

DEPLOYMENT OF NON-INTRUSIVE INSPECTION TECHNOLOGY BY CUSTOMS SERVICE FOR TRADE FACILITATION IN NIGERIA

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Published: 28 February 2021

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Abstract

This research work focused on the deployment of Non-Intrusive Inspection Technology by Customs Service for Trade Facilitation in Nigeria. The objectives were: to determine the extent at which importers are satisfied with the deployment of Non-Intrusive Inspection Technology by the Nigeria Customs Service for trade facilitation and to identify the challenges to the deployment of Non-Intrusive Inspection Technology by Customs Service for trade facilitation in Nigeria. The survey research method was adopted for the study. The population of the study comprised of 295,783 importers and 293 Nigeria Customs Officers at the Non-Intrusive Inspection Scanner Sites (NISS) in Nigeria. The researchers used systematic sampling technique to select thirty (30) importers at each of the six (6) selected scanner sites amounting to one hundred and eighty (180). The simple random sampling technique was used to select the 157 Customs Officers at the six (6) scanner sites. The findings of the study revealed that: the importers were satisfied with the deployment of NIIT by

Customs Service for trade facilitation in Nigeria. There exist challenges especially in the areas of maintenance of the scanning machines at the zones studied. There is significant difference in the importers' levels of satisfaction with the application of Non-Intrusive Inspection Technology at the Customs Service Zones for trade facilitation in Nigeria. It is concluded that Non-Intrusive Inspection Technology is important in trade facilitation and security in the Customs Service Zones in Nigeria. It was recommended that the importers should be enlightened more on the enormous importance of scanning machines for security of goods and people. It is necessary that the Nigeria Customs Service, in collaboration with the Ministry of Finance, Budget and Planning and Federal Government of Nigeria, to collectively endeavour to overcome the challenges bedeviling the deployment of Non-Intrusive Inspection Technology by the Customs Service in the country.

Introduction

Non-Intrusive Inspection Technology (NIIT) is an ICT-based equipment designed with the aim of inspection and monitoring of goods at borders. It helps the Customs Service to identify the types and quantity of goods imported into the country at the borders, sea ports and air ports. It was deployed in order to 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). The technology is increasingly being used globally to aid trade facilitation, information generation and dissemination needed by the Customs Service for their daily activities. During inspection processes, the technology provides information such as the name of the goods, their type, the quantity, and the weights among others (World Customs Organisation, 2015& Salihu, 2018).

Objectives of the study

The following objectives guided this study:

1. To determine the extent to which importers are satisfied with the deployment of Non-Intrusive Inspection Technology by the Nigeria Customs Service for trade facilitation in Nigeria.
2. To identify the challenges to the deployment of Non-Intrusive Inspection Technology for trade facilitation at the Customs Service Zones in Nigeria.

Research Hypothesis

The following null hypothesis was formulated:

There is no significant difference among the importers on their levels of satisfaction with the deployment of Non-Intrusive Inspection Technology at the Customs Service Zones for trade facilitation in Nigeria.

Review of Related Literature

This section presents the related literature reviewed in line with the objectives of the study and presented as follows:

Importers' Satisfaction with the Use of Non-Intrusive Inspection Technology by Customs Service

Customs administrations globally are faced with increasing volumes of traffic and greater expectations from business establishments and organisations for faster goods clearance times without

corresponding increase in resources. At the same time, governments and society expect Customs Service to provide effective control of imports, exports and transit traffic. Global terrorist attacks have also raised the expectations placed upon Customs Service administrations in respect of border security. In order to cope with this challenge, the potentials of technical equipment, particularly X-ray or gamma ray NIIT are being considered to help meet their objectives of increasing efficiency in inspections. A cross examination of the UK Customs Services (UKCS) strategy on the Oil & Gas Technology business by Paul (2017) revealed substantial satisfaction from the advances in Non-Intrusive Inspection Technology (NIIT) adoption and utilisation. The first phase of their initiative was a survey to establish the current satisfaction with the use of NIIT across the UK-Customs Service and the potentials for its wider application. Their customers expressed their satisfaction with the NIIT because it enables pressure vessels to be inspected with the equipment on-line. This avoids the requirement for entry into confined spaces to examine goods, which hitherto leads to wasting of time in their inspection at the borders, sea ports and air ports.

