

APPLICATION OF NON-INTRUSIVE INSPECTION TECHNOLOGY FOR TRADE FACILITATION AND SECURITY BY CUSTOMS SERVICE IN NIGERIA

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Abstract

This research work investigated the Application of Non-Intrusive Inspection Technology for Trade Facilitation and Security by Customs Service in Nigeria. The objectives of the study were: to find the types of Non-Intrusive Inspection Technologies deployed to facilitate trade and security by Customs Service in Nigeria, and to ascertain the procedures through which the application of Non-Intrusive Inspection Technology for Trade facilitation and security enhanced the services performance of the Customs Service in Nigeria. The survey research method was adopted for the study. The population of the study is 293 Customs Officers and 295,783 importers. The systematic sampling technique was used to select thirty (30) importers from each of the six (6) selected scanner sites amounting to one hundred and eighty (180). Also, simple random sampling technique was used to select 157 Customs

Officers at the six (6) scanner sites. The findings revealed that: the scanners that are commonly found in many of the Customs Service Zones in Nigeria, are Mobile; the Application of Non-Intrusive Inspection Technology for Trade Facilitation and Security by Customs Service is a factor that determines the enhancement of the security of people and goods in Nigeria. It was concluded that Non-Intrusive Inspection Technology used by the Customs Service is an important tool for Trade Facilitation and Security in Nigeria. It was recommended that, there is need for stakeholders to provide more relevant scanning machines of high standard, Radiation Portal Monitors (RPMs) and Handheld equipment such as (Identifinder, Personal Radiation Detectors) to various scanning sites. Relevant authorities such as the Ministry of Finance and the office of National Security Adviser (NSA) should effectively collaborative with the Nigeria Customs Service to achieve its objectives which include utilisation of scanning machines in their respective entry points (Borders; Seaport and Airport) to enhance trade facilitation and security.

Introduction

Non-Intrusive Inspection Technology (NIIT) is a system that is used globally by Customs Administrations and other security agencies for screening of baggage, people, parcels and explosives. Non-Intrusive Inspection systems, in many cases, give Customs Officers the capability to perform thorough examinations of cargo without having to resort to the costly, time consuming process of unloading cargo for manual searches, or intrusive examinations of conveyances by methods such as drilling and dismantling (Global Security, 2019). It aids trade facilitation, information generation, dissemination and decision-making. The information disseminated by the technology during inspection processes include the name of the goods, their type, the quantity, and the weights among others (World Customs Organisation, 2015 & Salihu, 2018). The information enables the Customs Officers generate the amount of duties to be paid by importers, the importers not being be cheated and the government to achieve expected revenue generation. By and large, it could be said that the Non-Intrusive Inspection Technology is critical in securing the nation; facilitate trade; and handling of information at the right time as needed by the Customs officers for documentation, reporting and preservation of Customs Service information for future use.

Statement of the Problem

Non-Intrusive Inspection Technology is an electronic gadget used for inspecting goods that are imported into a country. The technology is used in order to determine the actual goods imported by people into nations. Some of the advantages of the technology are: it saves the time of the Customs Officers responsible for examining the goods; it brings accuracy during the examination of goods; and helps to resolve disagreements between the importers and examination officers on the contents of the goods imported or exported. Due to the advantages of the technology, countries like United States of America, China, England, France, Germany, Nigeria etc. have been using it for long time. Despite the fact that Nigeria Customs have for more than a decade adopted its use to facilitate trade and ensure security, the researchers observed that there are still cases of importation of weapons (guns, ammunition, bombs etc.); possession of such weapons by unauthorised bodies (Salihu, 2017); disagreement between importers and Customs officers on the contents of goods in their containers; delay in the examination of goods (congestion of ports); and inability to realize the import duties corresponding to the exact quantity of the goods imported among others. Hence, the need to carry out a study to appraise the adoption of Non-Intrusive Inspection Technology by Customs Service at the Customs Zones for trade facilitation and security in Nigeria.

Objectives of the study

The following objectives guided this study:

1. To find out the types of Non-Intrusive Inspection Technologies deployed to facilitate trade and security by Customs Service in Nigeria.
2. To ascertain how the application of Non-Intrusive Inspection Technology for trade facilitation and security enhanced the services performance of the Customs Service in Nigeria.

Research Hypothesis

The following null hypothesis was tested:

HO₁: The application of Non-Intrusive Inspection Technology by Customs Service Zones for trade facilitation and security has no significant relationship with the enhancement of their services performance in Nigeria.

