen) failed to accept their roles which led to the failure of the project. With regards to this research, the ANT actors are brought together through the “Moment of Translation” so as to expose the weaknesses of the various integrated actors on the process of implementation of SCR. Once the actors interact, the movement in the translation moment is negotiated and enclosed [11]. [11] Describes the moment of translation as: Problematisation; Interressement, Enrolment, and Mobilization which will be discussed later.

2.1 Limitation of Actor-Network Theory

ANT is used through a method of telling a story [16], as it requires a long description of a story fit into a complete book [12]. This becomes difficult and lengthy for a required word count of a journal [17]. Similarly, as it relates to this research it becomes difficult to choose which actors to be included in the network, to make the description more interesting and desirable. Furthermore, the ANT has difficulty in clarity of actors who exactly have to be among the network for analysis, inability to represent actor in the network, and definition of the network by network component in a manner recursively [18]. These challenges can be overcome by applying an analytical approach [16], and further explained that the challenges need nonstop incremental action as the issues occur for successful implementation.

In addition, the technological aspect of ANT is left behind, giving more consideration on the human aspect. A persistent criticism of ANT in Information Systems (IS)-based research is that investigators using ANT fail to maintain the notion of generalized symmetry [19, 20]. Many critics pointed out that ANT in IS-based research focus more on the human actors while neglecting (intentionally or unintentionally) the technology aspect. It is argued that both the actors and network should receive equal attention in the study [19, 21].

3 Methodology

To apprehend the research problem under inquiry, an empirical investigation was conducted to understand the role of the network of actors in the implementation of ICT enables interventions to the electoral processes in Nigeria. The research adopted an interpretive case study approach [22] due to its ability to explain the complex socio-technical interaction process using interviews, case description, and empirical observation [23]. Qualitative data was collected between August to October in 2017 at Independent National Electoral Commission (INEC) office, Yola, Nigeria

3.1. Data Collection Method

Interviews, participants Observation, and organizational documents were applied as techniques for data collection [10]. The interviews were conducted with twenty-six participants. The design of the interview questions was guided by the translation models of ANT [24]. These participants were the INEC officials both lower and upper bureaucrats and the electorates.

The interview questions were semi-structured that involved both open and closed-ended questions. This allows interviewees become flexible while answering the questions. The interviews were held in English language and an in-depth face-to-face interaction. The interaction during the interview lasted for about forty-five minutes to one hour thirty minute each. All interviews were tape recorded with permission given to the researcher. Some of the interviews were conducted in the offices of the informants while others were on a queue for registration and replacement of Permanent Voter's Card. Curious follow-up questions were asked during the interviews on new

and emerging topics. This gave the opportunity to raise any other issues considered relevant. Participants were selected based on the snowballing technique.

Participant observation and document analysis were also carried out. Participant observation assisted in carrying out the database on day-to-day activities happening at INEC. Feelings, ideas, and reactions of the participants were observed and noted for the study. Additionally, how systems work and how support is given to the systems were also observed. Besides, documents were analyzed as other sources of data collection. Document analysis gave more details of things that were not clear during observations and interviews. INEC project documents and Nigeria ICT tools for election policy documents were collected and analyzed. The aim was to understand the relationship and influences of human and non-human actors within the project network [25]. The use of various qualitative methods to collect data helped in ensuring triangulation and a rich data set to illustrate the various network of actors involved in the implementation process.

Qualitative data analyses were carried out to analyze all the data collected. Interviewed data were transcribed through examining, pinpointing and recording patterns into themes following the teachings of thematic analysis [26]. An iterative process was used for reading the transcript samples that resulted in the creation of a codebook. All related obscurity was clarified after the coding of the transcripts samples and codebook was filtered. The themes were categorized reflecting respondents feedback relating to the implementation of ICT tool and challenges. The transcripts were coded and merged into larger themes. Different themes relating to the relationship of actors on issues of the implementation and challenges were contained in the codebook. The coding followed through the movement of heterogeneous actors as it relates to the case study [27]. The main themes were obtained through playing and re-playing of recorded interviews. Also, reading and re-reading of the interviewed transcript as discussed by the participants were analyzed. Secondly, the themes were grouped in relation to the translation models of Actor-Network Theory [28]. These were done with careful consideration given to the implementation of ICT tool to electoral processes as a phenomenon for the research. Field note taken during observations were analyzed using codes that were used for interviews.

