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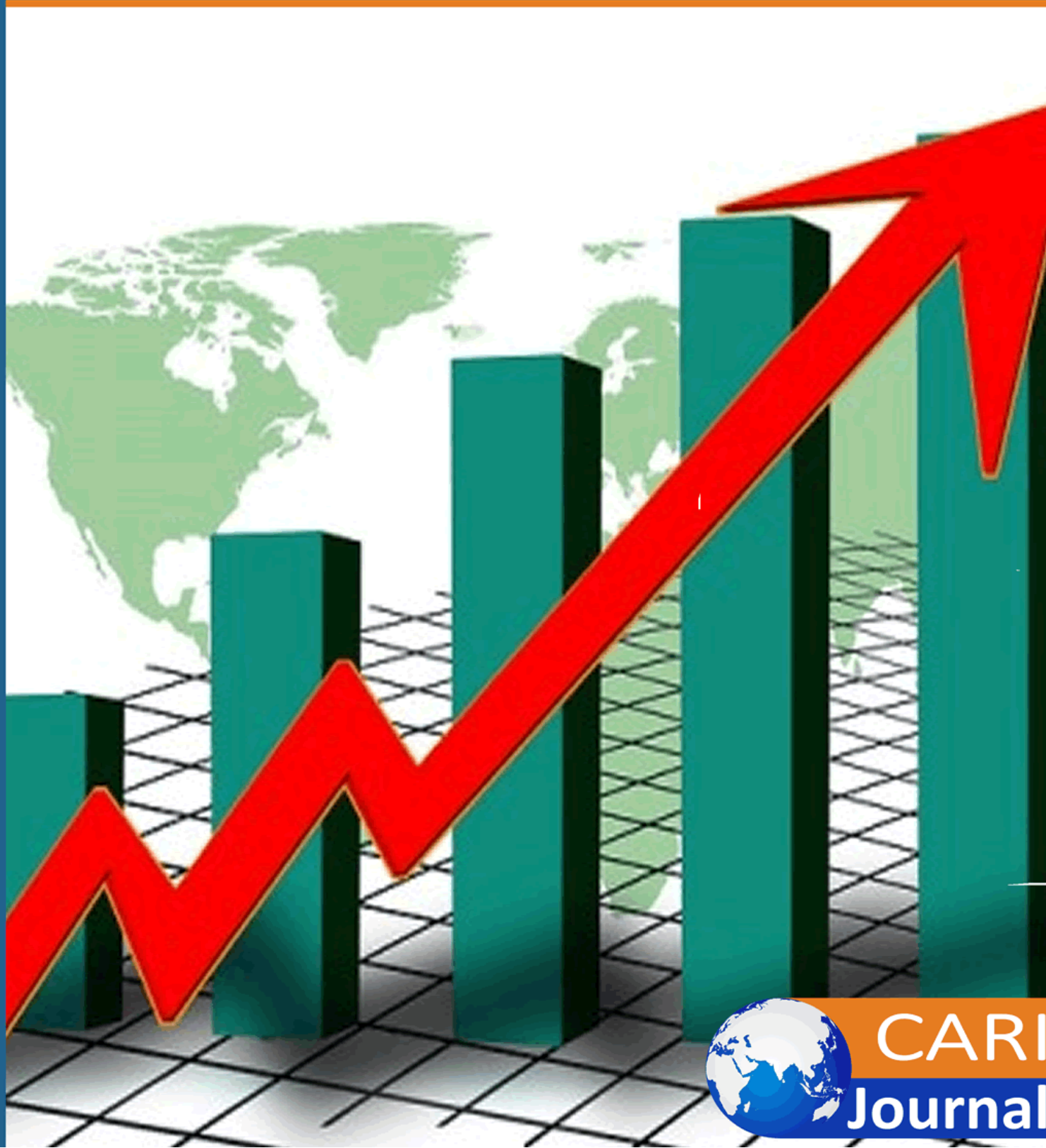

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The Digitalization of Procedures and Fraud on Customs Value: The Case Study of Côte D'ivoire

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Abstract

Purpose: The objective is to determine how the digital transformations of the customs system of Côte d'Ivoire in the context of ECOWAS are contributing to addressing concerns related to value fraud.

Methodology: The paper is based on a qualitative study of the review processes of customs system reform, focusing on the implementation of the SYDAM system and ASYCUDA++ software. It includes evaluations of project management arrangements, system security, infrastructure preparation and initiatives on regional co-operation.

Findings: The results show that Côte d'Ivoire has made strides in terms of computerising its customs, but that there are considerable challenges with the security of the system. The development of the system SYDAM is hindered by systemic issues, fragments of the valuation process, lack of infrastructure, notably in the integration of the departments. Regional initiatives, including ECOWAS trade liberalization, and initiatives for interconnections, such as the SIGMAT, are necessary to stimulate intra-regional trade but have been delayed and are inconsistently observed. The recording program is part of the broader regional fight against value fraud and to bring more transparency into trading.

Unique Contribution to Theory, Practice, and Policy: The report finds that integrated project management with responsibility agreed and security in place will result in successful digital reading. It suggests enhancing regional cooperation for uniform customs procedures, infrastructure development and adherence to international standards for example, the WTO Customs Valuation Agreement. For policy it focuses on the importance of ongoing capacity building, secure ICT environments, and regional integration approaches that encourage transparent, effective and fraud-proof customs regimes.

Keywords: *Customs Digitalization, Value Fraud, Regional Integration, SYDAM System*

Introduction

The *novus ordo mundi* is distinguished by a ubiquitous and multidimensional mutation. This fluctuating and constantly changing world has been substantially digitized [1]. Dematerialization is a panacea, that of an intertwined world in which computerization and digital democratization are the leitmotif. It appears that new information and communication technologies have a considerable impact on our perception of reality. These technologies are made up of all the techniques and devices put in place to collect, transmit, exchange, store and process information by means of quantum entanglement. They allow faster processing in very short time intervals, to travel through time and space by transmitting messages almost instantly between distant interlocutors (servers), and to memorize a practically unlimited accumulation of data. At the heart of this change, the Internet is not the only battleground; this digital transformation is based on both tangible and intangible supports. The world is digitizing much faster than we could have imagined and public administrations are moving to the "online" environment just as quickly (Miège, 2020, p 8) [2].