The capability of NIIT is on the increase. A survey identified that the NIIT offers the following benefits and satisfaction to the UKCS:

1. Safety – up to 80% fewer confined space entries with corresponding reduction in the number of line breaks and subsequent leak tests.
2. Financial increased production and lower maintenance costs worth circa £242 million pa to the UKCS to increased equipment availability reducing lost and deferred production to shorter Turnarounds and reductions in duration of 33% have been achieved to overall cost savings of up to 80% compared to inspections that involve entry into a vessel.
3. Reducing percentage of physical examination and takes full cognizance of all items loaded, it secure public goods and safety by reducing smuggling and increase compliance level as well as meeting international standard in the clearance of goods and building capacity for enhancement of professionalism and facilitation of trade through increase in the volume of import (Etamic, 2017). This shows that importers are better serviced and customs service professionalism is better enhanced. Thus, the deployment of NIIT in the inspection of goods at the border facilitates the Customs' inspection and enhances monitoring activities.

Challenges to Adoption of Non-Intrusive Inspection Technology at the Customs Service Zones in Nigeria

It is widely recognized that Non-Intrusive Inspection (NIIT) is different in many respects from Internal Visual Inspection (IVI). For example, while IVI has the capability to detect a range of different consignments such as weapons, chemicals, foods among others without specific knowledge of what to expect, the capability of NIIT is very much technique driven. An up-front knowledge of the consignments is significant when planning an inspection by NIIT. Contract-related problems exist both with seaport Terminal Operators and with Scanning Service Providers (SSPs). The Nigeria Customs Service (NCS) faces challenges in risk management, scanning procedures, corruption, maintenance, lack of political will, exposure to radiation in the course of their border control and security (Archibong, 2010). This leads to difficulty in managing the borders in efficient and effective ways. However, The NCS has fruitful relationship with ICT Company Webb Fontaine, but the latter's progress in upgrading ASYCUDA++ is stymied, at Border Commands, by shortage of computers and unreliable power supplies (Salihu, 2018). Among the organizations representing industry and trade, the Manufacturers Association of Nigeria (MAN), which co-operates in the NCS' "Blue Channel" regime for fast processing is an example of a strong partner able to advance progress towards an AEO

system (Salihu, 2018). The Association of Nigerian Licensed Clearing Agents (ANLCA) is also a positive example, with recent disputes at one of the Lagos terminals simply underlining the effectiveness of good communication policies at terminals where disputes were avoided (Salihu, 2015). Relations with the fragmented freight forwarding industry are less satisfactory than with clearing agents.

Cargo/Container Scanning is faced with the challenge of intensifying inspection rates (Salihu 2015). While ensuring minimum disruption and expense to legitimate trade, Customs and other enforcement agencies have increasingly turned to X-ray and gamma scanners to screen import and export consignments.

Other challenges to deployment of NIIT are:

1. Exposure to radiation
2. Resistance to change by stakeholders
3. Problem of spare part
4. Unstable power supply among others.

Conceptually, radiation is any form of energy that travels and dissipates. Its energy radiates in the form of wave or particles. The high detection sensitivity of radiation portal monitor allows 100% scanning of cargo with minimal impact on throughput. However, false positive alarms resulting from cargo that is naturally radioactive (e.g., certain ceramic materials, kitty litter) can slow-down the flow of commerce. This also has effect on users' health. About 87% of radiation comes from natural sources, e.g. Cosmic and food we eat and our homes. Thirteen percent, 13% of radiation exposure is as a result of man's activities, e.g, Medical Applications (diagnosis and treatment of disease) Industrial application (inspection of welds, detection of cracks in or cast metal) and Research applications. Hence, the deployment of NIIT in the inspection of goods is will need adequate arrangement safety wise.