Similarly, INEC documents (the INEC temporary register book EC1A were a list of registered electorates were kept, INEC 2015 general elections report, Electoral Operations Support Center (EOSC) manual and reference were made to INEC website) was analyzed with a view to discovering the research setting, major actors for intervention and agencies involved in the project, as well as social and cultural issues that may emerge in the research settings. The interview was conducted among respondents which were 7 top bureaucrats, 8 members from the electorate and 11 lower bureaucrats.

4 Case study analysis

The Election Management Body (EMB) was the principal actor of the project responsible for taking the decision of the Smart Card Reader network formation. The project was initiated in 2013 as part of the desire to reduce Nigerian electoral malpractice and improve on the transparency to obtain a free and fair election. The smart card reader serves as the research sample and the project was implemented in 2015 during the Nigerian general election. However, as stated in the analysis of this study the project was implemented even though it encountered some challenges. Moreover, the SCR has failed to authenticate in some cases due to problems that arose in the translation processes. These problems manifested which resulted to the challenges of the SCR implementation. The findings were traced through the processes of ANT “Moment of translation” to obtain an understanding of the implementation and its challenges from the SCR into the Nigerian electoral process.

4.1. Problematisation

Problematisation is a stage where the focal actor defines the problem and identifies the actors. In this study, the objective of the problematisation stage starts from the moment the focal actors; Election Management Body (EMB) became indispensable by defining and identifying the role and nature of the problem to other actors. The problem identified by the EMB is to implement an ICT tool (SCR) as a solution to provide a free, fair and credible election for Nigerians. The ICT tool implementation was described by the EMB as the obligatory point of passage (OPP). Apart from the EMB, other relevant actors include stakeholders such as; political parties, politicians, civic groups, system analyst, citizens, (voters, electorates or registrants) security officials, INEC officials and national assembly officials. These actors are required for heterogeneous network formation using the technological artifacts (software and equipment) associated to the use of SCR. The OPP which serves as the objective of the project align the interest of other actors as in [11]. The EMB as the focal actor of the Smart Card Reader project network formation, establish the objective of implementation of SCR suggested ways through which the decision was to be implemented. Even though the Smart Card Reader was implemented and used, there are still challenges. It was explained by one of the INEC officials that:

“There was a lot of complaint on transparency. Sometimes the result is being changed from the polling unit before it gets to the INEC headquarters. With the introduction of SCR tool, the election malpractices were reduced and it enhances transparency though there are some challenges associated with the SCR such as rejection of fingerprint. Clear example of the fingerprint rejection is in the case of the then President of the Federation Good Luck Ebele Jonathan. Without the introduction of ICT by the EMB transparency in result would not have been possible”

Prior to the 2015 general election, there were issues of credibility and integrity of election result and these problems were identified through multiple registrations of the electorate during the election process in Nigeria. Some of the interviewees stated that:

“With these problems, we decided to come up with a machine that will be able to identify a voter”

Moreover, other INEC officials stated their views on the use of SCR as:

“SCR serves as a technology for curbing electoral malpractice. It improves on the credibility of election leading to a free and fair election, reduces duplication of voters and improves on good record keeping”

In addition, the INEC as a body lacks enough ICT trained staff. This resulted in adopting ad hoc staff to be included in the formation of SCR implementation network. The Head of ICT stated that:

“We hired ad hoc staff from the National Youth Service Corps (NYSC)”

It was also indicated that when the SCR project was initiated, there were lots of challenges:

“Before SCR was accepted by the government and the general public the commission took it to the house of assembly seeking for permission to use it. The issue of SCR was argued at the national assembly but was fairly accepted. Also, the INEC staff insisted on meeting with the traditional rulers, the political party agent, and community elders to convince the public on SCR usage”

4.2. Interesement

Interesement is a stage where negotiation takes place based on the definition by a principal actor with other actors. This negotiation took place within the stakeholders during a meeting to agree with the usage of ICT tools for the election process. Though, there were challenges from the public and the government resulting in the rejection of the SCR. The SCR was not formally approved constitutionally before 2015 general election. However, INEC as an independent body has the power to use the SCR. As expressed by an INEC staff:

“It was not approved constitutionally before the 2015 general election. The court rejected the use of card reader because it was not approved constitutionally but, INEC has the power as a body to use it. This led to a court case. It was after the 2015 general election that the government agreed and recommended to use it constitutionally”

The use of the old machine (infrastructure decay) and power shortage due to an insufficient fund from the government to support the implementation affected the project. Some of the electorates stated that:

“The election process was too slow and in some cases, the SCR failed to authenticate due to power shortage”

There was an awareness campaign through media houses which was used to reduce the challenges facing the acceptance of the SCR. One of the interviewees at INEC office explained that the SCR is a platform for improving the Nigerian election process. He stated:

“The masses can have trust on INEC staff due to transparency because SCR will authenticate and count the number of voters accredited. Before now, most politicians thought that they can use their money to manipulate the election. There is good potential with SCR for reducing the electoral malpractices”

With the problem defined and actors identified in problematisation phase, a restricted network of the e-electoral process was set up in the commission. This is done with the interest and dedication of the principal actors based on the technical artifact, non-technical infrastructure, and election officials. Having shown the linkage and sta-

bilization of other actors, principal actors or owners become indispensable and force other actors to accept roles in the network formation based on their interest.

