Analysis of the Level of Acceptance of the Federal Roads and Bridges Tolling [Frbt] Policy [2021] Of Nigeria and Its Liabilities

OLOYE, Rowland Abiodun,

Department of Transportation and Urban Infrastructure Studies
1700 E Cold Spring Ln, Baltimore, MD 21251, USA

ABSTRACT
This paper aims to evaluate the level of acceptance of the new Federal Roads and Bridges Tolling [FRBT] Policy among road users in Nigeria. The FRBT policy was introduced by the Federal Ministry of Works in 2021 in conjunction with the ICRC and the Nigeria Infrastructure Advisory Facility [NIAF] as the roadmap for the maintenance of Federal Roads Infrastructure. Seventeen [17] indicators [administered through a structured questionnaire] were used to measure the Level of Acceptance of the Policy as a yardstick for measuring the Policy Liabilities. Results showed that there is a low level of acceptance for system indicators of the Federal roads and Bridges Tolling policy at 37.6%. Five [5] key liability areas of this were also evident in the analysis. These areas are the recommended fees, collection management, implementation, eligibility and commencement. Conversely, for user indicators, the LOA was high at 68.15%. It is recommended that for the policy to be successfully implemented there should be a thorough "Willingness-to-Pay' survey that is not limited to trade unions. Also, the engagement of stakeholders needs to be more encompassing.
Keywords: Level of Acceptance, Public Transport, Road Pricing, Tolling

I. INTRODUCTION

The Nigerian road network is critical to the country's economy, transporting over 90% of both passenger and freight traffic. Road transport also contributes approximately 95 percent of the transportation sector's GDP. The Federal Executive Council approved the Federal Roads and Bridges Tolling Policy to guide the reemergence of road tolling in Nigeria on August 11, 2021 (EC 24 (2021) 12) to maintain a self-sustaining and transparent stable funding for the maintenance and expansion of our national highway network.

The Federal Ministry of Works and Housing (FMW&H) aims to attract additional investment by broadening the private sector involvement in the planning, maintenance, and upgrade of the Federal road and bridge system through Public-Private Partnerships (PPP), in which the expenses of financing these investment opportunities will be partially met by road users through tolls. Tolling and private sector participation through public-private partnerships (PPP) have proved successful.

Use of Tolling
Road tolls are user charges collected from motorists traversing the tolled roads. The collected charges or revenue can be used in a variety of ways
    i.   To pay for the upkeep, construction, and management of roads.
    ii.   To repay a private investor who took out a loan to construct, restore, and/or maintain a road.
    iii.   Managing the road and providing associated services

Benefits of Tolling
Road tolling will generate numerous benefits as follows: -
    i.   Stable funding for road construction and maintenance;
    ii.   Thousands of kilometres of world-class roads added to our road network;
    iii.   Reduced travel times and costs;
    iv.   International best practices coupled with affordability for road users and incentives for further private investment;
    v.   The money raised from tolls is usually set aside for particular road upkeep.

vi. Infrastructure development employs a commercial method to fill financial shortfalls in capital budget appropriation.

vii. Encourage additional investment and economic diversification in outlying areas that are currently cut off due to inadequate access.

viii. Improved roadside facilities and services; improved maintenance and enhanced connections to the national road network

ix. Improved road conditions result in less vehicle wear and tear.

x. Road costs will be more equitable, as larger vehicles that generate more wear and tear on roads will be charged more.

xi. The government's clear monitoring role stimulates investment and builds public trust

xii. Through a defined system of public consultation in making the decision to toll, the public is included in the PPP strategy.

Aim
This paper aims to determine the Policy liabilities of the Federal Roads and Bridges Tolling Policy based on its level of acceptance among road users in Nigeria.

Objectives
i. Determine the relevant user and system indicators affecting the level of acceptance [LOS]
ii. Determine the Policy Liability Level [PLL] using the derived level of Acceptance [LOA]

II. METHODOLOGY

Structured questionnaires were administered to road users consisting of seventeen [17] Indicators used in determining the level of Acceptance of the FRBT policy. These indicators are broadly categorized into two [2] broad classifications viz: Section A: user indicators and Section B: System Indicators. [See appendix A]. The analysis is based on the system indicators which are the main highlights of the Policy.