Today, information and communication technology is simply omnipresent in the customs environment. From the use of Information and Communication Technology in office automation and the Internet for the publication and dissemination of information, to the use of automated customs clearance systems for the purposes of customs declarations, management from risk, validation and information processing to final approval procedures, Information and Communication Technologies have transformed the way customs and governments operate. Côte d'Ivoire seems to be part of this perspective. Hostilely predisposed to autarchy and economic ostracism, the latter, in the dynamism of communitarization, has integrated economic blocs such as Economic Community of West African States (ECOWAS) and West African Economic and Monetary Union (WAEMU) [3]responding de facto to the compulsion of

[1] The era of information (also known as digital age or computer age) is an expression coined by the sociologist Manuel Castells to designate a historical period which begins in the middle of the 20th century and which is characterized by a rapid passage of the established traditional industry by the industrial revolution to an economy primarily based on information technology . The onset of the information age can be associated with the development of transistor technology , particularly the MOSFET (metal-oxide -semiconductor field-effect transistor) which became the cornerstone of electronics digital and revolutionized modern technology .

[2] While the completion of the digitalization of society is unpredictable, Bernard MIÈGE is careful not to draw a global assessment of the social and societal phenomena linked to these techniques. It focuses "on an approach which considers that the process initiated through digital [...] techniques is just as much of a technical nature as the result of a social construction [...]" in order to "access an enlightened and more balanced current phenomena. In doing so, the author therefore seeks to reestablish an approach that emphasizes the two inseparable dimensions of technical innovation. It is therefore a question here of considering what digital technology does to society, but without subscribing to erroneous representations of this digitalization, in particular technical determinism.

[3] Almost all developing countries are engaged in regional integration processes, the forms of which range from sectoral cooperation to political unions with transfers of sovereignty. Regionalization is multifaceted. It is more or less supported by institutions and by regional trade agreements (RTAs): " *de jure regionalism* ". It can result, on the contrary, from practices of actors constituting commercial, financial, cultural, technological networks in regional spaces : " *de facto regionalism* " (example of East Asian reticular regionalization or African cross-border trade). It can also result from a fragmentation of the global space due to segmentation strategies on the part of transnational actors. Regional economic integration processes differ by their degree of institutionalization, by their

globalization. The renewal of regional integration is thus inseparable from the process of globalization even if there is debate as to the links between the two processes. For some, regionalization constitutes a reaction to the unifying and homogenizing tendency which accompanies the dynamics of globalization. For others, it appears as a necessary condition for integration into the globalization movement, a means of harmonizing standards and leading to multilateral liberalization and a guarantee against the risk of marginalization.

In this context, the strategic objectives of customs are reaffirmed. Fighting against the circulation of all prohibited products, customs officers will remain particularly mobilized against the smuggling of tobacco and cigarettes. The dual system of traceability and product safety will strengthen the control and investigation capacity of customs, including judicial. Likewise, the fight against arms trafficking and against illicit financial flows fueling in particular the financing of terrorism will remain a priority for customs officers responsible for the fight against customs value fraud and subsequently organized crime.

Maurice LAURÉ defines tax fraud as any means of deliberately giving a false representation of the truth in order to evade tax [4]. The fraudster proceeds, most of the time, by material concealment, by misleading accounting entries or even by legal concealment. Smuggling is a good illustration of material concealment; it allows you not to pay customs duties which on certain products can be very high. Accounting entries for their part allow double keeping of books, one for the tax authorities and the other for managers where the activities and real results of the company are recorded. In addition to facilitating the mixing of personal expenses and general expenses, this practice opens the way to the abuse of depreciation, to selling without an invoice and conversely to invoicing without a sale. Double bookkeeping, to the extent that it can be detected, also provides relevant information on the importance of undeclared work, also called the underground economy. Few industrial and commercial sectors escape these fraudulent processes, although some are more swampy than others. Home construction for example. As for legal concealment, it consists, to use the terms of GAUDEMET and MOLINIER, of "disguising a factual situation behind a less exposed apparent legal situation" [5].

Support for internationalization will remain at the heart of customs priorities through two strategic orientations: on the one hand offering a secure framework thanks to the issuance of rulings allowing operators to know their customs and tax situation, on the other hand, dematerialize, in the near future, all reporting formalities. At the heart of the partnership approach and trust with operators, user satisfaction remains at the heart of the priorities of Ivorian customs.

pace, by their deepening and/or their broadening. They are at the same time economic, political and cultural and reflect, to varying degrees, a political will. They are part of trajectories specific to developing societies.

[4] Marie LAURÉ, Treatise on fiscal policy , report, PUF, Paris, 1956, p 9.

[5] Paul-Marie GAUDEMET and Joël MOLINIER, Public Finances , Montchrestien, Paris, 1997, p 11.

Customs matters today are concerned with regional integration with customs interconnection projects and the community customs clearance system. The corollary of operationalizing a system will be the obliteration of value fraud.

Côte d'Ivoire, fitting into this framework, seems to have outlined the outlines of a customs system curbing value fraud even if it encounters crippling difficulties.

I- THE LINEAMENTS OF A DIGITALIZED CUSTOMS SYSTEM CONTAINING VALUE FRAUD OUTLINED BY THE CÔTE D'IVOIRE

The correlative digitalization of the customs system with the perspective of refining an operational digitalized system is part of a global community framework emanating from a substantial regional impulse, that of ECOWAS. These are innovative programs that are part of the overall integrative dynamic, including the digitalization of the customs system (A). In this same framework, Côte d'Ivoire has developed a digitized system in order to ally itself with community dynamics (B).

A- The digitalization of the Ivorian customs system in the community integrative perspective

The Abuja framework plan succeeded the Lagos action plan which was adopted in 1980 in order to prepare at the sub-regional level for the establishment of a common market in the year 2000, resulting from a three-dimensional program: trade liberalization, customs union and economic community. These programs are focused on the systematization of a flexible and digitalized customs market, subsequently optimizing the fight against value fraud. Two systems are in focus, in this case the interconnected system for the management of goods in transit (SIGMAT) (1) which is part of the community plan for trade liberalization, the operationalization of which is imminent. ASYCUDA is the matrix and substantial impetus of SIGMAT on which it is expedient to focus (2).