The technical artifacts were purchased. As stated by some of the interviewees:

"It was contracted to a company in China and some of INEC staff went on training. The SCR went through pilot study and test. Software and other chips were installed in it. The machine was initially known as INEC Voters Authentication System (IVAS) but, after some checks and installation of chips and software to suit its purpose properly, it was regarded as SCR"

This was done with the assistance of the commission's ICT staff. The EMB encouraged the INEC officials to become acquainted with the e-electoral processes in the commission. However, the contractors (human actors) detached themselves from joining the network. The alignment of interest is consolidated by the owner after parties of interest (human and non-human) had been attracted. The EMB aligned the interest of all actors of the e-electoral process to concentrate on Obligatory Passage Point (OPP) to achieve the maximum usage of the SCR. As one of the INEC ICT staff expressed:

"A mock election was conducted and a sample of the used technologies was carried out in the house of assembly. Both agent and political parties were trained on the use of SCR. They all look at it advantage, credibility, adaptability, flexibility and usability"

4.3. Enrolment

Enrolment is a phase where all other actors accept roles defined by the focal actors to align their interest in the network. In this stage, the main actor (that is the EMB) of INEC defines roles of other actors. The features of SCR became clear and were identified as; antenna, Subscriber Identity Module (SIM) card and SIM card batteries which will last for hours. The role of other actors who accept the agreement became interrelated based on the network formation. During the electoral process, actors are engaged in their various activities for the network formation. A staff from INEC office mentioned:

"There is the presiding officer who is in charge of the ballot at polling unit, assistant presiding officer one (1) is responsible for the operation of SCR, assistant presiding officer two (2) is in charge of the register and poll assistant is responsible for controlling the poll"

The role of all actors is recognized and coordinated by the focal actors in which their interest will be represented in the network based on the constant agreement. Though the enrollment stage was successful, there are little challenges of non-availability of INEC ICT trained staff. The hired ad hoc staffs were not fully devoted to the work. There was a problem of the poor power supply and infrastructural decay which weakened the process. INEC officer stated that:

"The ad-hoc staffs were not attentive on the work. Most of them were just after the payment and these slow the process of election. Also, the SCR in some cases shut down, due to power failure. Some electorates were not authenticated, because the ad hoc staffs were not patient enough to wait for the SCR to respond"

4.4. Mobilization

This is the stage where the translation is completed. All actors have accepted their roles and were regrouped to perform certain functions. The focal actor (EMB) ensures a representative from each group that serves as a delegate. It is where the focal actors turn out to be the representative of all other actors. ICT officer from INEC mentioned:

“During the 2015 Nigerian general election, SCR was implemented and electoral malpractice and time wastage was reduced”

At this stage inscription becomes important. The commission speaks on behalf of other delegated actors to the success of the e-electoral process. As stated by some electorates during an interview:

“The commission has tried and credit goes to the EMB. This is because; corrupt officers come to power through corrupt means, but with the introduction of ICT tools to electoral processes, corruption was highly minimized. Until the introduction of ICT tool by the EMB that voters were able to vote fully. Missing of ballot papers, rigging, and election violence was wiped out. Therefore, in the absence of role played by EMB, the success of the election would not have been possible”

The success of the mobilization stage was through the emergence of EMB as the voice of all other actors. In mobilization, there is relationship strength that exists between the actors and delegates. This relationship maintained the stability of network of actors towards Obligatory Passage Point (OPP). The translation model of ANT was successful. However, the mobilization stage was faced with some challenges. The challenges manifested from the disloyalty of some actors as stated in the previous stages, and disenfranchising the disabled from voting. An officer from INEC discussed that:

“The election processes supposed to be all-inclusive. In this case, the disabled were not carried along. A leaper cannot put his fingers on the machine to be captured and be authenticated. A brail is not provided for the blind to read the contestant and there is no tack tile (voter’s card for the blind) to cast their vote.

