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CHALLENGES OF IMO VERIFIED GROSS MASS REGULATION FOR CARRYING CARGO CONTAINERS

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Dear friends,

We would like to take this opportunity to give a brief update on issues in the Latin American port industry and maritime transport sector.

Presentation

A new challenge for the different components of the logistic chain dedicated to the maritime international trade has arisen in Latin American and the Caribbean since the new IMO SOLAS new regulation related to the mandatory Verified Gross Mass[1] (VGM) was decreed and is expected to go into effect from July 1st, 2016. The SOLAS[2] Convention amendment makes the shipper, the captain of the vessel, the terminal representative and the national authorities responsible for each vessel meeting the IMO (International Maritime Organization) requirements contained in this amendment. Of the 171 IMO, 162 Member States have signed the SOLAS and must, therefore, implement the necessary actions for achieving the objective pursued. The launching of the regulation will depend on the transport, maritime and/ or national authorities who must find the method for complying with it, and simultaneously fit the local reality. The capacity to achieve this purpose will depend on the individual policies and laws of every particular country, the role of each stakeholder of the logistic chain, to whom the responsibility of an

[1] VGM
[2] SOLAS Safety of Life at Sea Convention

overweighed or underweight container is entrusted, which methods will be used to implement the mandatory regulation, who will be the beneficiaries with this amendment, as well as whether the necessary infrastructure is in place to achieve the compliance of this challenge.

Origin of SOLAS Verified Gross Mass (VGM) Regulation

Protecting the safety of the crew and the vessel are not the only concerns of SOLAS and the preoccupation with the negative impact of maritime transport on the sea and its biosphere is what motivated the amendment of the SOLAS regulations. Over the course of the last decade there have been major maritime accidents caused by the overload of vessels, most of these vessels presented inaccurate weight declarations. This practice of declaring the estimated maximum weight, without verification, prior to shipment is quite common and is one of the factors that contributed, for example, to the subjected distress on the hull of MV MSC Napoli, which carried 2318 containers onboard, 700 stowed on deck and the remained 1618 containers below deck faced heavy weather conditions near Cornwall, England. The overweight cargo was later found to be one of the causes that led to the sinking of the vessel. Further investigations regarding the incident disclosed that one of every five containers stowed on deck which were salvaged presented overweight with fluctuations between 3- 20 MT (in total, a total excess of 312 tons in comparison with the declared weight). This kind of discrepancies in current weight information provided to the shipping lines and terminals is often linked to the fact that shippers or exporters do not have adequate and efficient weighing facilities, or they just prefer declare the estimated weight in order to have a wider margin of action, among others. Considering this, IMO has decided to take actions to prevent this kind of inaccuracies and to control them, requesting the declared gross mass to be verified and to include not only the cargo, but the pallets, dunnage and any other securing material to be packed inside the container. To this sum, it is necessary to add the tare of container to complete the total container carrying total weight. This new method seems to be a midterm contribution to calculating effectively the stress to which the vessels are exposed, prior to navigation and with the proper time to stow the vessel accordingly.

According to the Maritime Safety Committee (MSC), the consequences of an inaccurate gross mass declaration of a carrying cargo container are broad in scope. If the discrepancies between the declared and the real gross mass are not perceived on time, this gap may have a negative impact not only regarding to vessel's safety, the crew members and the operational personnel who works in terminals, but also may lead to improper stowage decisions, the collapse of container stack during navigation, among others.

In 2011, IMO started to work on the development of measures to prevent damages and losses to containers, after the confirmation that some major maritime incidents and

accidents were related to the incorrect indication of the gross mass of the containers. One of the considered actions was the possible normative- setting standards for the weighing of carrying cargo containers, and the obtaining of the gross mass prior to shipment which finally led to the approval of the guidelines in regard to the verified gross mass of cargo containers (MSC 1/ Circ 1475) and the adoption of an amendment to the SOLAS VI/2 Regulation, which applies on mandatory basis and demands the verification of the gross mass of the filled containers.