1- The interconnected system for the management of goods in transit with a view to reducing fraud

In general, West African countries trade more with the outside world than with each other due to the diversity and limited competitiveness of their production, which is reflected in the composition of trade. Due to the mixed implementation of the ECOWAS Trade Liberalisation Scheme (ETLS) protocols, ECOWAS member states have not been effective in enforcing rules of origin. This failure prompted Nigeria to temporarily close its borders to neighboring countries, citing non-compliance with ETLS provisions and the proliferation of informal and illegal trade. Nevertheless, the growing awareness of the existing possibilities offered by the ECOWAS free trade agreement should make it possible to strengthen intra-regional trade within ECOWAS, which is expected to increase from 17% in 2019 to 25% in 2019. by 2025, particularly for processed products, which represent 35.5% of total ECOWAS trade. The Bank's support to fill gaps in the implementation of the ETLS could include helping Member States adhere to the rules of origin. For example, the Bank, under the Transition Support Facility (TSF), is developing a project to support ECOWAS Member States in the modernization of customs IT systems, by deploying the new interconnectivity system

ECOWAS Customs Authority, also known as SIGMAT [6]. This new system will improve data entry and management of the ETLS.

The West Africa Trade Facilitation (WATF) program promotes SIGMAT through the efficient transportation of goods in selected trade corridors[7]. THE SIGMAT is a customs interconnection tool that uses information technology to facilitate trade, transport and the free movement of goods in the region. The community program supports the deployment of SIGMAT and will continue to strengthen collaborations between stakeholders in the trade facilitation ecosystem. It also streamlines the movement of goods across the region's various corridors by providing customs offices with digital and accurate information on goods in transit from one state to another. This technology allows traders to exchange information with customs and other enforcement agencies electronically. It uses risk-based assessments to limit physical inspections to a small percentage of shipments, reducing customs clearance times. The operationalization of the system is imminent. The ASYCUDA system drives SIGMAT.

2- The substantial impetus of the ASYCUDA system

In this same dynamic, ASYCUDA serves as a springboard for SIGMAT. In June 2021, at an ECOWAS meeting, Ghana expressed its desire to be connected with other countries. The first country will be Côte d'Ivoire. Since Ghana's customs systems are different from ASYCUDA systems, Ghana has required some IT development in order to make electronic trade possible. A one-week technical meeting was organized in November 2021 in Ghana. The second meeting, a specification meeting, was held in Ghana in April 2022. The Automated Customs System (ASYCUDA) is a computerized customs management system that covers most foreign trade procedures. It manages manifests, customs declarations, accounting operations as well as transit and economic regime procedures. It also generates business data that can be used to analyze economic statistics. ASYCUDA software is developed by UNCTAD. ASYCUDA uses international codes and standards developed by ISO (International Organization for Standardization), WCO (World Customs Organization) and UN (United Nations). It can be configured to adapt to the national specificities of all customs regimes, tariffs and legislation.

[6] From June 8 to 9, 2023, a meeting of Directors General of Customs on the Interconnected System for the Management of Goods in Transit (SIGMAT) was held in Lomé, Togo, between the Customs Administrations of Benin, Burkina Faso, Côte d'Ivoire, Ghana, Guinea, Mali, Niger, Senegal and Togo.
Representatives of ECOWAS, UNCTAD, World Bank Group, GIZ and JICA also took part in the meeting. The opening ceremony was chaired by the Commissioner General of the Togolese Revenue Office (OTR), Mr. Philippe Kokou TCHODIE . The ECOWAS Commission was represented by Mr. Salifou TIEMTORE , Director of the Customs Union and Taxation. During their meeting, the Directors General of Customs of the nine (9) aforementioned Member States resolutely committed to the full operationalization of SIGMAT putting an end to the outdated manual management of goods transit operations along the trade corridors of the ECOWAS area. It should be remembered that this program of interconnection of customs computer systems is an initiative of the ECOWAS Commission whose objective is to streamline the movement of goods on the different road corridors of our regional space by eliminating multiple checkpoints. and load breaks at state borders.

[7] The customs of Côte d'Ivoire is connected (by road and rail) to the customs of Burkina Faso, The customs of Burkina Faso is connected with that of Côte d'Ivoire, Togo and Niger, The customs of Togo is connected to that of Burkina Faso and Niger, Niger customs is connected to that of Burkina Faso and Nigeria.

ASYCUDA provides electronic data interchange (EDI) between economic operators and customs using current standards, such as XML [8]. In 1981, UNCTAD received a request from the Secretariat of the Economic Community of West African States (ECOWAS) to help them compile foreign trade statistics in their member states. After the first assessment, it quickly became apparent that this would require the involvement of customs agencies and the modernization of customs clearance processes to achieve quality results. Drawing on advances in IT (the personal computer was already sufficiently mature to really be considered a professional tool), UNCTAD proposed developing customs software that would be modular, adaptable and configurable so that it could be used in harsh environments requiring only a small number of qualified personnel for system maintenance. At first the proposal was met with skepticism because many countries were using a mainframe system with on-site specialist computer engineers to support them. However, with the help of some member states, UNCTAD managed to establish a customs management system, now known as ASYCUDA.

Initially, ASYCUDA was developed on microcomputers whose capabilities were extremely limited by current standards. To implement a complex customs system in a multi-user environment on such a platform, a technical solution had to be applied. This solution pushed the capacity of these machines to the limit. Over the years, the capacity and performance of microcomputers have rapidly improved and significant updates to the ASYCUDA software have led to what is, today, a stable and highly reliable system. Additionally, a port to the UNIX operating system expanded the choice of suitable hardware platforms to also include a number of minicomputers.

The ASYCUDA system pursues several objectives, among which are:

Trade facilitation through the standardization of forms and documents, the standardization of data, the simplification and computerization of customs clearance procedures with a view to accelerating the customs clearance of goods; Strengthening the operational efficiency of customs control by providing modern tools and techniques, implementing secure procedures and offering comprehensive audit follow-ups and mechanisms to control customs operations; Strengthening customs management and control by transmitting timely and accurate statistics on trade and foreign revenue for trade policy and decision-making.