Research Methodology

The survey research method was adopted for the study. The population of the study comprised of 295,783 importers and 293 Nigeria Customs Officers in the Non-Intrusive Inspection Scanner sites (NIISS) in Nigeria. The researchers used the 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, simple random sampling technique was used to select the 157 Customs Officers from the six (6) scanner sites. The instrument used for data collection was questionnaire. The data collected were analysed using frequencies and percentages, while the hypothesis formulated was analysed using the Chi-square statistical technique. The average % scores as bench mark for decision making is 50%.

Data Analysis, Discussion and Interpretation of Result

This section presents the data analysed, discussed and interpreted in line with the objectives of the study as follows:

Extent to which Importers are Satisfied with the Deployment of Non-Intrusive Inspection Technology by the Nigeria Customs Service for Inspection of Goods

This section presents the extent to which importers are satisfied with the application of Non-Intrusive Inspection Technology by the Nigeria Customs Service for inspection of goods. In order to achieve this, a table was provided with the list of the activities carried out in the course of inspection of goods. This is presented in table 1.

Table 1: Extent to which Importers are Satisfied with the Deployment of Non-Intrusive Inspection Technology by the Nigeria Customs Service for Inspection of Goods

S/ N	Essence of Non-Intrusive Inspection Technology Deployment	Levels of Satisfaction									
		HS		S		RS		NS		U	
		F	%	F	%	F	%	F	%	F	%
1.	Quick Clearance	22	6.5%	43	12.8%	183	54.3%	16	4.7%	73	21.7%
2.	Inspection of consignments	34	10.1%	27	8%	209	62%	30	8.9%	37	11%
3.	Safety of goods and people	86	25.5%	201	59.6%	27	8.1%	00	0%	23	6.8%
4.	Detection of dangerous chemicals	42	12.5%	196	58.2%	83	24.6%	11	3.3%	05	1.5%
5	Payment of duties based on scanned imported items	10	3%	64	19%	44	13.1%	188	55.8%	31	9.2%
6	Port decongestion	18	5.3%	92	27.3%	179	53.1%	22	6.5%	26	7.7%

Key: HS=Highly Satisfied, S=Satisfied, RS=Rarely Satisfied, NS=Not Satisfied, U=Undecided.

The table 1 showed the areas of importers satisfaction with the deployment of Non-Intrusive Inspection Technology for examination of goods at scanner sites. Based on the bench mark of 50% average scores, the importers are satisfied with the deployment of the technology particularly in the areas of safety of goods and people as well as detection of dangerous chemicals. This finding relates to that of Canham (2017) who revealed that the importers of goods are satisfied with the application of scanning machines in the inspection of goods. However, in other 4 of the 6 defined areas, the importers are rarely satisfied with the deployment of the technology for inspection of goods. Thus, it could be said that the importers are generally not satisfied with the deployment of Non-Intrusive Inspection Technology for trade facilitation. On the contrary however, they are not satisfied in the areas of quick clearance, inspection of consignment, payment of duties based on scanned imported items and port decongestion. Generally, it could be said that out of the six (6) reasons why NIIT, the importers were only satisfied with two (2).

Challenges to the Deployment of Non-Intrusive Inspection Technology for Trade Facilitation in the Customs Service Zones in Nigeria

This section presents the challenges to the deployment of Non-Intrusive Inspection Technology for trade facilitation in the Customs Service Zones in Nigeria. In order to achieve this, a table was provided with the list of the challenges faced in the deployment of the technology for trade facilitation in the Customs Service Zones in Nigeria. This is presented in table 2.