Scope of the Regulation and Weighing Methods

In accordance with the aforementioned guidelines of the new SOLAS amendment, the verified gross mass is prior to shipment and the container cannot be loaded onboard a vessel, unless the VGM is certified far enough in advance. The IMO is trying to restrict inaccurate declarations with this amendment, especially with regard to carrying cargo container weight on the part of shippers, suppliers, freight forwarders (there is no exception for co- loaded containers), etc. To this end, the above quoted amendment introduces two new requirements:

1. The shipper is responsible for providing the verified gross mass of a carrying cargo container, confirming it on the bill of lading and providing the information to the Master of the vessel and/ or his agents (shipping line) and to the terminal representatives informed in reasonable anticipation to be used while stowage planning, and
2. The verified gross mass is a condition for a packed container to be loaded onto a vessel. It is a violation of SOLAS to load a packed container without proper verification to which SOLAS applies.

Under the SOLAS amendments, there are only two permissible methods for weighing:

1. Weighing the container after it has been packed
2. Weighing all the cargo and contents of the container (including packing and dunnage) and adding those weights to the container's tare weight as indicated on the door end of the unit, using a method certified and approved by the competent national authorities.

In both cases, the shippers are responsible for obtaining and verifying the information about VGM through e- signature or using their name in capital letters, procedure that must be repeated for every container that the shippers want to load onboard. The application of one method or another (or both) will depend on the regulations that national authorities dispose in every national territory.

Some countries have proposed that the acceptable margin of error should not be higher than 5% of the declared weight, including discrepancies which may emerge from container tare due to a container's wear and tear, or any repairs performed to the unit,

as well as any differences that occur due to packaging or the product stuffed inside the container.

It should be noted that the implementation of the SOLAS amendments is dynamic, depending on local conditions and requirements, structural challenges and global scope. This means that the application of the regulation will depend on the existing resources and national authorities involved. The IMO does not establish how to put the regulation in place, but rather indicates the form in which the weight will be considered, at the international level, as acceptable. The launching of the regulation is not expected to be delayed; therefore, all stakeholders in the maritime industry must be prepared to face the upcoming challenges. In the case of terminals, warehouses and extra- logistics facilities, this amendment represents an opportunity to provide additional services that could generate additional revenues to the regular revenue charged to their clients for operations related to the shipment of export units.

Independent of the stakeholders behind the logistics of export operations, the party responsible for the verification of the gross mass of every unit and the person who is in charge of signing and informing the shipping line will be the shipper, referred to the name that appears on the bill of lading or an authorized individual that acts on behalf of the company that appear on the shipping documents. The shipping line and/ or the Master of the vessel have the obligation to deny the loading of carrying cargo containers that do not comply with the regulation, and taking the necessary actions so as not to hinder the subsequent normal flow of terminal operations.

Challenges of IMO SOLAS Implementation

In contrast with IMO/ILO/UNECE CTU Code[3] which aims to identify every stakeholder involved in the packing of cargo transport units, SOLAS amendment mentioned the shipper as responsible for verifying the gross mass of a carrying cargo container, prior to being embarked. However, the regulation implies that the term *shipper* may consider several stakeholders that can meet the role from the cargo packing process, to cargo stuffing and cargo on carriage as well in any of its modalities (road, fluvial, rail transport, etc). The problem arises, therefore, with the commercial relationship between the shipper and the actual carrier who have a specific contract with a shipping line.

The amendment to the SOLAS regulation has triggered various reactions by those involved in export processes. This was to be expected considering that VGM regulation will impact in communication, operation and infrastructure processes of all participants in the supply chain and the deadline for launching the mandatory regulation seems to be around the corner. The amendment shall not be exempt from difficulties at the moment of implementation, considering the VGM declaration is not the only procedure to fulfill

[3] https://www.unece.org/fileadmin/DAM/trans/doc/2014/wp24/CTU_Code_January_2014.pdf

and depends on the availability of adequate technologies and proper channels of communication in order to transmit the information to the operations, documentation, legal and commercial departments of the actual carrier as well as the terminals and authorities involved.