250 questionnaires were administered [mostly electronically], while 220 were returned. The Likert scale used to depict the Level of acceptance are: 5- Strongly agree; 4 – Agree; 3 – Neutral; 2 – Disagree; 1- strongly Disagree. These were analyzed using the average mean score.

III. LITERATURE REVIEW
History of Tolling In Nigeria

The Federal Government of Nigeria began collecting tolls for highway maintenance during the fourth (4th) National Development Plan (NDP), which spanned from 1981 to 1985. The attempt to impose a fuel tax on January 1, 2004, however, resulted in the removal of toll gates and collection. Because the money went directly into the national treasury, the scrapping was owing to legal issues, income leakages, and neglected maintenance of the tolled roads. On Trunk 'A' roads, toll collection was undertaken, particularly on 16 federal routes. [Lahrmann et al, 2019],

Under the Highway Development and Management Initiative, the FMW&H has designated 12 routes for the first step of the Value Added Concession (VAC) (HDMI).

Table 1: Designated 12 Routes for the First Step of the Value Added Concession (VAC)

HDMI ROUTES	LENGTH (km)	STATES	STATUS	TOLL LOCATION
BENIN-ASABA	125	Delta State	Previously Tolled	Asaba
ABUJA-LOKOJA	193	Kogi state	Previously Tolled	Okene
KANO-KATSINA	150		New	N/A
ONITSHA-OWERRI	161		New	N/A
SHAGAMU-BENIN	258	Ogun State	Previously Tolled	Ijebu Ode
ABUJA-KEFFI-AKWANGA	122		New	Shagamu
KANO- SHUARI	100	Kano State	Previously Tolled	Ogere
POTISKUM-DAMATURU	96.24			N/A
LOKOJA-BENIN	270	Kogi State	Previously Tolled	Chiromawa

ENUGU-PORT HARCOURT	200	Enugu State Abia State Abia State	Previously tolled	9th Mile Obibo Isiala Ngwa
ILORIN-JEBBA	129	Niger state	Previously Tolled	Jebba
LAGOS-OTA-ABEOKUTA	80	Ogun State	Previously Tolled	Ota
LAGOS-BADAGRY-SEME	79	Lagos State	Previously Tolled	Magbon

Source: FMWH, 2019

DEVELOPMENT OF THE FEDERAL ROADS AND BRIDGES TOLLING POLICY

Tolling is the collecting of a fixed fee from motorists for highway use as a means of generating revenue for transportation. The usage of tolls that fluctuate according to the degree of vehicle demand is known as pricing, and it is largely used to control traffic congestion.

In 2011, the Federal Ministry of Works, in collaboration with the International Committee of the Red Cross (ICRC) and the Nigeria Infrastructure Advisory Facility (NIAF), began developing a Federal Roads and Bridges Tolling Policy as one of the measures to ensure the maintenance of Federal Roads infrastructure:

i. To ensure the maintenance of Federal Roads infrastructure in the face of diminishing revenues and budgetary provisions;
ii. To provide a guide to private sector funding and build private sector confidence.
iii. The Ministry formed a Tolling Policy Working Group (TPWG) with representatives from the Ministries of Finance, Justice, and Transport, as well as the ICRC, the National Planning Commission, NIAF, and the World Bank;
iv. On May 13, 2014, the Draft Green Paper was presented to the Federal Ministry of Finance's Economic Management Implementation Team (EMIT);
v. The Federal Executive Council (FEC) received and evaluated a memo requesting approval of the Federal Roads and Bridges Tolling Policy on Wednesday, May6, 2015.
vi. The Council decided to put the document on hold for re-examination and expanded stakeholder participation. Highlights of the Policy
vii. The Honourable Minister of Works and Housing established a committee to reassess the Federal Roads and Bridges Tolling Policy.
viii. Previous tolling documents for the Presidential Committee's 2015 report were thoroughly reviewed and evolved into the current revised Federal Roads and Bridges Tolling Policy.

Key Elements of the FRBT Policy
i. Toll System
a. **Closed Toll System:** Toll plazas are located at the highway's entrances and exits. When a user enters a toll road, he or she is obligated to pay a toll based on the distance traveled and the vehicle category.