Often accompanied by a trade facilitation element, project objectives may include the following main functions:

Strengthening the institutional capacity of the customs service, including border points; Cooperation between cross-border control agencies and between customs and traders; Automation of all customs procedures and regimes (cargo control, customs clearance processes, transit tracking), with robust integrated customs control capabilities, comprehensive

[8] The use of an extensible markup language (XML) makes it possible, at the national level, to exchange any document between the customs administration and traders, and at the international level, between the different customs administrations via the internet. Since it uses modern telecommunication systems as well as devices and facilities like VSAT, high-speed internet connections between the Central Customs Directorate and the border posts are ensured.

declaration processing, risk estimation and selectivity, accounting and automated calculation of duties and taxes; Rationalization and simplification of customs procedures and documentation;

Alignment of national trade documents with international standards for forms (United Nations Framework Formula (UNFC), Single Administrative Document (SAD)), and documentation and data with international conventions and recommendations, such as the World Customs Organization (WCO Data Model), UNECE and UN/CEFACT, UN/EDIFACT; Use of the Harmonized Designation and Coding System (HS) and development of integrated customs tariffs corresponding to national laws and regulations;

Electronic registration of customs declarations by traders and declarants using electronic data interchange and allowing direct entry of data by the trader (Direct Trader Input - DTI); Automated processing of customs declarations and sharing of information with all participants in the customs clearance process; Comparative analysis of transport costs and times; Capture and storage of customs statistics for political and tax purposes; Assessment of the regulatory environment for trade and transport; Transparency of customs operations and reduction of the risk of fraud.

The ASYCUDA system was “ivorized” and favored the genesis of SYDAM on which it is appropriate to dwell.

B- The subsequent ivorization of ASYCUDA, SYDAM, the outlines of a fight against fraud

Côte d'Ivoire, which very early on refused economic autarchy, quickly integrated economic groupings such as ECOWAS and WAEMU as if to respond to the demands of globalization. Customs matters today are concerned with regional integration with customs interconnection projects and the community customs clearance system.

The Automated Customs Clearance System for Goods (SYDAM), which has proven itself since 1987 and led Côte d'Ivoire to be a pioneer in the field of customs computerization, has today become obsolete. Its primary objectives of securing customs revenue and facilitating the customs clearance procedure for goods are diminishing while the government's expectations grow from year to year [9].

The search for a solution for renewing this customs IT system led the General Directorate of Customs to several consultations under which the ASYCUDA WORLD solution was selected to replace the Ivorian SYDAM system.

The ASYCUDA World system is the latest version of the goods clearance computer program developed by the United Nations Conference on Trade and Development (UNCTAD). Based on the most recent technologies, it represents the culmination of 25 years of UNCTAD experience in more than 80 countries in Africa, Asia, Latin America and Europe.

[9] https://www.douanes.ci/info/sydam-world, accessed August 20, 2023 at 8:55 p.m.

By adopting this system, renamed SYDAM WORLD in the Ivorian context, Côte d'Ivoire intends to remain a leader in the field of customs IT. In fact, this system, adapted to the specific needs of the country, covers all customs clearance functionalities, from the arrival of the goods until their exit from the customs territory, including the management of the integrated tariff and the management of Transit. Inter-State Road (TRIE) and an intensified fight against fraud on the value of goods.

It is appropriate to understand the SYDAM from the outset in the Ivorian context (1) in the perspective of the correlative reduction of value fraud as well as its corollary (2).

1- SYDAM and the correlative reduction of fraud

SYDAM World, Automated Goods Clearance System replacing SYDAM. It represents 25 years of experience of both structures in customs IT. SYDAM World is the adaptation of UNCTAD's ASYCUDA World core to the specificities of the customs clearance procedure for goods in the Republic of Côte d'Ivoire. This adaptation results in the addition of new modules (TRIE, CIVIO [10], DAI, AT...) and additional controls. In 2013, Ivorian Customs decided to allocate some of the funds granted by the European Union under the Trade and Regional Integration Support Program (PACIR) to the development of technical and functional specifications with the support of the WCO. SYDAM World is a joint product of UNCTAD and Côte d'Ivoire customs. The annihilation of fraud on the value of goods is in reality consubstantial with a modernization of the customs system. It is in this perspective that Côte d'Ivoire fits. Since the 1980s, the customs administration began computerizing customs clearance procedures, from which the Automated Goods Clearance System (SYDAM) was born. Twenty years later, this computerization has hardly seen any other strategic direction. Manual processing exists today: registers are still maintained; receipts are still used in certain services. The computerization effort has not spread throughout the customs administration.

With the advent of SYDAM World and its technology rhyming with the state of the art in computing, there is hope of considerably reducing the use of traditional paper. All office services and workstations must be equipped with computers connected by a telecomputing network. This network will allow data to be exchanged to pass track and video.

SYDAM World will make it possible to prepare communication platforms with other national and foreign administrations, thus ensuring the integration of customs systems. Other computer applications managing various customs activities apart from customs clearance procedures will be used on this network. Customs will thus achieve a good level of modernization of its structures (Dechaume, 2007, p 29).

[10]The Identification Control of Used Imported Vehicles (CIVIO), allows by indicating the correct date of entry into circulation or the date of construction of the vehicle by precisely analyzing the technical data recorded to determine the vintage, verify the card data gray data of the different exporting countries, determine the taxable value of the vehicle for customs, constitute a database of imported used vehicles for our partners (Customs, Ministry of Transport, Ministry of Commerce, Tax and Interpol etc.), produce statistics for the State, guarantee the authenticity of documents to the buyer and thus protect them and prevent the State against commercial fraud on the imports of used vehicles.

The increasing volume of transactions in international trade is making systematic and thorough physical inspection of all cargo quickly obsolete. SYDAM's computerized risk management systems determine the routing of customs control of transactions according to criteria established by customs officers specializing in intelligence and law enforcement. Modern computerized procedures that track and target high-risk shipments and reduce the number of physical inspections also provide the most effective balance between expedited customs clearance and supply chain security. SYDAM's risk management system is based on more than 25 years of experience in the computerization and implementation of customs operations throughout the world. SYDAM covers the entire declaration process, including freight and transit. It uses sophisticated tools that range from the classic selection of the inspection procedure and allocation of declared goods to a green control "channel" for the release of goods without inspection; yellow for documentary checks before release or blue to indicate that the goods can be released but will be subject to a *posteriori audit* by customs using multimedia, scanned images and wireless devices.