The problem may arise when cargoes are not solid, and how liquids and gases will be measured considering that volumetric flow and gross mass may vary, even more when it comes to Flexi tanks and ISO Tanks, commonly used by Latin-American shippers and producers to export wine, grape juice, oils, and other such products.

The requirement to verify the gross mass of packed containers applies to all containers to which the CSC applies. This includes standard sea freight containers, tank containers, flat racks and bulk containers and does not include containers carried on a chassis or trailer which are driven on or off ro- ro ship engaged in short international voyages, offshore containers (MSC/Circ 860) and (CSC.1/Circ 138/Rev.1) and certain types of containers which do not meet the definition of the term container as defined in the CSC[4]. Transshipment carrying cargo containers will not be considered for VGM while in the carrier's custody.

With respect to terminals, they may have to acquire calibrated weighing scales to meet the new demands considering that, if in doubt as to the declared weight, SOLAS indicates that gross mass of the unit obtained in the terminal shall be definitive. This would mean additional investment in superstructure or state- of- the- art equipment that can be incorporated into those already in place.

Some of the concerns presented by the global port community with respect to this new regulation is, that in addition to the investment in infrastructure for the purchasing and installing of scales and/ or calibrated weight devices, this operation may derive in unexpected bottlenecks at the terminal gates, generating delays in the operations and productivity reports. The aforementioned concerns must be avoided in order to implement this regulation successfully in the region allowing Latin America to strengthen and enhance the export of products from Latin America and the Caribbean to routes worldwide, and so that the binding verified gross mass regulation does not become an impediment for the local exporters who already compete for the product price on international markets and maritime freight under conditions which are not necessarily beneficial compared to other regions of the world.

if a terminal invests in weighing scales and offers weighing services to shipping lines, this could lead to an extra income for the terminal. However, the shipping line will recover this cost in some manner, and so on the increase in freight rates or extra charges related may be transferred to the productive and logistic chain and this could be reflected in final

[4] http://www.bifa.org/media/3741664/fiata-solas-and-container-weight-verification-september-2015.pdf

production costs which will be paid from the producer to the shipper.. Empirical data suggest that freight costs are a crucial factor for the capacity of a country to participate in world trade and ultimately in the country's export competitiveness. It has been calculated that a 10% increase in transport costs may reduce export volume by more than 20% (Limão & Venables, 2001)[5]. The question thus, what will be the total amount to be paid for weighing, when necessary? Will this cost be paid for the shippers that do not comply with informing the VGM, or will it be a fixed extra charge in freight rates?

Reactions of the Maritime Industry

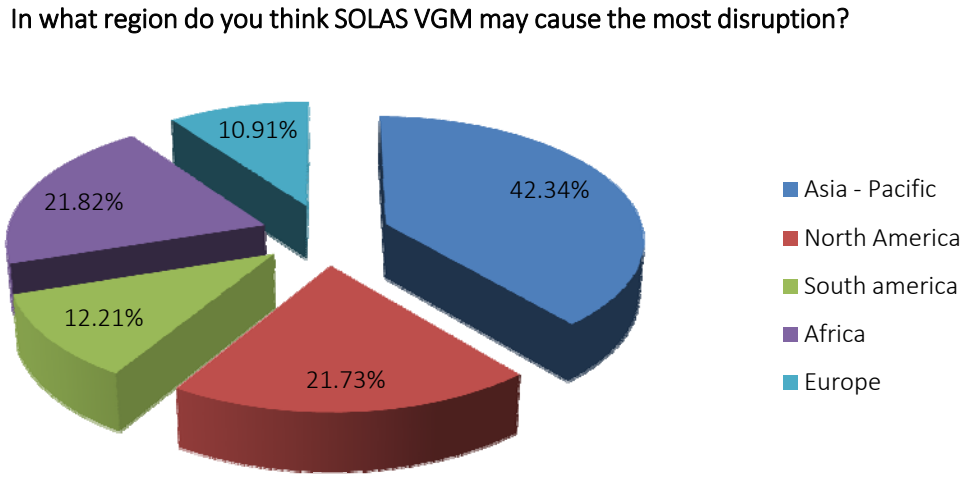
Most of the shipping lines that operate globally are already working on the globalized standards for electronic transmission of required data in their systems and modifying their documentation processes to comply with the requirements and ensure the loading of every shipment of their clients. Shipping lines are also informing how VGM will be implemented and what the deadline will be to inform regarding the verified gross mass. On the other hand, shippers, vendors, freight forwarders, haulers and terminals are evaluating the difficulties that may face in their supply chains after the SOLAS regulation become mandatory next July 1st, 2016.