Review of Related Literature

Some of the related literature reviewed were presented in line with the objectives of the study as presented as follows:

Types of Non-Intrusive Inspection Technologies Deployed for Trade Facilitation and Security by the Nigeria Customs Service

Essentially, Trade Facilitation is a policy framework for trade growth through reduction of trade barriers, harmonisation and simplification of trade procedures, clearance and documentation and other Non-Tariff-Barriers (NTB's). Trade facilitation covers regulatory framework, trade policy formulation and trade related governance. The Nigeria Customs Service has taken the lead in the drive for better, cheaper and faster trade and movement of goods across border as a result of implementing the Revised 'Kyoto Convention'. Hence, with the arrival of the World Trade Organisation (WTO) Trade Facilitation Agreement (TFA), the Nigeria Customs and indeed all Customs Administrations have become central to the Implementation of the WTO TFA agreements. While it is true that Customs alone cannot achieve the implementation of the WTO TFA, it is noteworthy that about 70% of the WTO TFA implementation is directly or indirectly related to Customs Services in Nigeria. The primary goal of trade facilitation is to help make trade across borders faster, simpler and cheaper while ensuring revenue collection, safety and security (Ali, 2018). Therefore, the Non-Intrusive Inspection Technologies Deployed for Trade Facilitation and Security by the Customs Service is important.

It is noted that there are many technologies used by Customs Officers in their operations. These include: Fixed/Stationary scanner (Dual View) three (3) units, Gantry Scanner 02Units, Mobile Scanner -10 Units, and Pallet Scanner- 06 Units (Non-Intrusive Inspection Unit-NCS, 2018). Arguably, Non-Intrusive Inspection Technology such as X-ray or gamma-ray imaging type equipment can give a quick insight into a cargo load of containers or means of transportation without the need to open and unload it to either confirm or resolve risk assessments. Hence, different types of technologies are needed in order to take care of the activities carried out by Customs Officers at the borders. Therefore, Non-Intrusive Inspection Technologies Deployed for Trade Facilitation and Security by the Customs Service is a significant technology in improving their services.

Non-Intrusive Inspection Technology and Increase in the Services Performance

The needs underlying the demand for inspection services have evolved over time. Initially, the needs focused on the manipulation of transfer pricing by multinational companies to avoid capital controls. Later, attention shifted to the control of tax avoidance through misclassification of goods and under-declaration of import values. New markets have now emerged focusing on trade facilitation, increase on security conformity and traceability concerns (COTECNA, 2010).

According to WTO, “the simplification and harmonization of international trade procedures covering the activities, practices and formalities involved collecting, presenting, communicating and processing data required for the movement of goods in international trade.” (WTO, 2018). Moreover, governments are under heavy pressure from donors and regulators to improve their governance standards (transparency, accountability, and performance evaluation) (Ali, 2018). Consequently, Customs authorities must be efficient when making swift and accurate decisions and optimizing their resources whilst facing more and more stringent requirements related to:

- i) Improving trade facilitation to cope with increased demand by traders for faster clearance of goods;
- ii) Securing revenue collection;
- iii) Combating fraud and smuggling;
- iv) Guaranteeing national security and fighting against terrorism;
- v) Complying with the prevailing international regulations and guidelines in the domain of Customs valuation, trade facilitation, conformity and security; and
- vi) Addressing congestion at ports and in-land border posts (The Nation, 2018).

However, inappropriate or insufficient information still hampers Customs Services authorities to make reliable decision and collect proper duties and taxes. The ‘Destination Inspection’ (DI) demonstrated its willingness and ability in the use of NIIT for inspection and monitoring of goods at the borders (COTECNA, 2010). Under DI, cargo inspection and import declaration controls are carried out at the port of destination. This means that, the services are provided in the importing country, thus facilitating dialogue with the client. The COTECNA ‘DI’ offering relies first on core valuation and investigation services that can assist Customs in validating the declared information. However, the real added value of the solution lies in the fact that it also includes a range of state-of-the-art technologies and innovative procedures to bring visible improvements in terms of the speed of the entire inspection procedure and of the Customs clearance process to increase revenue generation base. The use of modern valuation tools combined with Computerized Risk Management System (CRMS) containing selectivity and econometric tools and Non-Intrusive Inspection (NII) using scanner imaging, significantly improves the entire import process and increases revenue to:

- i) Focus on risky transactions;
- ii) Efficiently control the declared information;
- iii) Rapidly inspect the targeted cargoes (CONTECNA);

Thus, the application of Non-Intrusive Inspection Technology for Trade Facilitation and Security by Customs Service in Nigeria, is a good development. Using the technology will contribute towards better services performance by the Customs Service in Nigeria.