Fig 1: Closed Toll System

b. **Open Toll System:** Toll barriers are placed at regular intervals along the major route in an open toll system. At each barrier, users must pay a toll. The toll is calculated based on the number of toll plazas they have passed through rather than the distance traveled. The use of an open toll system on all federal highways has been approved. This could then develop into various sorts of tolling as needed.

Fig 2: OpenToll System

ii. **Tollable roads and bridges:** Tolls will only be allowed on dual carriageways and Dual bridges.
iii. **Tollable Vehicle Classification:**

Categories of Vehicles to be tolled
i. Light Vehicles: small cars
ii. Semi Light Vehicles: Minibuses, Pickups, Jeeps and SUVs
iii. Medium Heavy Vehicles: Luxury Buses, Two Axle Goods Vehicle
iv. Large Heavy Vehicles: Goods vehicles with 3 to 4 Axles
v. Extra Large Heavy Vehicles: Goods vehicles with 5 or more Axles

Categories with 100% discount
i. Bicycles, Pedal Cycle, Tricycle, And Motor Cycles
ii. The Armed Forces
iii. The Nigeria Police Force
iv. The Nigeria Fire Service
v. The Nigerian Correctional Service
vi. Ambulances
vii. The Nigerian Red Cross Society
viii. Diplomatic Missions

TEN [10] HIGHLIGHTS THE FRBT POLICY [2021]

The approval for the Federal Roads and Bridges Tolling Policy [2021] was signed into law by th Nigeria President at the Federal Executive Council [FEC] meeting on the 11th of august, 2021. According to the Minister of Works and Housing, in order to arrive at the recommended pricing framework, a Willingness-To-Pay Survey was also conducted. Existing tolled roads [Lagos and Abuja Airport Toll Plazas, as well as the Lekki and Ikoyi Toll Plazas] were also considered.

Deduced below are ten [10] highlights of the policy.

i. **Rating structure:** Instead of a closed tolling system, it will be an open tolling system [similar to the one that used to exist in the country]. [In a closed tolling system, you pay a fixed/flat rate that is not dependent on distance gone, but in an open tolling system, a fixed/flat fee can be made that is not based on distance traveled].

ii. **Eligibility:** Only federally owned dual carriageways will be eligible for tolling by the federal government. [Only 5,050 kilometers of the country's 35,000 kilometers of Federal Roads are dual carriageway]. Tolls shall not be applied to federal carriageways that are single, i.e. undivided highways. Only a few bridges, which are identified in the Policy, will be exempted.

iii. **Revenue Utilization:** Toll revenues will be utilized to fix roads as well as to compensate investors who have participated in the Highway Development Management Initiative [HDMI] to develop or complete a road.

iv. **Collection Management:** Cash systems will be prioritized over electronic toll collection and management systems.

v. **Exemptions:** Bicycles, tricycles, motorcycles, diplomatic vehicles, military and paramilitary vehicles will be free from tolling.

vi. **Tolling Policy:** The Tolling Policy is a comprehensive national framework that will serve as a reference for states and local

governments interested in enacting their own tolling policies. [As previously stated, the Federal Government owns only roughly 16 percent of Nigeria's total road network.] States own/control nearly the same proportion as the Federal Government, with the remaining two-thirds being last-mile highways that belong to and are managed by local governments].

vii. **Discounts:** People who live near Toll Plaza Areas will be eligible for 'Frequent User' discounts, which are in line with international best practice.

viii. **Recommended Fees:** The following are the recommended tolling fees in the Approved Policy and Regulations:

- Cars: N200 [$048]
- SUVs: N300 [$0.72]
- Private Buses: N300 [$0.72]
- Commercial Buses: N150 [$0.36]
- Luxury Buses and Trucks: N500 [$1.21]

ix. **Implementation:** The Federal Highways Act, according to the Honourable Minister, gives the Minister responsible for roads the right to toll [Federal Roads], but the execution of any tolling policy/regime includes several processes and multiple agencies, necessitating multi-stakeholder coordination.

x. **Commencement:** The Minister emphasizes that, despite the fact that the policy has just been authorized, tolling will commence immediately. Tolling will begin while the roads and bridges are being made motorable. This policy is a pre-requisite for the implementation of tolling, and it is now up to people to familiarize themselves with it and key stakeholders to begin using it as a basis for financial modeling and investment research, in preparation for the eventual rollout of toll plazas.