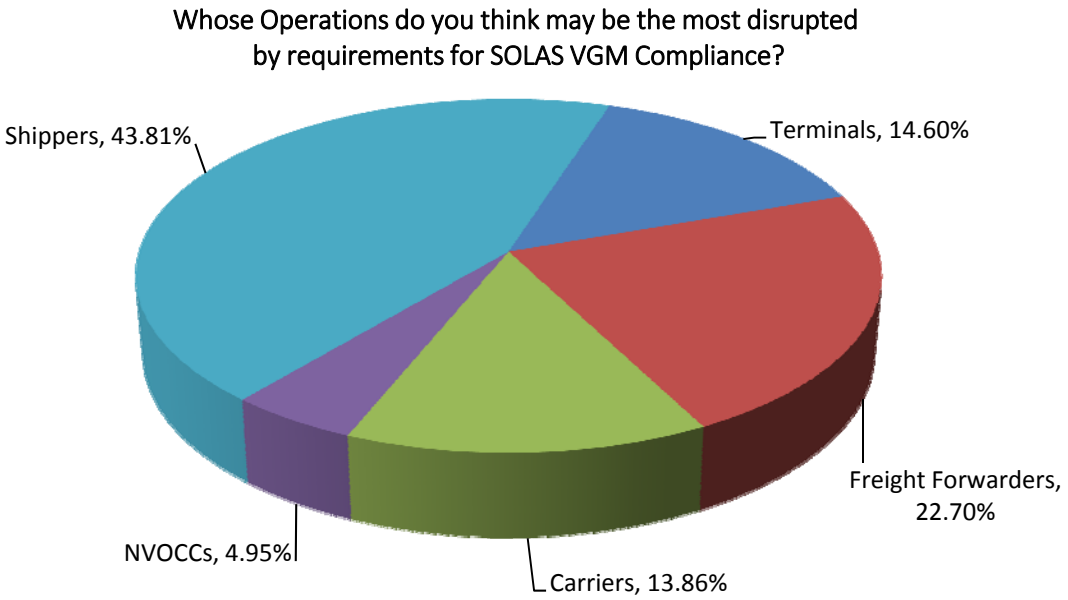
According to JOC.com, *Maersk Line*, the shipping line with the highest market share worldwide, regrets the lack of official guidelines and indicated in one of its press releases that it is a risk to implement the regulation if divergent interpretations of the same and delayed guidelines from the IMO Member States exist, adding that in order to meet the deadline, without causing delays or temporary bottlenecks for global trade, it is crucial that local authorities chart the guidelines in a timely manner, clearly and consistently, taking into consideration the control of national jurisdictions. The same source also indicates that the Vice President of *Global Logistics*, Bjorn Vang Jensen considers that there is an almost total lack of coordination within the industry and thinks that the stakeholders have no idea how this regulation will impact them. He added that there is an urgent need for leadership on the application of the new regulation, and the leadership must come from the service providers.

