

The Impact of the Point of Sale (POS) Machine Technology in Nigeria. An Actor-Network Theory Approach

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Abstract

Today, the use of Point of Sale machine (POS) spreads around businesses and cash transactions in Nigeria. POS is viewed as an innovation that cuts off much stress in accessing cash from Banks and Automated Teller Machines (ATM) and performs various financial transactions which are widely accepted by the public in Nigeria. The Actor-Network Theory (ANT) is a framework that gives an insight into how humans and non-humans interact together to form a network. In this work we analysed how the POS technology has impacted socially among people in Nigeria using the Actor-Network Theory framework. Translation, Irreversibility and Inscription are the three ANT concepts that were used in exploring and analysing the POS technology. Data was collected through interviews with various POS outlet owners and customers to ascertain the heterogeneity of the network and the impact made from the social perspective.

Keywords: Point of sale, Actor-Network

I. Introduction

As a move towards expanding the field of social and technology studies, researchers like Bruno Latour, Michel Callon, and John Law developed the Actor-Network Theory ANT, the popular theory was invented in the mid-1980s (Wessells, 2007). The ANT spans through the concept of technological adoption in many fields such as communication, geography, sociology etc. Nimmo (2011) believed that ANT composed of two elements or rather hybrids of Societies and nature, discarding the dualist notion of subjects and objects or society and nature, he also points out that the theory deals with the concept of were due to their heterogeneity, people and technology, human and non-human converged to form an inseparable network. The POS was introduced as an electronic payment system *e-payment* gateway which facilitates interconnectivity by the switching companies. According to Adeoti (2013), E-payment means a payment system where customers pay for commodities via electronic means for goods and services online or in shopping outlets. The use of POS is associated with low risk which abolishes any third party involvement in transactions. The POS usage has eliminated or rather has reduced the use of cash to the barest minimum for financial transactions in most developed countries which cut the cost of cash production and management. In underdeveloped countries like Nigeria, it is widely used as a withdrawal point and payment for commodities by customers with bank accounts.

II. Literature review

Relevant Academic Literature on the Actor-Network Theory

The network in this context according to Latour (1984) is understood best as a combination of actors which are human or non-human alike of whom consequently, have other actors defining them. Many scholars have given many insights overtime about the concepts of the Actor-Network Theory. ANT has been defined by many scholars in different ways looking at different areas of adoption. (Young, D et al., 2010, p.1209) believes that “Actor networks are heterogeneous, unlike social networks associated with diffusion theory, they are networks of people, research evidence, technologies, financial resources, institutions, and regulation acting together to produce the innovation”. Beekhuyzen & Hellens (2006) also viewed ANT as a multidimensional academic perspective towards studying the issues of technology from the societal viewpoint and information technology. Another field where ANT is used is information system research. As explained by Walsham (1997) the theory in recent years has gained grounds such that more researchers in the field of Information systems make use of the theory in their work explicitly. Other sub-areas of Information research that ANT has been applied according to Elbanna (2011) are system design and implementation, development of information systems at all stages, and information technology infrastructure development and consultancy through various ways of adoption of its framework which ranges from simple use of vocabulary to complex deployments.

The actor-network theory is based on some key concepts which are actors, actor-network, translation, delegates and inscription, irreversibility, black box, and immutable mobile (Walsham, 1997).

The concept of Actor-network and Actor/Actants in the Actor theory network:

As defined by Latour (1996), actor-network is considered an ontology and entity, not a segment that is deficient in action that people such as designers and human planners holds and does the tracing and inscribing. Actors or actants are considered any entity that plays a role in an actor-network. In this regard, people, technology, text, and graphic forms part of the actor-network. Walsham (1997) defines actors as any entity such as human beings, technology as non-human actors. Despite the various researches on the ANT, some researchers think that there is no anchored theory of the actor. (Callon, 1999, p.181), mentioned that, “ANT is based on no stable theory of the actor; rather it assumes the radical indeterminacy of the actor”. Another scholarly observation by Nhamo (2006) views actors and actants as semiotic that create their respective worlds as hybrid in the cause of combining to form a network. Furthermore, Latour (1996) views an actor in ANT as a symbol or lexicology, on the other hand, he also suggests that actors are the main source of activities assigned to actants, in essence, an actant is usually considered a source of the action so far it is granted by others. Bueger & Stockbruegger (2017) explained that to produce an effect, the configuration of an actant in a particular network has to be considered, moreover, networks give an actant the possibility to take of a dedicated actor.