Research Methodology

The survey research method was adopted for the study. The population of the study comprised of 295,783 importers and 293 Nigerian Customs Officers in the Non-Intrusive Inspection Scanner Sites (NISS) in Nigeria. The researcher used systematic sampling technique to select thirty (30) importers

from each of the six (6) selected scanner sites amounting to one hundred and eighty (180). Also, we used simple random sampling technique to select the 157 Customs Officers from the six (6) scanner sites. The instrument used for data was questionnaire. The data collected for the study were analysed using frequencies and percentages, while the hypothesis formulated was analysed using the Pearson Product Moment Correlation (PPMC) statistical technique.

Data Analysis, Discussion and Interpretation of Result

The data analysed, discussed and interpreted were presented in line with the objectives of the study as follows:

Types of Non-Intrusive Inspection Technologies (NIIT) Deployed to Facilitate Trade and Security by Customs Service in Nigeria

This section presents the types of Non-Intrusive Inspection Technology deployed by Customs Service to facilitate trade and security in Nigeria. In order to achieve this, a table is provided with the list of the sites where the technologies were deployed. This is presented in table 1.

Table 1: Types of Non-Intrusive Inspection Technologies (NIIT) Deployed by Customs Service to Facilitate Trade and Security in Nigeria

S/N	Scanner Sites	Types of NIIT Deployed							
		A	B	C	D	E	F	G	H
1.	Malam Aminu Kano International Airport Scanner Site	×	×	×	✓	×	×	×	×
2.	Port Harcourt Onne	✓	×	✓	×	×	×	×	×
3.	Apapa Scanner Site	✓	×	×	×	✓	×	×	×
4.	Idi Iroko Scanner Site	✓	×	×	×	×	×	×	×
5.	Tincan Island Ashaye Scanner Site	×	×	×	×	✓	×	×	×
6.	Seme Scanner Site	✓	×	×	×	✓	×	×	×

Key: ✓ = Deployed

× = Not Deployed

A=Mobile Scanner Machine; **B**=Radiation scanner machine; **C**=Gantry Scanner Machine; **D**=Hi-Scan Scanner Machine; **E**=Fixed Scanner Machine; **F**=Trace Scanner; **G**=Large pallet Scanner; **H**=Car Scanner.

The table 1, showed that 'A' Mobile Scanners have been deployed in scanner sites at Port Harcourt Onne scanner sites, Apapa Scanner Site, Idi Iroko Scanner Site and Seme Scanner Site. Whereas, the Apapa Scanner Site, Tincan Island Ashaye Scanner Site and Seme Scanner Site, Fixed scanners machine have been deployed. This implies that, Apapa Scanner Site and Seme Scanner Site have two different types of scanners (fixed and mobile scanner). However, at Port Harcourt Onne scanner site, Gantry Scanner was deployed. However, it has been observed that the Radiation Scanner Machine, Trace Scanner, Large Pallet Scanner and perhaps, Car scanner Machine were not deployed in any of the sites. Perhaps, this might imply that either the Customs Officers could not use them in their

services points or they might have not been relevant for now. Thus, it could be said that of the 8 types of NIITs, only 4 are put to use, while, the others at the 4 other sites were not being frequently used. In another perspective, it has been discovered that the differences in the numbers and types of scanners deployed to the sites studied were due to the differences in the types and share sizes of the activities taking place in the respective sites.

Application of Non-Intrusive Inspection Technology to Enhance the Services Performance of the Customs Service in Nigeria

This section addressed the application of Non-Intrusive Inspection Technology to enhance the services performance of the Customs Service in Nigeria. To this end, a table is provided with options of the services the Nigeria Customs provide. This is presented in table 2.

Table 2: Application of Non-Intrusive Inspection Technology to Enhance the Services Performance of the Customs Service in Nigeria

S/ N	Effect of Non-Intrusive Inspection Technology Applications	Level of Services Performance									
		HE		E		RE		NE		U	
		F	%	F	%	F	%	F	%	F	%
1.	Quick Clearance of Consignments	192	65.5	62	21.2	68	23.2	02	0.7	13	4.4
2.	Increase Data Generation on Imports and exports	104	35.5	140	47.8	57	19.5	00	0.0	36	12.3
3.	Easy Clearing process of customs papers	88	30.0	120	40.9	44	15.0	37	12.6	48	16.4
4.	Payment of customs duties	122	41.6	184	62.8	04	1.4	06	2.0	21	7.2
5.	Digitized Payment Modes	270	92.2	60	20.5	06	2.0	01	0.3	00	0.0
6.	Increase Revenue generation	42	14.3	102	34.8	155	52.9	22	7.5	16	5.5
7.	Improve Monitoring of Revenue generation	16	5.5	11	3.8	209	71.3	10	3.4	91	31.1
8.	Data management	147	50.2	152	51.9	26	8.9	00	0.0	12	4.1
9.	Port decongestion	24	8.2	68	23.2	184	62.8	16	5.5	45	15.4
10.	Security checkmate of Imported goods	09	3.1	90	30.7	199	67.9	04	1.4	35	11.9
11.	Safe delivery of Goods	38	12.9	264	90.1	27	9.2	00	0.0	08	2.7
12.	Detection of weapons and dangerous chemicals	186	63.5	120	40.9	26	8.9	02	0.7	03	1.0