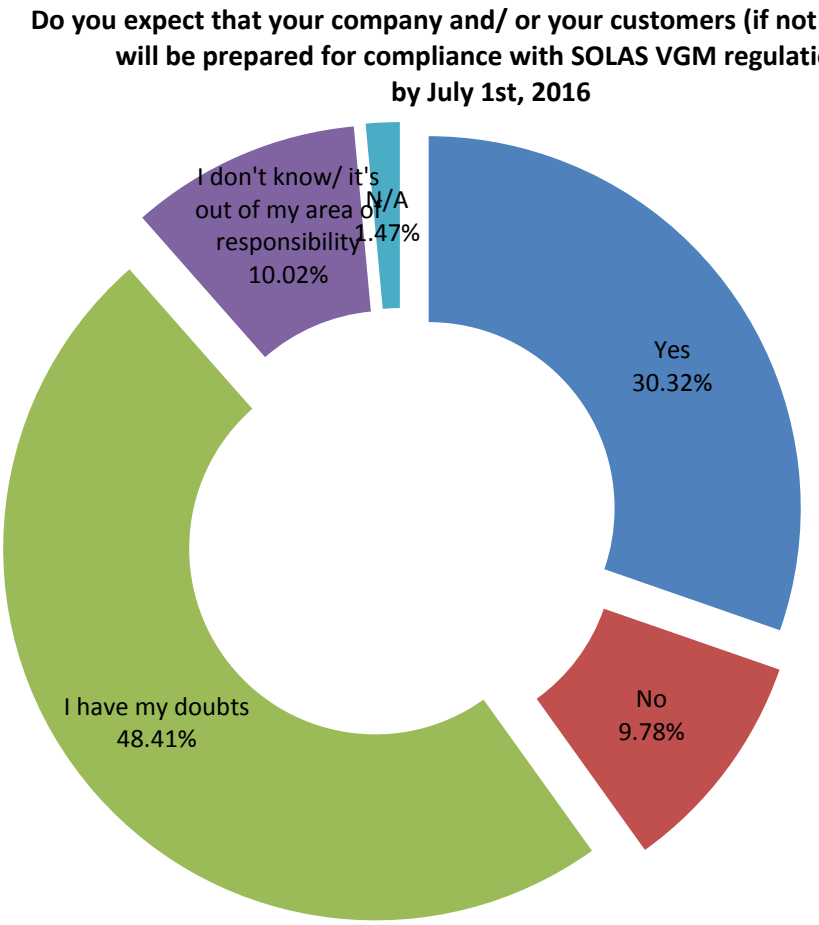
At the end of 2015, INTTRA[6] carried out a survey among their clients, including carriers (16,8% of total polled), NVOCC (12,01%), Freight Forwarders (43,65%), shippers (22,30%), terminals (0,98%) and others related to maritime trade (4,88%) which revealed that only 30% of the respondents think they are ready to comply with the new VGM regulation. While two- thirds of them are expecting moderate to major disruptions in the early stages of the implementation; 48% of total universe of the 410 polled think they have doubts in this respect and a considerable 10% think they are not prepared at all to comply. In addition to this, survey respondents from all over the world foretell that the

[5] "WTO World Trade Report 2004"
https://www.wto.org/english/res_e/booksp_e/anrep_e/world_trade_report04_e.pdf
[6] http://www.inttra.com/solas-vgm

major disruptions during export operational processes will occur in Asia- Pacific (42,34%) followed by Africa (21,82%) and in third place, South America (21,82%).







Source: ISU/ ECLAC on the basis of data published by INTTRA

For its part, Hapag Lloyd has published an article related to VGM entitled, "Every Ton Counts",, addressed to its customers, whose main objective is to inform shippers regarding the VGM regulation and clarify the guidelines to declare the verified gross mass to electronically transmit the information required by the forthcoming regulation. Material with similar characteristics can be found in MOL Liner website. In the case of CMA- CGM and NYK have only published succinct press releases, also published on their websites that emphasize the responsibility of the shipper with regard to the VGM statement. CCNI- Hamburg Süd put emphasis in respect of the e-documentation internal processes that will be implemented and additionally offers its customers reading material to inform them regarding VGM.