Table 2: Challenges to the Deployment of Non-Intrusive Inspection Technology for Trade Facilitation in the Customs Service Zones in Nigeria

S/N	Challenges to the Deployment of Non-Intrusive Inspection Technology	Responses			
		YES		NO	
		F	%	F	%
1.	Corruption	192	65.5%	145	49.5%
2.	Maintenance	211	72.0%	26	8.9%
3.	Lack of political will	217	74.1%	120	40.9%
4.	Exposure to radiation	46	15.7%	291	99.3%
5.	Resistance to change by Stakeholders	188	64.2%	149	50.9%
6.	Problem of spare part	262	89.4%	75	25.6%
7.	Unstable power supply	194	66.2%	143	48.8%

The table 2 showed the challenges to the deployment of Non-Intrusive Inspection Technology by the NCS for trade facilitation. Based on the bench mark of 50% average scores, the identified challenges were on: Corruption, Maintenance, Lack of political will, Resistance to change by Stakeholders, Problems of spare parts and unstable electricity power supply. This finding agreed with that of Archibong (2010) who revealed that issues of spare parts and unstable electricity power supply among others are being faced with the deployment of technology for border control. It was only in the case of Exposure to radiation that the challenge is not encountered. Perhaps, it might be because of the robust Radiation Protection and Management put in place by Customs Service. Thus, it can be said that the challenges encountered by the Customs services in the deployment of Non-Intrusive Inspection Technology for trade facilitation and security in the scanner sites in Nigeria, are enormous. Of the seven (7) challenges enlisted, only one (1) challenge was not encountered.

Chi-square Analysis on Significant Difference in the Importers' Levels of Satisfaction with the Deployment of Non-Intrusive Inspection Technology at the Customs Service Zones for trade facilitation in Nigeria

This section presents the Chi-square analysis on the significant difference in the importers' levels of satisfaction with the deployment of Non-Intrusive Inspection Technology at the Customs Service Zones for trade facilitation in Nigeria. In order to achieve this, a table is provided that presents the decision made on the hypothesis. This is presented in table 3.

Table 3: Chi-square Analysis on Significant Difference in the Importers' Levels of Satisfaction with the Deployment of Non-Intrusive Inspection Technology at the Customs Service Zones for trade facilitation in Nigeria

N	χ^{2cal}	Df	α	χ^{2crit}	p-value	Decision
337	1158.27	5	0.05	8.36	0.00	Rejected

Table 3 shows that, the Chi-square calculated at 1158.27 is greater than the Chi-square critical of 8.36 with 5 degree of freedom and 0.05 alpha significant levels. The result revealed that there is significant difference in the Importers' level of satisfaction with the deployment of Non-Intrusive Inspection Technology at the Customs Service Zones for trade facilitation and security in Nigeria. The hypothesis

that, 'there is no significant difference in the Importers' level of satisfaction with the application of Non-Intrusive Inspection Technology at the Customs Service Zones for trade facilitation in Nigeria, is rejected. Hence, there is variation in the importers' levels of satisfaction on the deployment of Non-Intrusive Inspection Technology for Trade facilitation at the Customs Service Zones in Nigeria. This means that a majority of the importers were not satisfied with the deployment of the technology.

Summary of the Major Findings

The following are the major findings in this research:

1. It was revealed that the importers are generally not satisfied with the deployment of NIIT for trade facilitation and security by Customs Service in Nigeria.
2. There exist many challenges especially in the areas of maintenance of the scanning machines in the zones studied.
3. There is significant difference in the importers' levels of satisfaction with the deployment of Non-Intrusive Inspection Technology at the Customs Service Zones for trade facilitation and security in Nigeria.

Conclusion

In the light of the findings of the study, it is concluded that Non-Intrusive Inspection Technology is important in trade facilitation and security in the Customs Service Zones in Nigeria. It facilitates clearance of goods, port decongestion among others. This indicates that the deployment of Non-Intrusive Inspection Technology by Customs Service Zones for trade facilitation and security is significant.

Recommendations of the study

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

1. Importers should be enlightened more to know the enormous importance of the scanning machines in trade facilitation and security of goods and people of Nigeria to help them satisfy with operations and improve in their approach to trade.
2. Nigeria Customs Service in collaboration with Ministry of Finance, Budget and Planning and Federal Government of Nigeria should put hands together and tackle the challenges bedeviling the deployment of Non-Intrusive Inspection Technology by Customs Service.

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