MEASURING LEVEL OF ACCEPTANCE [LOA] OF THE FRBT POLICY

Acceptance, acceptability, social acceptance, public support, social support, and other terminology are often used to express the same phenomenon: how will (future) users respond and react if a particular measure or gadget is implemented? The growing realization that policymaking must be viewed as a two-way process, with engagement, transaction, and communication with the public as crucial parts, explains the interest in defining acceptance/acceptability (Nelissen and Bartels, 2018).

As a result, in terms of road safety policy, there is a precondition that a measure's effectiveness will enhance if it receives support. Public support for road safety (measures) can be defined as a favourable assessment of road safety and efforts that ostensibly improve it. Under favorable circumstances, this positive evaluation leads to a greater propensity to accept and even actively support a proposal.

Conceptualizing the Level of Acceptance [LOA] Model

According to Lahrmann et al [2019], the level of acceptance and acceptability is an aggregate of various layers of interwoven user and system indicators. In order to achieve a realistic survey LOA of the FRBT policy, the indicators must border on efficiency of the system and user satisfaction.

After an extensive literature 17 indicators were considered based on their level of influence on the level of acceptance on the FRBT Policy of 2021. [See figure 1]. These indicators were classified into two [2] broad headings: User Indicators and system indicators;

a) User Indicators
i. Background or Individual factors

Background of the users such as age, gender, employment status and level of education will affect how a road user perceives the FRBT Policy. For instance an employed road user may likely not disagree on the policy as much as employed citizens.

ii. Travel Mode and Frequency

Travel behaviour of the user, such as the mode and frequency of travel can influence the level of acceptance of toll way pricing. People that drive more, especially on the toll routes may like disagree with the policy as this will create greater financial burden. Less travelled citizens may be less concerned.

iii. Information and Knowledge About

Respondents' level of awareness about traffic congestion issues or transportation funding issues and the need for solution may be supportive of the FRBT. However, in some instances, better understanding of may also lead to less acceptance with respect to its solutions.

iv. Personal and social Aims

According to Scahde and Sclag [2020] there is often conflict between personal or social

aims and benefits. It is assumed that the higher the social aim the higher the level of acceptance. Policies and laws which seem to limit users' level of freedom may experience minimal acceptance. The more mandatory a policy is, the more likely it is to be rejected.

v.   **Responsibility Awareness**

Scwartsz [2017] in his Norm Activation theory opined that the more responsibility people feel in the enactment of a law [or policy], the less likely that such laws or policies will be embraced. In some other cases, if a user feels more responsible as part of the solution [especially at the decision making level], the level of acceptance can increase.

vi.   **Social Norms**

Pressure of opinion from communities, political parties and citizens of influence can greatly affect the acceptability level of the FRBT policy. Social norm refers to the psychological mindset of the opinion of his peer group or community. The higher the community acceptance, the higher the likelihood of individual acceptance. (Vlassenroot et al., 2006) Silcock et al. (2000)

vii. **Problem perception**

This refers to the extent to which the respondent feels that there is an ongoing transportation challenge with respect to funding, traffic congestion and road maintenance. There is a common generalization that greater user awareness of the problem will often lead to increased readiness to embrace solutions.