Another Hapag Lloyd's press release clearly indicates that "a container carrying cargo which does not provide information on the verified gross mass in a timely manner will not be loaded onboard". However, the terminals may offer weighing services, considering the possibility of performing this operation without disrupting the regular operations of the terminal (which will not happen in every case). There are terminals

such as the Maher Terminal[7] in New York – New Jersey declared last December that they do not have the capacity to offer this kind of service for containers that do not comply with the regulation[8]. Other U.S. terminals have stated that they will require e- documents stating VGM before allowing the access of the container to the terminal. Notwithstanding, there are shippers that manage large cargo volumes which consider that weighing in terminals is not a practical solution to their requirements[9].

To date, shippers and vendors in the region have not issued any press releases concerning this regulation or information on their position regarding these new challenges related to the verified gross mass amendment. This is in sharp contrast to the statements by the European Shipping Council (ESC) which expressed the need for finding harmonization to the guidelines in order to meet the new IMO regulations. Thus, the ESC warned that the regulations define which methods may be used, but shippers and stakeholders want to know how to implement these methods within their logistics processes.

Brazil, for example, already has a mandatory regulation to state the gross weight of carrying cargo containers on the bill of lading, which means they are one step closer to implementing VGM process compared to other Latin American countries. Brazilian laws ensure the right of the carrier to be compensated in case the weight statement provided does not correspond to real weight loaded (Art. 745 Brazil Civil Code)

An interview of a global shipper, published in the *Journal of Commerce (JOC)* highlighted the significant effort required to state the verified gross mass precisely before transmitting the information to terminals and carriers and the need to ingrate all stakeholders, considering from brand design, packing industries, purchasing, clearance and logistics. As a solution, the article proposes the installation of standard procedures for cargo weighing, applicable to all products manufactured by a company either in-house or outsourced. Outsourced products are a bigger problem for the shipper, considering that suppliers are often independent manufacturers. To guarantee that suppliers provide the correct VGM information, the interviewed told JOC that they are implementing procedures such as a cargo loading plan for every container where VGM must be stated. One of the concerns of the global shipper is the non- negotiable nature of the regulation, especially considering the outsourced products. As such, the main

[7] http://www.maherterminals.com/

[8] "Give verified weight by EDI or box will be rejected, terminal tells lines" http://www.joc.com/port-news/terminal-operators/maher-terminals/give-verified-weight-edi-or-box-will-be-rejected-terminal-tells-lines_20151221.html

[9] "Fitch: US Ports face uncertainty with global weight regulations" https://www.fitchratings.com/site/fitch-home/pressrelease?id=999367