Cutting-edge technological tools provide customs officials with immediate remote access to control and intelligence databases. Customs checks can now be carried out in situations that were previously impossible. For example, when cargo in transit is subject to verification to determine whether the physical documents presented correspond to what was declared upon departure, or when on-site verifications of the contents of a container and the status of the goods (cleared, in transit, etc.) are carried out (Dubois, 2007, p 65). The SYDAM system allows risk management processes to be periodically evaluated to measure the effectiveness of selection criteria and to change, expand or eliminate risk management parameters as needed.

2- The corollary of SYDAM, the homogenization and security of customs procedures as a precursor to reducing fraud

The computerization of customs clearance procedures considerably reduces human intervention in the mechanisms for managing the clearance of goods, ensuring better security of customs clearance procedures. SYDAM World through induced effects and with its corollaries achieves other functions of customs missions in particular the economic mission and the facilitation of commercial exchanges [11]and the reduction of value fraud.

The system for targeting the declarations to be checked concerns the most significant elements of a commercial transaction, which are: the origin of the goods and the commercial circuits, the goods subject to the commercial transaction, and the operators concerned by this operation. commercial (Hoguet, 2004, p 89).

The origin and commercial flows are important because they are likely to reveal abnormal circuits determined through knowledge of the most usual and regular commercial operations. The nature of the goods, on which taxation is based, restrictions, prohibitions, restrictive measures, quality controls, and privileged tariff regimes, as well as the value are two essential keys to the presumption of fraud. Finally, the operators concerned are the last element of the

[11] *Ibid.*

system: the importer intervenes mainly but other operators appear in the operational chain (the exporter, the transporter, the banker, the freight forwarder, etc.). Based on these elements, SYDAM is a targeting system combining four different approaches which are based on the statistical analysis of proven fraud and on the assessment of suspicions of fraud by customs agents, particularly based on intelligence activities. These four approaches are applied successively (in an iterative manner) to guide the declarations.

The first consists of verifying all new operations, in the sense that they concern an operator, a commodity or a circuit on which the customs information database does not does not provide information, and which must therefore be isolated from historical knowledge. This systematic control must in particular encourage operators to identify themselves correctly, which is essential for the customs administration (but also for the tax administration) since a posteriori control must gradually replace the a priori control of the merchandise.

The second radical, like the first, concerns the systematic control of an operation on the basis of factors linked to certain of its characteristics (for example, operations of an amount greater than x units in value, absence of control of the operator over the last x weeks, etc.) and on the basis of suspicion of fraud (unproven fraud).

The third, results from the examination of the documents making up the import file and the statistical analysis of proven fraud to draw lessons on the risks of fraud: each criterion identified (concerning the circuits, the goods and the operators) is assigned an individual score based on the statistical information available. An overall score representative of the level of fraud risk of the operation to be controlled is then obtained by a combination of the individual scores of the different criteria retained.

The fourth concerns a purely random selection. It makes it possible to regulate the rate of control, but above all to prevent economic operators and/or unauthorized State agents from being able to integrate into their behavior information concerning the statistical determination of the fraud criteria resulting from the third method. A significant part of the operations to be controlled oriented in a circuit must therefore be selected randomly, especially since the statistical analysis is initially based on a database on customs offenses that is unreliable due to moral hazard and the 'information asymmetry.

The third approach is at the heart of the method because it makes it possible to determine, for any transaction, the probability of fraud based on objective risk criteria determined by statistical inference methods (Geourjon&Laporte,2005). A first step consists of determining the fraud criteria based on an ex post analysis of the frauds revealed. A second step consists of applying these criteria to each new transaction in order to determine the probability of fraud (or overall score) and ultimately the level of control. The prerequisite for any ex post analysis of fraud criteria is the existence of a database on customs offenses. It is important to emphasize that the performance of the system depends on the relevant use of the second and third approaches. The second approach involves the analysis of information relating to fraud not yet observed, but perceived or felt by the customs officers in charge of selectivity (Tiruye,2023). It must make it possible to cover new risks of fraud. The third is constructed from the historical

analysis of proven fraud carried out by statisticians, and therefore assesses all known risks during a reference period. Giving too much importance to the second approach by multiplying the number of blocking criteria annihilates the desired advantages of a scientific risk analysis.

It appears that the corresponding digitalization of the customs system leads to a reduction in value fraud. This digitization makes it possible to have a “ubiquitous” view of the goods and to concisely determine their market value.

However, it must be admitted that the operationalization of the system is still bumpy and riddled with gaps.

II- A BUMPY OPERATIONALIZATION OF THE DIGITALIZATION OF THE CUSTOMS SYSTEM

SYDAM has driven the digitization, digitalization and dematerialization of customs procedures. The security and procedural flexibility underpinned by the SYDAM is part of a global integrative perspective. However, it is clear that this computerization of the system is still embryonic and riddled with defects. The visible progress is sawtooth (A) and an embolism of the digital system is noticeable (B).

A- Checkered progress

The SYDAM World project did not benefit from duly defined project management bodies with clear and precise responsibilities. The persistence of systemic defects (1) and the incomplete valuation of goods (2) are topical illustrations.

1- The persistence of systemic defects

UNCTAD provided assistance with the installation and start-up of the SYDAM denoting the ASYCUDA++ software developed by it. The installation of ASYCUDA++ sometimes took a long time due to interruptions in funding or the composition of teams of IT experts. The connection of offices to a single server and remote access to the system for operators are still underway in several countries, which temporarily limits the added value of the system. For financial and technical reasons, many remote positions in large business centers are neither equipped nor connected (Dione, 2015, p 91). Despite these problems, given the concentration of imports and exports at a small number of ports, approximately 85-90% of international trade and revenue figures are managed electronically.

The basic modules of the computerized system are generally well used. Those relating to the selectivity of controls, the management of goods in transit, or the production of dashboards, are still underused. There is still a long way to go before we achieve completely dematerialized procedures. The frauds observed confirm the obligation for customs to ensure the security of the system and data. Developments have been much slower with regard to the development of control and fight against fraud and corruption capacities, the upgrading of operational resources, and the modernization of management. The application of major international standards such as the WTO Customs Valuation Agreement and procedures for the international transit of goods has not been completed.