viii. **System Indicators**

For this research, the ten [10] highlights of the Federal Roads and Bridges Policy as earlier discussed will be used as the system indicators. These include: rating structure, eligibility, revenue utilization, collection management, exemptions, tolling policy, discounts, recommended fees, implementation and commencement.
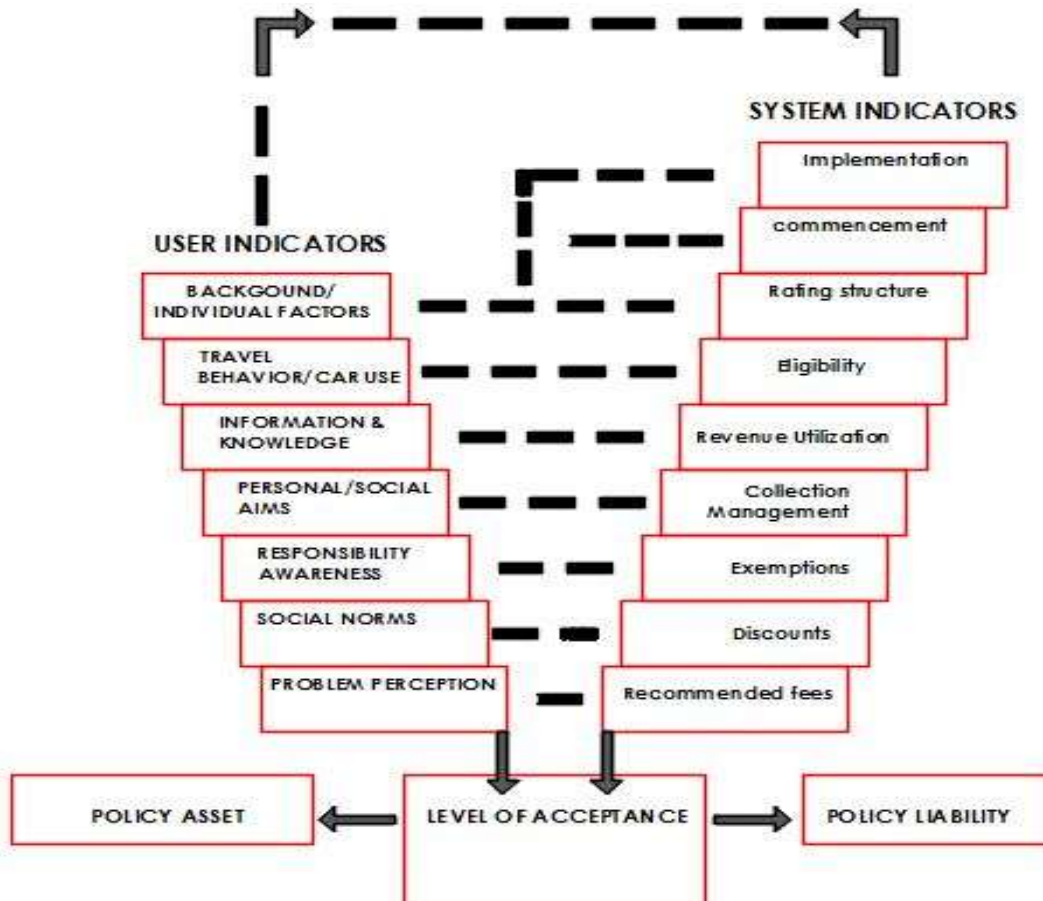

Figure 3: Level of Acceptance Model [researcher 2021]

IV.   DATA ANALYSIS
Table 2: Respondents Mode of Transportation

Rank	Means of Transportation	No.	Percentage
1	Car/private Vehicle	21	38
2	Danfo [Commercial Mini-Buses]	41	28
3	BRT/LAGBUS	13	10
4	Uber/Taxi	13	4
5	Keke [Tricycle]/Motorcycle	12	5

Source: Researcher's Field Survey 2021

250 questionnaires were administered [mostly electronically], while 220 were returned. The Likert scale used to depict the Level of acceptance are 5- Strongly agree; 4 – Agree; 3 – Neutral; 2 – Disagree; 1- strongly Disagree

Table 2: System Indicators Depicting Level of Acceptance

S/N	Factor	Sum	Mean	Rank
1	Revenue Utilization	717	3.26	1st
2	Rating structure	645	2.93	2nd
3	Exemptions	530	2.58	3rd
4	Discounts	436	2.52	5th
5	Recommended fees**	400	1.52	6th
6	Collection management**	315	1.36	7th
7	Implementation **	246	1.12	8th
8	Eligibility**	145	0.60	9th
9	Commencement**	136	0.45	10th