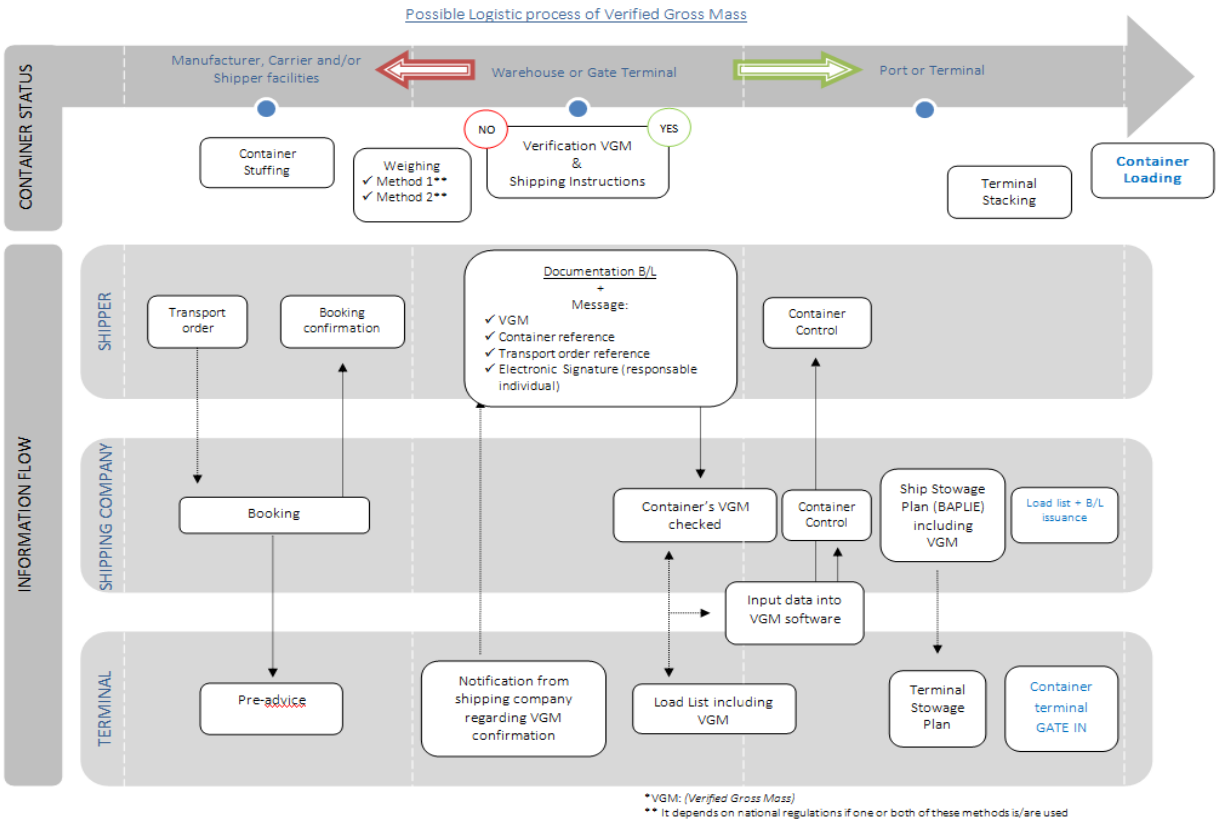
demands of the shipper turn into a primary condition for suppliers and vendors from the moment a contract is signed by the parties.

Documentary Processes

Some of the most common software used in international trade to facilitate digital documentary processes are INTRRA and EDI (Electronic Data Interchange). These programs help share information between carriers, shippers, freight forwarders and terminals. Inttra, for example counts among its customers, companies such as APL, BDP International, CEVA, CMA- CGM, DAMCO, MSC, DHL, Hapag Lloyd, Hamburg Süd, Kühne + Nagel, Panalpina, UASC, and has decided to implement and develop a new field in order to process VGM required data. As part of its idea is to ensure the mechanisms of electronic weight and simplify matters when calculating the total gross mass and limiting the possibility of making mistakes in the VGM declared. EDI allows the sharing of information instantly when booking instructions are sent and closed, the information would appear automatically in operator's system, notifying shipper, and updating weight field. This would allow VGM to be declared in a timely manner without interfering with operation processes that require this information in order to be considered for stowage planning.

In Latin America and the Caribbean, visions regarding this regulation are diverse and have thwarted the entire supply chain, but the public and private terminals remain in a complex situation, as they will need to adapt to the new global requirements and invest in suitable and certified technology and infrastructure for weighing. This is putting smaller terminals (maritime and fluvial) at a disadvantage considering that these currently have a gap in this kind of technology. The transnational legal dimension that this regulation brings forth, is forcing terminals to make relevant changes and considerable investments.. It restricts access by the overweighed or misdeclared VGM containers to the terminal yards, contributing to the prolonged lifespan of the existent superstructures, thus sometimes the incidents related to this topic seriously affect the equipment, such as cranes, forklifters, etc., causing permanent or temporary damages that impact terminal productivity and triggers substantial financial losses and the disruption of logistic processes related to the terminals.

The diagram below, explains the possible weighing process flow from July 1st, 2016, illustrating container flow from packing and stuffing process to the possible carrying cargo shipment, and on the other hand, the documentation processes and involved actors who participate during the different stages in order to comply with SOLAS VGM regulation.