The prospects for IT developments mainly include the integration of customs procedures into a single electronic window (MONTAGNAT-RENTIER & PARENT, 2012, p 4) [12], the automation of risk management, the computerization of exemption authorizations, and regional interconnection of customs offices.

The verification of exemption rights has been strengthened, but the number and impact of exemptions have not been reduced (this is primarily a tax policy problem). Progress has also been incomplete in implementing the customs aspects of regional trade agreements and cooperation with tax administrations. Despite the conservatism of control methods, customs have made a significant and continuous effort to establish the tax base, by strengthening current operations (such as the handling of freight or the valuation of goods).

2- An incomplete evaluation of the goods

According to the WTO Agreement on Customs Valuation, valuation is based on the transaction value (the previous valuation method was to apply the price at which the goods would be sold in international trade). Even if Côte d'Ivoire has digitalized its customs system through SYDAM, operationalization is slow and remains incomplete. Customs administrations have implemented some aspects of the new procedure (e.g. the framework for reviewing customs valuation disputes in Abidjan), but, despite the initiatives launched and technical assistance provided, risk management, requests for information from importers formulated according to the procedures in force, and the development of post-customs clearance checks for an in-depth analysis of commercial transactions, have not materialized. In these circumstances, it is not certain that the values applied by customs services are well aligned with the transaction value (or with other values authorized in certain situations). What's more, administered values, whether official or not, are applied to a certain number of consumer products. However, the unreliability of invoices and commercial documents creates serious verification problems and imposes heavy administrative constraints on customs. In order to achieve revenue objectives, and to combat undervaluation, which is known to be common, they continued their efforts to verify all declarations of value. The authorities continued to solicit opinions from inspection companies on import prices. To some extent, customs administrations have taken the companies' views into account, but cooperation between the two has been limited.

It remains to take administrative measures to guarantee the transparency and fairness of decisions and to prevent distortions attributable to arbitrary evaluations; and to strengthen the capacity of customs administrations to detect abnormal declared values and properly value goods in accordance with WTO requirements (and legislation).

B- An embolism of the digitalized customs system

The SYDAM World project did not benefit from duly defined project management bodies with clear and precise responsibilities. The human resources used in project management fall

[12] The United Nations Economic Commission for Europe envisions the single window as a means for trade and transport partners to transmit standardized information and documents to points of entry to complete all required trade formalities. import, export or transit. This counter can be either physical or electronic.

exclusively to the staff of the customs IT department, which already has its own operating responsibilities. The porosity of the IT security system (2) is prohibitive to the operationalization of SYDAM which itself is slowed down (1).

1- Systemic embolism: the jolts of a slowed down system

The defects in the security system are protean and multidimensional. They are prohibitive to the operationalization of the system to the extent that it is stiff. The defects are generally visible in the computer network. It is obvious that we must objectively understand the global SYDAM network before focusing on the porosity of the system. Ivorian customs has an opening on the internet. It is therefore necessary to put in place a hardware or software device to protect your computer network from external attacks. Customs has opted for a material security system. The operation of this *firewall* is based on the principle of IP packet filtering, that is to say on the analysis of the headers of IP packets exchanged between two machines. Thus, when an external machine connects to the customs network and vice versa, the data packets passing through the firewall contain the following headers, which are analyzed by the *firewall* :

- The IP address of the sending machine;
- The IP address of the receiving machine;
- The type of packet (TCP, UDP, etc.);
- The port number (reminder: a port is a number associated with a network service or application).

Ivorian customs has a web server and an email server. These two servers are accessible from the internet. To avoid any infiltration into the network, these two servers were placed in a subnetwork isolated by the firewall. This subnetwork is called a demilitarized zone (DMZ). This measure was put in place to protect the internal network.

Such a configuration of the customs network is widely open to criticism. Indeed, given the extension of the network and the growing number of users, the choice of not opening the internet connection to a large number of users so as not to overload the bandwidth is the most feasible prospect and has been observed . Thus, the internet connection is available for certain sites at the following times: 7 (seven) a.m. to 8 (eight) a.m. and from 12 p.m. to 2:30 p.m. (thirty). The ankylosis of the customs system at these times puts the entire system on *standby* . This is not functional, which inevitably has an impact. The digitalized system is short-circuited in this time interval followed by a stagnation of customs clearance procedures and feedback *(* return to the classic customs clearance procedure). The system cannot resist hyper-inhibition. It is saturated at a staggering rate when users abound. If ten thousand Ivorians are simultaneously connected to the network, SYDAM risks glitching *or* slowing down. We can also criticize the absence of a computer backup link which would ensure continuity of service. The connected customs service is intermittent. There is no continuum supposed to ensure permanent functioning. An IT emergency plan is a continuation of a business recovery plan. Although it is based on various negative scenarios, its implementation remains necessary.

Therefore, it is important that the teams concerned think about its implementation using technical, human and organizational means [13].

On this subject, we noted that no emergency connection is provided on user sites. If the main link does not work, the user will have to wait until the link is reestablished in order to work. This can lead to work stopping and generate numerous complaints from users and above all cause shortfalls in profits for economic operators. A topical illustration, in 2009, defects observed harmed economic operators. The Director General of Customs, Alphonse MANGLY, was, on Friday August 21, 2009, in front of economic operators operating at the Port, to give explanations on the malfunction of the new automatic customs clearance system for goods (SYDAM World). The computer system put in place since July 27 was unable to satisfy both customs and the port's economic operators. Malfunction causing enormous losses for the port community. To provide information and better explain what did not work with the SYDAM World system, the general director of the port had at his side the president of the port community Pierre MAMBÉ, deputy general director of the port, Désiré BILÉ of the National Federation of industrialists and services of Côte d`Ivoire (FNSCI) and FEDERMAR. He said: " *We would like to express our apologies for the inconvenience caused by the establishment of SYDAM. Your difficulties are our difficulties because they are felt in our recipes* ." He further states " *It must be understood that it was following the saturation of SYDAM 1 that the idea of the new computer system called SYDAM World came. With the old one, it was not possible to make innovations. SYDAM 1 was saturated and it had reached its limits," said the Director General of Customs. The reforms that we wanted to make with the old System were not possible. It may be that in the implementation of the SYDAM World, steps were skipped. As soon as we noticed the first disruptions, we undertook meetings. Out of 80 anomalies identified, 63 were*