** Liability areas of the Policy
Source: Researcher's Field Survey, 2021

The level of acceptance for system indicators is given by the Overall Average Mean Score of 1.88. This means that only 37.6% of the respondents accept the Federal Roads and Bridges Tolling Policy of 2021.
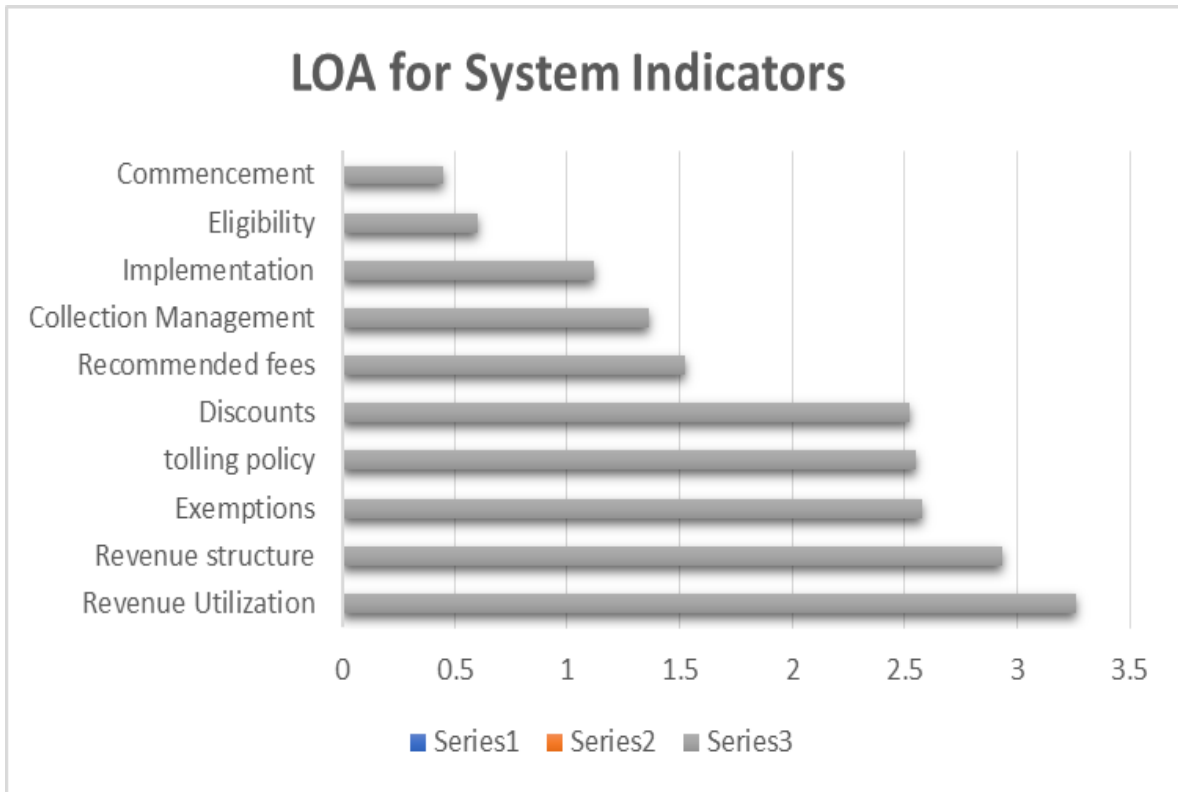
Figure 4: LOA for System Indicators

Table 3: User Indicators depicting Level of Service

S/N	Factor	Sum	Mean	Rank
1	Social Norm:	869	3.95	1st
2	Information/knowledge:	765	3.48	2nd
3	Personal/social aim	722	3.28	3rd
4	Problem Perception:	642	2.92	4th