Source: Prepared by the authors ISU, ECLAC on the basis of Verified Gross Mass- Typical Process Steps from booking to loading, Hapag Lloyd.

Concluding Remarks and Emerging Issues

The new IMO SOLAS regulation regarding the verified gross mass of the containers also demonstrates interesting opportunities to promote not only the safety on maritime transport, but to also contribute to the transparency and control of the supply chain, and reducing operational risks during the processes. Although its mandatory range does rely solely on the shipper, the complex chain of stakeholders who participate in the export chain of goods and products will also be affected. No matter which method or methods a country chooses to implement this regulation, the VGM implies weighing in some way, and every country will need to take the necessary measures to comply without interfering the current operational processes.

As the amendment seeks to hold individuals liable, by requesting that the verified gross mass be signed by a natural person via electronic signature, it will be important to maintain a clear and well- defined layout of the processes that may prove and demonstrate that every container complies with the requirements and that the shipper has acted with due diligence before an accident or incident occurs.

With regard to the technological concerns, shippers and/ or manufacturers may not have easy access to the technologies that are required to comply with the new requirements. Examples of this are twistlocks, sensor blocks or strain gauge amplifiers that some terminals are currently using. For this reason, some shippers and/ or third parties will need to invest in new technologies or recondition the existing ones, or simply outsource weighing services, which implies investment. In short, if any additional costs arise, shippers may assume it, or pass the cost onto stakeholders and who in turn will pass it on to the final customers.

There are also shippers that are questioning whether shipper will be liable for mistakes in the transmission of VGM to the terminal or the planner. And if a container is not loaded due to this reason, will this result in a prejudice toward international trade?

Other uncertainties regarding VGM implementation are the measures that terminals will adopt in respect to the containers that do not comply with VGM. If an overweight container arrives at a terminal, for example, it may be difficult to track the shipper, if the name on the bill of lading does not correspond. What happens if the shipper is geographically away from this facilities? Who will absorb repackaging costs, where will this container be stacked; who will pay stacking costs at the terminal, etc. From the point of view of the carrier, it would be prudent to clearly establish these matters in the contracts of carriage, before having unnecessary delays in cargo loading onboard a vessel. On the other hand, small producers and operators will also have to consider this at the time of signing contracts with shippers and state specific liabilities to avoid disadvantages in contractual terms. Furthermore, smaller ports and terminals which choose to offer weighing services for misdeclared VGM containers will have to consider an important initial investment to be competitive. In the near future, worldwide Carriers and operators could force the market to upgrade its superstructures and standardize electronic processes, which could result in efficient terminal data handling, but without enough financial resources to carry out these demands, some may be left out of the competitive port market. There are not only requirements regarding deepening drafts and enlarging quays or piers to be capable to attend larger vessels, now the cargo will be subjected to strict weight controls, as a consequence of the verified gross mass, and this, undoubtedly is another point for terminals which are seeking to optimize its operations and offer a service in compliance with regulations and international standards to consider.

Although the outcome from July 1st, 2016 is uncertain, there is background that suggests that apart from the doubts that exist in the sector, this SOLAS regulation is trying to pull all threads together in respect of weight declarations that nowadays are already required for many international carriers, operators and companies. The SOLAS amendment allows for a better control over cargo and the possible implications that overweight cargo could have not only during maritime leg, but also in intermodal legs (road, rail, fluvial, etc.) all

of which are necessary to accomplish export cycle. If we consider that a significant percentage of cargo is transported by road (especially in the region) during intermodal leg, the SOLAS regulation may imply in the long term, a longer shelf life of cargo fleet, bridges, roads, etc., , which certainly contribute to the development of the countries, overcome poverty, and supports local production economy. This regulation contributes to identifying overweight cargo in the early stages of the shipping cycle, in the long term helping to improve road conditions and cargo fleet, particularly in this region.

If roads and highways show less wear and tear, the possibilities of having seasonal transit disruption are fewer, and this allows the flow in cargo transport and facilitates export, and the goods supply of a country, thus increasing access to different markets and improving the quality of life.