[13] For a continuity plan to be truly adapted to the company's requirements, it must be based on a risk analysis and an impact analysis:
The risk analysis begins with an identification of IT threats. Threats can be of human origin (deliberate attack or clumsiness) or of "natural" origin; they can be internal to the company or external. We then deduce the risk that arises from the identified threats; we measure the possible impact of these risks. Finally, it is decided to implement risk mitigation measures focusing on those that have a significant impact. For example, if the risk of equipment failure risks paralyzing everything, redundant equipment is installed. The risk mitigation measures that are implemented reduce the level of risk, but they do not cancel it: there always remains a residual risk, which will be covered either by the continuity plan, or by other means (insurance, or even acceptance of risk).
Impact analysis consists of assessing the impact of a risk that materializes and determining when this impact is intolerable, generally because it endangers essential processes (therefore, survival). of the company. The impact analysis is carried out on the basis of disasters: we consider extreme, even improbable disasters (for example, the total destruction of the building) and we determine the financial, human, legal impacts, etc., for durations of longer and longer interruptions until the maximum tolerable impact is reached. The main result of the impact analysis is therefore temporal data: it is the maximum admissible duration of an interruption of each company process. By taking into account the IT resources (networks, servers, PCs, etc.) on which each process depends, we can deduce the maximum unavailability time of each of these resources, in other words, the maximum time after which an IT resource must have been put back into operation.
A successful risk analysis is the result of collective action involving all players in the information system: technicians, users and managers.

resolved. We believe that the major problems are being resolved. D` "By the end of the month, we will no longer speak of inconvenience and disruption . "[14]

Currently to work on the application, you must be in the customs network. Sometimes users are traveling abroad or at home but cannot draw returns. Referring to the study of the existing system, we noted that the SYDAM WORLD application is a web application. This application is supposed to guarantee the mobility of its users, but this is not currently the case. SYDAM WORLD is not used wisely as it does not take advantage of all the advantages offered by a web application. In other words, no software installation is necessary on a client workstation. If there are other modules to integrate into SYDAM WORLD, it is not necessary to deploy them on client workstations. Given the advantages offered by a web application, it is not interesting for SYDAM WORLD users to be confined within the Customs network to access the SYDAM WORLD server.

Furthermore, it must be admitted that the SYDAM security system is porous and full of gaps.

2- The staggering porosity of the SYDAM security system

All customs administrations are under increased pressure to keep pace with the latest developments and advances helping to ensure a smoother and more efficient movement of goods and people while helping to protect society against the threats posed by illicit trade. To fulfill this dual responsibility, customs are also increasingly dependent on the complex, high-speed, networked IT systems that are now widely used. Unfortunately, these technological innovations are also used by criminal groups who take advantage of the opportunities and anonymity offered by them to engage in a diverse range of illegal activities.

Cybercrime is one of the fastest growing areas of crime today. A cyber crime is defined as an offense committed through electronic information media, a computer and networked computer systems. Customs administrations must have the adequate equipment to be able to combat these complex offenses committed in cyberspace and which pose numerous challenges and difficulties, particularly when it comes to identifying the perpetrators and to thwart their plans.

Constant news easily confirms this: the password combination fails to protect access to both personal and professional applications. In 2014, password theft cost the global economy more than three million euros. It is for this reason that more and more individuals and businesses are turning to other means of securing their data. In order to counter any hacking, we must choose increasingly long and more complex passwords, a *modus operandi* which proves tedious. A question torments our minds like a frenzied cavalcade: the password, the simplest method of authentication used by Ivorian customs through SYDAM WORLD, can they envisage a reliable means of accessing the accounts? Can the arithmetic equation of fewer

[14] https://news.abidjan.net/articles/340826/port-autonome-dessentiel-du-sydam-le-dg-de-la-douane-presente-ses-excuses, accessed August 21, 2023.

passwords, more security produce the desired effect? Does it lead to a biased or apodictic result?

Strong authentication is, in the sphere of computer security, an authentication procedure which requires the concatenation of at least two authentication factors. In the SYDAM WORLD system, strong authentication or two-factor authentication combines something that we know (login, password) with another entity which can be a message containing a code transferred to the user via their phone or a biometric element.

SYDAM WORLD is currently based on simple authentication consisting of a user *login* and password. The user has login credentials based on the possession of specific information, most often in the name of a PIN code then a password. An account includes the following information:

- User: it represents a natural or legal person therefore having the capacity to connect to the platform. It therefore has at least one *login* .

Users have the following main characteristics:

- First and last name: these two entities allow the person to be identified
- *The login* : the login is the unique identifier of a user allowing the user to be identified during the login phase
- The password: it is used during the login phase. It is encrypted and stored in a database
- The optional email address: This is used when sending an email to a user or a user group.
- The account deactivation function: an account cannot be deleted. We can only deactivate it.

Armed with this substantial information, users can access all or part of their electronic documents and other sensitive information about them. They can carry out operations or transactions in the SYDAM WORLD space.

This fairly simplistic configuration is a gaping hole that could potentially encourage fraud. The security of current accounts is essentially based on a password and a login, which constitutes the main vulnerability of computer systems. The problem, of course, is that anyone obtaining the identifiers and password of another user can easily have access to their account, and consequently have the same advantages and privileges. Anyone who hacks an account can therefore access and extract all the information. Account security relies on the strength of passwords which, as everyone knows, is generally insufficient. Nobody likes to memorize or remember complex passwords alternating letters, numbers, symbols. Users are looking for flexibility and easy-to-learn passwords, but this desire is open to hacking.

An experienced hacker will be able to bypass the system with disconcerting ease. The different risks associated with passwords are its disclosure and the ease with which it can be circumvented. The porosity of the system exposes it to cyberattacks through computer or electronic processes.

We can also criticize the non-existence of a non-repudiation agreement to the extent that the password does not provide sufficient proof of identity. It is therefore appropriate to affirm that the non-existence of a non-repudiation agreement in the management of user accounts gives the possibility to any person whose connection parameters are involved in a transaction on SYDAM WORLD to deny being the author of it.