The Point of Sale Technology (POS)

According to Lestaringati (2018), the POS system is a computerized and configured gadget that comes with a barcode scanner, a printer device, and uniquely developed software for POS installed on the device for the purpose of making financial transactions. The deployment of the POS machine/terminals has cut across many businesses around the globe making digital transactions so viable and largely practiced. As defined by (lightspeed, 2019), “A POS System is the actual software and hardware you use to manage your business. It is the tool you use to analyse and order your inventory, employees, customers, and sales”. Credit/debit cards are used to complete any transaction using the POS terminal, either a physical card with a digital microchip enclosed or the card digits and user password. Today, there are many types of POS systems in use. The most popular in Nigeria is the Mobile POS system (MPOS) which is used by the retailers for transaction processes and can be moved around so far there is a mobile network i.e. the filling stations, food vendors on home delivery, etc. Lestaringati (2018) viewed the MPOS as a portable device that can be moved around, and based on the fact it is associated with low power consumption, it can record the occurrence of any transaction.

III. Analysis of the POS use In Nigeria Using the Ant

To make payments during a transaction, businesses installed the POS terminals and connect them to the Nigeria Inter-Bank system bond indenture (Ovat, 2012). Other uses include massive cash withdrawals; most businesses still opt for a cash transaction. Despite its numerous challenges, the POS use in Nigeria is well accepted by the public as a way to ease the difficulty in accessing cash from the banks and the Automatic Teller Machines (ATMs). Cash is still seen as the main mode of payment most especially in the local markets, the local food commodities, livestock markets, and small shopping outlets, but as viewed by Olubunmi & Dahunsi (2015), Cash-based transaction is associated with many inadequacies, they viewed it as detrimental and risky for any nation to withstand.

Looking into the concept of ANT and its tenets, in this regard the customers, POS outlet staffs, the technology are considered as actors. Other actors are the Central Bank of Nigeria (CBN), credit/debit cards, banks, bank transfers, and customers with the POS terminal being the central node of the network with other actors fully engaging in the whole POS use processes. Now let's take a look at the major ANT elements with the view of making an analysis base on the three mentioned elements of the ANT i.e. Translation, Irreversibility and Inscription.

Translation

Translation is one of the key concepts of the Actor-Network Theory. As explained by Bencherki (2017), Translation involves the concept of a black-boxed actor-network, also considered as an actor and in the event of its operations. In essence, the black-boxed actor network has the ability to act as the spokesperson for numerous others. Nhamo (2006) also viewed black-boxes as new actors when the old actors are abandoned and any modification toward an alliance between both actors, new and old, may also result in the black boxes of networked actors/actants split or rupture and the required to re-structure their contents. "ANT's black boxes represent only a set of stable-for-now relations that could change at any time – without

any further theorization" (Greenhalgh and Stones 2010, p.1287). It is pertinent to know that each translation is seen from the perspective of a particular actor since simultaneously, different translation processes are going on as suggested by Sidorova & Sarker (2000). Wearaas and Nielsen (2015) categorize translation into four stages which are problematization, interressment, enrolment, and mobilization.

Problematization

Various reasons necessitated the use of POS technology in Nigeria, among which are lack of sufficient ATMs, congestion in banks for cash transactions, high cost of printing cash, and risks associated with cash movement. These and more are the problems explored by the banking sector. The central bank of Nigeria (CBN) based on the interest of the banks towards customer satisfaction and a relatively saner working environment issued guidelines on POS card acceptance services in Nigeria which will curtail the complications banks are facing. The CBN guidelines to broaden the solution allow the POS use not only to fillings stations and shop outlets alone but introduce more actors such as merchants, cardholders, POS terminal owners, etc. In essence, the banks, the CBN as the regulator, customers, and other allowed service providers are all actors aiming for a common solution to the cash access problems.

Interressment

The convergence of all the actors (mentioned above) involved, and with a common interest to strengthen all their links corresponds to interressment, all roles for actors were defined in the network. Therefore, to analyse interressment in the POS use in Nigeria case, we look at the role of each actor in the network. The CBN as an actor is interested in seeing that it has created different ventures by introducing more actors. For example, the POS business owner can start a retail shop by which cash transactions could be done. The business owner is after the profit associated with withdrawal commission from customers which are also actors.