Source: Researcher's Field Survey 2021

The level of acceptance for user indicators is given by the Overall Average Mean Score at 3.41. This means that about 68.15% of the respondents accept the Federal Roads and Bridges Tolling Policy of 2021.
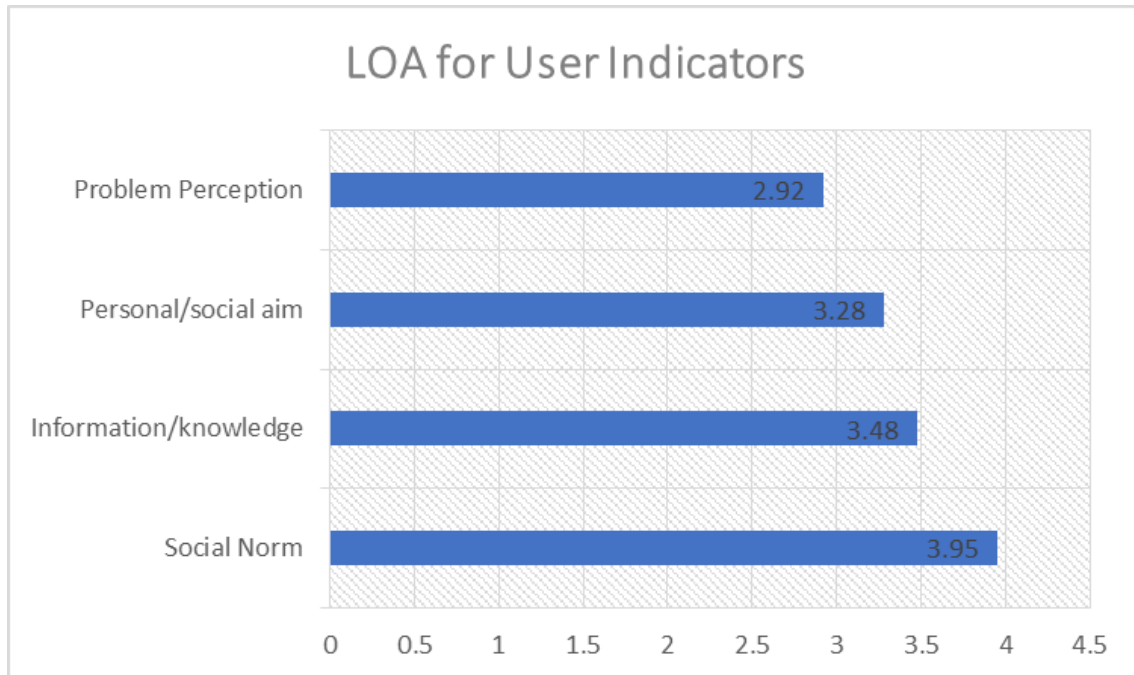
Figure 5: LOA for User Indicators

V.   DISCUSSION OF RESULTS

The analysis of the data based on system indicators shows that the Level of acceptance of the policy is only 37.6%. This is indeed very low. This could be due to the perennial perception of government as insensitive to the plight of the masses and that "tolling" might just be another means of exploiting the masses.

Conversely, the high LOA score using the User indicators shows that road users will prefer a tolling system based on personal preferences but may decline based on incompatibility with some system indicators.

In 2016 many group in Nigeria such as the Nigeria labour Congress and other Non-governmental organizations have continually opposed the reintroduction of the tolling system which was initially abolished by former President Olusegun Obasanjo in 2016

Liabilities of the Federal Roads and Bridges Tolling Policy 2021

Based on the analysis of the system indicators, the following policy liabilities can be inferred. The liability factors are those that fall below 2.5 mean score in the analysis. The results showed that there are are 5 key liabilities in the policy. These are:

i.   **Recommended fees:** Only 30.4% [1.52 AMS] agreed with the proposed recommended fees. Most respondents feel that these fees are too high and insensitive the economic status of the users, especially those at the lower income strata

ii.   **Collection Management:** About 27.2% [1.2 AMS] agreed that the toll fees should be collected by the Federal Government. Many users would have preferred the collection management to be carried out by the Local government, which is closer to the citizens

iii.   **Implementation:** 77.7% are of the opinion that implementation should be should not be carried out by the Federal Government. But either by the Local or State Governments.

iv.   **Eligibility:** the opinion that only federal roads should be tolled was majorly disagreed with. The respondents are of the opinion that the law should also encompass both local and state governments as long as the fees are economically 'friendly'.

v.   **Commencement:** Majority of the respondent seems unready for the implementation. The feel that a period of austerity, pandemic and economic recession is not a good time for tolling policy implementation.

VI.   CONCLUSION

Policy Gaps

Depending on the sociological and geographic aspects of the town or region, as well as the form of the tolling regime, tolls can be progressive, regressive, or neutral. The

distributional consequences must be assessed on a project-by-project basis.