Key: HE= Highly Enhanced, E= Enhanced, RE= Rarely Enhanced, NE= Not Enhance, U=Undecided.

Table 2 showed how the application of Non-Intrusive Inspection Technology enhanced the services performance of the Nigeria Customs Services to meet up to expectations. Based on the bench mark of 50% average scores, the application of NIIT particularly for quick clearance of consignments, payment of customs duties, digitized payment modes, data management, safe delivery of goods as well as detection of weapons and dangerous chemicals has enhanced the services performance of the Customs Service with the score ranges between 50.2% and 92.2% respectively. Thus, of the 12 optional areas of services expectations, the NIIT has improved the services of the Customs Services in 6 areas of operations. Other areas of services operations which the NIIT has no much impact on the Customs Services performances are 2, 3, 6, 7, 9, and 10. This means there is achievement in key areas of the Customs services. This aligns with the report of Nnadi and Ibok (2014) who indicated that scanning technology is widely deployed and used in different borders in Nigeria. However, much is yet to be desired in the areas of monitoring of revenue generation. By and large, it can be concluded that the application of Non-Intrusive Inspection Technology is worth it.

Research Hypothesis

The following null hypothesis was tested:

HO₁: The application of Non-Intrusive Inspection Technology by Customs Service Zones for trade facilitation and security has no significant relationship with the enhancement of their services performance in Nigeria.

This section presents the hypothesis formulated in order to find out the significant relationship between the Application of Non-Intrusive Inspection Technology and enhancement of service performance by Customs Service Zones for trade facilitation and security in Nigeria. It is presented as follows:

Table 3: Pearson Product Moment Correlation (PPMC) Statistics to determine the significant relationship between the Application of Non-Intrusive Inspection Technology and enhancement of service performance by Customs Service Zones for trade facilitation and security in Nigeria

Variables	N	Mean	SD	Df	Corr. Index r	Critical r	Sig. (2-tailed)	Decision
Application of NIIT	337	21.6421	4.18211	335	.918	.312	.000	Rejected
Volume of Revenue	337	19.1892	4.32147					

The result of the Pearson Product Moment Correlation (PPMC) statistics in Table 3 revealed the significant relationship between the Application of Non-Intrusive Inspection Technology and enhancement of service performance by Customs Service Zones for trade facilitation and security in Nigeria. The calculated correlation index $r .918$ is higher than the critical $r .312$, while the calculated significance $.000$ is lower than the 0.05 level of tolerance. The null hypothesis that ‘the application of Non-Intrusive Inspection Technology at the Customs Service Zones for trade facilitation and security has no significant relationship with the enhancement of their service performance in Nigeria,’ is rejected. Thus, the application of Non-Intrusive Inspection Technology for scanning of goods at the Nigerian borders enhances the services performance of the Customs service in Nigeria.

Summary of the Major Findings

The following are the major findings in this research:

1. Mobile Scanner Machine were deployed more in few scanner sites than in other sites studied.
2. Application of Non-Intrusive Inspection Technology to some extent enhanced the services performance of the Customs Service in Nigeria.
3. There is significant relationship between the applications of Non-Intrusive Inspection Technology by Customs Service Zones for trade facilitation and security and the enhancement of their service performance in Nigeria.

Conclusion

It is concluded that Non-Intrusive Inspection Technology contributes significantly in trade facilitation and security in the Customs Service Zones in Nigeria. The technology allows the Customs officers for quick clearance of consignments, detection of weapons and dangerous chemicals among others. This means that the application of Non-Intrusive Inspection Technology by Customs Service in their Zones eases their trade facilitation of goods and services as well as security in Nigeria.

Recommendations of the study

Based on the findings of this study, it is recommended that:

1. There is need for stakeholders to provide more relevant scanner machines of high standard, Radiation Portal Monitors and other handheld equipment such as (Identifinder, PRD, Backpack, Survey meters) to various scanning sites.
2. More efforts should be made by Nigeria Customs Service to effect the application of Non-Intrusive Inspection Technology machines through training of more Customs Officers to be able to handle, detect radioactive materials.

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