Enrolment

Enrolment comes after a successful interressment and the actors are identified and created. In another view, enrolment is "the process of alignment of actors' interests with the actor network occurs as actors enrol others into the network" (Mcbride, 2003). The CBN acceptance towards the use of POS is the first phase of Enrolment.

Mobilization

The actors are formed therefore continued Mobilization is required because it may turn out to be unreliable in nature that may cause instability in the whole process (Nhamo 2006). Furthermore, Nhamo (2006) also explained it is crucial to note that there are always numerous sub actors that hide behind the actor networks. In this case, the banks, merchants, and cardholders co-opt other actors into the network. For instance, the

POS outlet owner opens a shop, employs staff, and always withdraw cash from the banks to transact business with other customers. In essence, every actor has been mobilized in the network.

Irreversibility

The use of POS in Nigeria today has reached a new level as more and more businesses are engaging in transacting financial businesses with the POS machine. The CBN introduced charges for the operators which come across massive resistance by the public. Despite being an obstacle to many, there is a slight change in customer attitude towards the use of POS. This shows that technology acceptance is high and cannot be reversed. The irreversible context has already been established and the actor-network has reached stability (Mcbride, 2003). Other obstacles that were realized are the network and card failure. Realizing the problems which have effects on the business value, most of the POS outlet owners replaced their POS terminal with a mobile card less POS machine. A card less mobile POS accepts a customer's bank account number and password to conduct a transaction. The outlet owners also add more network interconnectivity for a robust network system as a backup. In an interview with a POS outlet owner Mr. Usman on December 14, 2022, he gave an insight about POS use volume and the introduction of 100-naira Commission: Before the introduction of the 50 Naira commission by the CBN, we use to have more than a hundred transactions daily but that was cut short for some days after the introduction of the commission. Subsequently, the transactions were back to normal because people can 't resist staying in long queues to withdraw money from banks and ATMs.

According to Mcbride (2003) Irreversibility is a natural consequence of establishing physical. The use of technology has stabilized as it becomes essential to society, it cannot be reversed. As elaborated by Sidorova & Sarker (2000), enrolling enormous actors into a network and by inscribing attentiveness draw on technological products irreversibility can be accomplished. In another interview on December 19, 2022, with a customer in a POS outlet in Kano, Nigeria, Mr. Munzali states that:

The only problem associated with the POS outlet withdrawal by many is the payment of the commission; most of us had to pay the commission in cash to avoid having a gap on the cash to be withdrawn, but still is far better than going through the stress of going to the banks or ATMs for withdrawal most especially in the month's end when salaries are being paid.

Inscription:

Inscription evolves from translation and when the network is stable. As the network stabilizes the concept inscription emerges. Furthermore, Sidorova and Sarker (2000) describes inscription as critical to network building and must be dedicated to the common memory of the social system in as much as there is a rapport between actors. The users of the POS technology in Nigeria found stability at some point, POS outlet owners are into a profitable business, customers have a convenient way of business transactions and cash withdrawals, the banks have less volume of physical cash transactions daily, and switch companies are making fortunes out of the initiative. In essence, all actants involved referred to human and non-human actors in the network. In another vain, (Hedström K et al., 2010) is of the view that, the two other ANT's

elements Inscription can instigate the concepts of enrolment and translation in the event all interests are documented or presented as technical systems.

IV. ANT and Social impact in Nigeria:

Based on the analysis of the major concept of the ANT and POS uses in Nigeria one will conclude that there is a huge social and economic impact on the society. The network formed has created jobs and ease the stress of accessing cash and has minimized the security threats associated with carrying cash in most instances. One of the characteristics of the ANT is stability as described by (Hedström K et al., 2010, p.51) “If there is integrity among actions, interests, and inscriptions, i.e., there is an ongoing negotiation, then the chances of disturbances in the homogeneous network are minimal”. Enrolment of all actants both human and non-human maintains the uprightness of the actor networks. Actors need to align with any new technological innovation for the networks for firmness.

V. Conclusion

The point of sale (POS) technology is a widely accepted platform for financial transactions in Nigeria. We have used the Actor-network theory approach to analyse the social impact on the people in Nigeria using its major concepts such as translation, irreversibility, and inscription. Furthermore, the analysis shows how the participation of both actants the CBN, banks, the POS machine, and various users such the POS outlet owners, customers (human and non-humans) converge together to form a vibrant compounded heterogeneous network. Today, many businesses have a POS outlet for their financial transaction, customers are patronizing for ease of cash access and other transactions.

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