It is extremely complex to objectively identify the future challenges posed by the digitalization of the customs system. The UN Secretary General has already sounded the alarm by affirming that this information "*has created new risks which range from cyber security breaches to the facilitation of illegal economic activities including calling into question the notion of life private* ". Overall, Ivorian customs administrations are vulnerable to cyber fraud. To meet the fiscal, economic and security challenges resulting from digitalization, they must be equipped with legal-technological resources. This evidence was highlighted by the Secretary General of the World Customs Organization Kunio MIKURIYA in these terms " *digital customs consists of digital systems capable of collecting and preserving customs duties, controlling the movement of goods, people, means of transport and money and to secure cross-border trade against fraud, crime including international terrorism which continues to hit populations across the globe* .

We can also criticize the legal-legislative framework which is still lethargic or ineffective. Our relatively recent legislative system seems out of step with the innovative and constantly changing modus operandi of cyberfraudsters. It is an infernal and infinite spiral. The panacea will be joint and dual action focused on apprehending fraudulent maneuvers by our digital system and proportional repression. The legal system must be constantly adapted to the digital context to provide customs agents with prerogatives enabling them to curb cross-border cyber fraud.

An incursion into the regional customs system, particularly Senegalese, confirms a notable development that could inspire the Ivorian authorities. The Senegalese legislator has provided clarifications by de facto dispelling the shadows of equivocity improving legislative readability, thus facilitating their application both by enforcement officers and by the courts. A fairly exemplary illustration, customs legislation is no longer satisfied with the classic terminology limited to the word "document". It goes so far as to designate information data by referring *expressis verbis* to the existence of another evidence: the computer "support" which contains this same document and gives the data an existence and a usefulness. The customs law thus anticipated the problem to deal efficiently and quickly with the technical bumps linked to digital investigations.

If it is still possible for investigating officers to take charge of the documents seized to carry out a careful examination of the premises in their departments, it is not possible to do the same for computer documents which can be voluminous, scattered, split, superficial, fragmentary and scattered in other sites and the seizure of which, as well as the movement, would be a perilous and difficult enterprise. The legislator therefore took these difficulties into account. The customs code has provided technical solutions favoring the decryption of data which are

operations necessary for the seizure and exploitation of the recovered parts. This is not a common law but a customs law organizing the intervention of customs agents in order to facilitate the exercise of their mission in a legal manner.

Senegal went further by giving customs officers legal prerogatives which were until then monopolistic attributes of the security authorities. In order to track fraud, Senegalese customs now have the right to carry out monitored deliveries or infiltrate traffickers' networks. This places Senegal on the pedestal of States having introduced real cyber customs legislation. Côte d'Ivoire will be able to do the same.

Conclusion

The dematerialisation of customs clearance procedures in Côte d'Ivoire (materialised by the implementation of the SYDAM and SYDAM World systems) represents an important strategic gain in the process of modernising trade facilitation and helping to improve revenue collection and fight fraud. Côte d'Ivoire has made a significant commitment over the years in the implementation of e-customs procedures, harmonizing as a result different regional and international standards (e.g. recommended by the WCO, UN/CEFACT and UNECE). These efforts dovetail with the country's broader goals around regional integration under both ECOWAS and WAEMU, further underlining the importance of harmonized customs processes in the context of efficient cross-border transactions.

Despite the significant advances, however, digital technology application has been faced with challenges. The system is still, "bumpy," replete with systemic failures, loose or incomplete interconnectivity and operational inefficiency that undermine its potential benefits. One of the major issues that the group noted in packaging law is the unsecured system architecture that makes the system vulnerable to cyber threats and results in the integrity of customs data being put into risk. These vulnerabilities can enable illicit operators, including fraudulent and smuggling, undermining tax and trade security.

And the introduction of the system has been plagued by lousy management, lack of clarity about responsibilities, and too little oversight of the project. Excessive reliance on the customs IT department, responsible for both operations and project development, has hindered the efficient rollout, operation and evolution of the system. Other limitations, which are less fundamental, are to do with infrastructure, such as a poor degree of access from a distance, which make the system less efficient and less responsive. These technology constraints are further exacerbated by organizational and human resource deficiencies whereby practitioners have inadequate skills to interact and adapt with the digitalized processes, thus limiting operational gains.

Another important problem is also constituted by the incomplete and largely superficial adoption of risk management and of anti-fraud measures". Despite being strategically flexible SYDAM's potential has not sufficiently been tapped into due to a lack of data integration, weak regional cooperation and enforcement. The emphasis of the system on primary indicators of fraud, i.e. source, value, and operator analysis is a step in the right direction, but needs to be further developed and integrated with other forms of control in order to be fully effective.

Regional and international obligations provide a supportive environment in which to reinforce the measures, but the effectiveness of these will depend on increased coordination, more coherent strategic planning and sustained political commitment. Little of the technology gains have been realised because schools are underdeveloped and the management organisation is weak. Education has its roots in and grows in the soil of society. Back-up connectivity, enhanced security, dedicated project management and skills enhancement are all critical to achieving operational resilience.

Recommendations

Strengthen Security Measures

Remediate the insecure design of the SYDAM security architecture by enabling strong cyber security, performing lifetime audit and update to protect sensitive content and to refrain from illegal access.

Improve System Operationalization

Set up transparent project management procedures and lines of responsibility providing dedicated human resources for maintenance, support and training to guarantee a smooth system operation.

Develop Contingency and Interconnection Protocols

Introduce emergency connection tools like emergency link which will allow systems to work whenever existing networks are unavailable or down and promote regional interconnectedness for improved effectiveness in cross-border trading.

Enhance Organizational and Human Capacities

Key Actions Invest in customs capacity building to make the most out of digital tools and to ensure that operational procedures are aligned with international good practices in particular on customs valuation and fraud detection.

Accelerate Legal and Administrative Reforms

Consolidate the legal and administrative framework for the effective application of E-procedures, risk management and transparency measures in customs operations, contributing to regional trade integration.

Following these recommendations will help Côte d'Ivoire realize the full benefits of its customs in the digital era, ensure trade facilitation, and effectively fight against fraud and illegitimate activities in the national and regional fields.

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