In another case, the interviewee stated that:

“A lame person using a wheelchair is not considered on setting up the polling unit. An Impaired person is not provided with who to explain to them on what is happening. Also, Network connectivity is another impediment to smooth conduct of elections. The network even within capital cities fluctuates and sometimes completely off. However, most of the officials use their phones to connect their computers”.

5 Discussion

Interpreting the SCR implementation in Nigerian electoral process using ANT concepts, mainly the “Moment of Translation” process, problems were encountered from the early stage of the translation process, regarded as problematisation stage. There was difficulty of cooperation from the national assembly, traditional rulers and community elders by the EMB to be part of the network. This problem extended the SCR implementation involving into a court case. As a result, there was no full support of the implementation from the national assembly, and other important actors which resulted in weaken of the process at the problematisation stage. Moreover, INEC does not have enough ICT staff, consequent upon which ad hoc staff from the National

Youth Service Corp (NYSC) was hired. The hired actors have little knowledge of the SCR implementation and contributed more to the challenges encountered in the process. This is similar to the findings of [6]. In [6], the focal actor failed to include professional and independent organizations with knowledge in the design of ICT project, culminating into poor implementation and the Smart Card ID project failure. In the SCR case, the national assembly and NYSC staff negligence to be fully part of the SCR implementation network marks the starting point of the challenges.

Though the negotiation at the intersement process took place and the SCR was contracted to a company in China, there were still challenges and the process was not fully successful. This is attributed to poor functioning of the devices and poor infrastructure, particularly power shortage. Also, the fund released by government to the INEC for the project was not sufficient to have a successful implementation of the project. Consequently, the INEC officers could not monitor the ad hoc staff effectively to the roles assigned to them in the network. These also contributed to the challenges in the implementation of the SCR. [11] reported that disagreement between fishermen and the scallops led to the failure of the entire breeding program.

In the enrolment process it is evident from the SCR implementation that hired ad-hoc did not take full responsibility of the roles assigned to them by the EMB. Heeks & Stanforth (2015) indicated that the consultant finds it difficult to locate their office in the old colonial era in the Ministry of Finance building. As a result, it weakens the network of technology implementation. Additionally, departmental task forces responsible for the technological change implementation were not formed. These occurred in the case of SCR implementation between the hired staff and the electorate. The hired staff failed to take full responsibilities of the roles assigned to them by the EMB. Some of the electorates were not authenticated due to the weaknesses from the hired staff as well as the SCR power failure. There was no provision in the SCR to capture the disabled, and the SCR is supposed to capture all voters to maintain the rule of the election. This resulted in disenfranchising the disabled. Finally, at the mobilization stage, the disloyalty of some of the actors in the actor-network of SCR caused the challenges in the implementation.

The contextual analysis helped in understanding the formation of ANT and shows clearly the challenges of the implementation. The actors had disagreeing interests at the formation of the SCR implementation network. However, the implementation was completed and the SCR was used despite the challenges.

6 Conclusion

The study investigated the implementation of ICT to the electoral process in Nigeria using qualitative-inductive approach through the lens of ANT. The ANT was particularized into the Nigerian electoral processes through the four-translation model. Empirical data was used for the analysis in the context of social behavior between human and non-human actors. At the mobilization stage, there was asymmetry between the principal human actors, the national assembly, traditional rulers, community

stakeholders and the EMB. This weakened the process from inception. Insufficient trained INEC staff necessitated employing the services of ad-hoc staff with poor training in SCR further posed a major challenge.

Apart from the inadequate knowledge on the use of SCR by engaged ad-hoc INEC staff, poor power supply and insufficient funds released to INEC gave room for poor monitoring and implementation of the use of SCR. Thus, the hired ad-hoc staff did not assume the full responsibilities resulting to poor implementation of the use of SCR. Similarly, battery rundown, lack of electricity and inability of the SCR to capture persons with disability were some the other challenges at the enrolment process. Even though, challenges were encountered from all the process, the introduction of ICT (SCR) to electoral processes reduced problems associated with multiple registrations as well as authentication of electorates. Thus, implementation of ICTs to the electoral process should not focus only on the registration and authentication of electorates only, but casting of votes should also be involved. This indicates the need for more research to be conducted on issues of ICTs to electoral process identifying the role played by human and non-human actors.

In addition, election should be all-inclusive; thus, the need to provide facilities to include the people with disabilities into the electoral processes. The current INEC policies guiding the election process in Nigeria does not make provision for the disabled. As a result, electorates with disabilities were disenfranchised from the process. Therefore, INEC needs to provide legal backing and ICTs tools for the disabled electorates.

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