The following are the key basic facts about tolls' income equity implications in the Nigeria:

i. High-earning drivers benefit because they place a higher value on their time than the increased cost of driving.

ii. Low-income drivers and those who refuse to use tolled routes as a result of tolls lose money.

iii. The net distributional consequences of congestion tolls are determined by how the toll proceeds are spent.

iv. While a well-designed revenue redistribution can benefit people of all income levels, some low-income people will still lose out, such as those who are unable to adjust their travel habits to take advantage of enhanced public transportation.

POLICY RECOMMENDATIONS

There should be a thorough "Willingness-to-Pay' survey that is not limited to trade unions. Willingness to pay is a valuable tool in performing cost-benefit analysis for evaluating new policy interventions. Willingness to pay, sometimes abbreviated as WTP, is the maximum price a customer is willing to pay for a product or service. It's typically represented by a dollar figure or, in some cases, a price range. This will assist in recalibrating the recommended fees.

Also, stakeholders' meeting should also be carried to encompass more end users. Stakeholder engagement is the process through which an organization involves people who may be impacted by its decisions or have the ability to influence how those decisions are implemented. Stakeholders can support or oppose actions, and they might have a lot of power in the organization or in the community where they work.

ACKNOWLEDGEMENT

REFERENCES

[1]. Action 342.Lahrmann, H., Agerholm, N., Tradisauskas, N., Juhl, J., Harms, L., et al. (2010). Spar paa farten. An intelligent speed adaptation project in Denmark based on pay as you drive principles Paper presented at the 6th European Congress on Intelligent Transport

[2]. Allen, S., Gaunt, M. & Rye, T. (2006). An Investigation into the Reasons for the Rejection of Congestion Charging by the Citizens of Edinburgh. European Transport, 32(2006),95-113.

[3]. Asinyanbola, R. A. & Akinpelu, A. A. (2012). The Challenges of On-street parking in Nigerian Cities" Transportation Routes. International Journal of Development and Sustainability, 1(2), 476-489.

[4]. Atobi, A. O. (2013). An Evaluation of Transport Infrastructure in Lagos State, Nigeria. Journal of Geography and Earth Sciences, 1(1), 09-18.

[5]. Black, E. (2002, September 30). Prospect of Road-Charging Plan Alarms Commuters to the Capital. The Scotsman.

[6]. Buchanan, C. (1963). Traffic in Towns: A Study of the Long Term Problems of Traffic in Urban Areas (The Buchanan Report), London: Routledge.

[7]. Curtis, T. (2002b, July 3). Estimates for Road Toll Cameras Hit £11million. Edinburgh Evening News.

[8]. Elebeke, E. (2016, February 10). Nigeria Registered 5m Vehicles in 3years – National Bureau of Statistics. Vanguard.

[9]. FRBT Policy (2021). Federal Roads and Bridges Tolling Policy 2021, A Report on Federal Tolling:, Federal Ministry of Works and Housing

[10]. Schade, J., and Schlag, B. (2020). Acceptability of urban transport pricing strategies. Transportation Research Part F: Traffic Psychology and Behaviour, 6(1), 45-61.

[11]. Schwartz, S. (2017). Normative influence on altruism. Advances in Experimental Social Psychology, 10(1977), 221–279

[12]. Silcock, D., Smith, K., Knox, D., and Beuret, K. (2000). What Limits Speed? Factors That Affect How Fast We Drive, Final Report.: AA Foundation for Road Safety Research.

[13]. Systems and Services. Molin, E. J. E., and Brookhuis, K. A. (2007). Modelling acceptability of the intelligent speed adapter. Transportation Research Part F: Traffic Psychology and Behaviour, 10(2), 99-108.

[14]. Vlassenroot, S., Broekx, S., Mol, J. D., Panis, L. I., Brijs, T., and Wets, G. (2017). Driving with intelligent speed adaptation: Final results of the Belgian ISA-trial.

Transportation Research Part A: Policy and Practice, 41(3), 267-279.

[15]. Vlassenroot, S., De Mol, J., (2019). Intelligente snelheidsaanpassing ISA-project Gent. Centrum voor Duurzame Ontwikkeling. Universiteit Gent, Belgium.

[16]. Young, K. L., Regan, M. A., Misopoulos, E., and Haworth, N. (2003). Acceptability of In-vehicle intelligent transport systems to Young Novice Drivers in NEw South Wales. Victoria: Monash University Accident Research Centre (Muarc).