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Analysis Of The Main Logistics Documents Used In The Dry Port Of The City Of Manaus, Brazil

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SUMMARY
Logistics operations can substitute formalized acts prescribed and provided for by law. This legal coverage also covers the activities carried out in dry ports, which must be known to carry out operations properly. In this sense, this study aimed to identify the documents most used in the logistical operations of a dry port in Manaus, the capital of the state of Amazonas, located in the Brazilian Amazon. The method used was a survey using the observation technique, whose data were collected and recorded in a field notebook treated with semantic analysis to answer the guiding questions of the investigation. The results presented a) four fundamental documents for the dynamics of the dry port studied, b) two of these documents are specific to materials that are transported by air, c) one document is used for sea transport, and d) one document is a common requirement for both the modalities. The conclusion shows that these essential documents fulfill different roles throughout the supply chain and guide the operations carried out internally in the dry port.

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I. INTRODUCTION

Organizationally constituted agents carry out logistics operations. An organization is a group with common, previously agreed objectives (Almeida et al., 2020; Cardoso et al., 2021; Nascimento-e-Silva et al., 2020). Logistics organizations are all, by law, formalized, not only so that they can be granted concessions for these types of services but also so that they can collaboratively carry out specific typical State actions, as is the case with port and aviation services and, even more specifically, dry ports. Dry ports are, therefore, logistics organizations that provide different types of services to optimize the transport of materials from one point to another in the supply chain. Its main idea is also to satisfy its customers and users (Silva et al., 2020; Nascimento-e-Silva & Rego, 2020).

From an operational point of view, however, logistical operations can be taken as various substitutes for formalized acts prescribed and provided for by law. This means that practically all stages of the process need to be based on what the law allows to be done and on documents that guide these procedures. The transportation of materials is an example of this documentary formalization, in which each movement needs to be accompanied by specific documents according to the modes and nature of what is transported. Air transport requires different documents than those transported by road. The exact formal requirement also regulates logistical operations in dry ports because they mediate and interconnect stages and transport modalities.

In this sense, this study aimed to identify the documents most used in the logistical operations of a dry port in Manaus, the capital of the state of Amazonas, located in the Brazilian Amazon. The intention was to understand what these documents are, how they work, and how they are handled so that their connection with the operational dynamics in the studied port is understood. The observation was used as a research strategy based on a previously defined script containing essential guidelines from the study's guiding questions. Then, the data was analyzed and organized based on semantic analysis of the information and data collected, which allowed the research questions to be answered.

II. LITERATURE REVIEW

To understand the essentiality of documentation as a legal and operational instrument for logistics processing, it is essential to consider the current stage of scientific knowledge about logistics, the storage process, and the role of dry ports. Play in the expanded logistics chain. In this sense, this literature review shows the conceptual scope of these three critical logistical vectors, highlighting logistical documents as the structuring means that make them viable.

Logistics

Logistics can be seen as management (Shageeva, 2023; Baharum et al., 2023; Kay et al., 2023; Abeng, 2022). Management is characterized by the stages of planning, organizing, directing, and controlling resources to achieve the objectives of a given organization, public or private. Logistics applies, as management, to stocks (Shageeva, 2023) and flows of resources (Kay et al., 2023) and goods (Abeng, 2022), denoting their internal dimension, and to the entire supply chain (Baharum et al., 2023), which goes from the first supplier to the last customer. The literature presents different logistics purposes as management, such as increasing revenue, supplying the market, meeting customer needs, and connecting suppliers and consumers from one point to another.

The process was another term in the literature equivalent to logistics (Abeng, 2022; Mitftachudin, 2023). The idea of process refers to the dynamics of a series of steps, in which the product of one is used to start the next step until a particular result or product is finalized when the last step is completed. In this sense, the literature points out the planning, implementation, and management of movement (Abeng, 2022) and acquisition, movement, and storage (Miftachudin, 2023) as stages of the logistics process. This means that logistics as a process begins with planning and ends with the storage of goods.

Logistics can also be considered a series of activities, as can be seen in the studies by Nagy-Bota and Moldovan (2022), Kovačić et al. (2023), and Mutvadžija et al. (2023). The conception of activities arises from being active, doing or carrying out things with a well-defined purpose, a predetermined objective to be achieved. As activities, logistics are organizational, managerial, and strategic (Nagy-Bota & Moldovan (2022), planned based on internal processes (Kovačić et al., 2023) and satisfying customer needs (Mutvadžija et al., 2023). Activities, therefore, can be divided into internal, which begins with the reception of inputs and ends with the dispatch of the product, and external, subdivided into supply logistics, which begins with planning and ends with the receipt of raw materials, and distribution logistics, which begins with receiving orders and ends with delivering products to customers.

Another concept found in the literature on logistics is the idea of dynamics, found in the study by Tuma Neto et al. (2022), as flow, and in Yousuf and Majid (2023), as movement, followed by stopping in storage. These two terms mean that logistics consists precisely of this constant interaction between the organization and its suppliers and customers. This interaction is so intense that storage stops, when necessary, must be programmed to last as little as possible, precisely so that the dynamics do not experience discontinuity. Furthermore, there is an incessant dynamic internally within the organization that guarantees its production flow, which begins with the arrival of raw materials at reception and ends with the dispatch of finished products in the shipping sections.

Each load/good must have the documentation required by law. One of the main reasons is to show that they are being moved as the Federal Revenue requires; for example, in the notes, the standards, weight, identification, and destination, among other characteristics, are informed in the documentation. For logistics, this documentation is essential for controlling transport and checking the required tax obligations that need to be fulfilled by every organization, whatever they may be. Thus, it follows what the legislation requires to perform organizational activities.

Storage

The literature review showed that storage is seen as a repository (Leon et al., 2022; Senyiğit & Arsav, 2022; Reyes et al., 2019). A repository is where you can store, organize, and store physical content, products, and information, as with scientific repositories. Logistics applies to both situations since industrial and commercial organizations, for example, deal mainly with physical products. However, increasingly growing organizations deal with information and store virtual content on the internet, for example. For this work, its understanding is in the physical sense since storage in dry ports applies to products that are temporarily stored there (Leon et al., 2022; Reyes et al., 2019; Senyiğit & Arsav, 2022) while awaiting procedures to be released to other intermediate and final destinations.

Storage can also be considered a space (Brožková et al., 2020; Rodríguez et al., 2022). The space consists of the entire limited environment for possible storage, making logistical processes more efficient and making material movements more agile, without many interventions. To be equivalent to storage, this space must be occupied by materials (Brožková et al., 2020) to be classified as open or closed (Rodríguez et al., 2022). Thus, storage is the space or location that places stocks, materials, or products appropriately.

Storage is also a system (Aoual & Zeradna, 2022; Bucko et al., 2023). A system is a tool whose function is to interconnect the activities that makeup logistics, which can range from resource management to the end customer. Its formation criteria are the logistics system (Aoual & Zeradna, 2022) and the supply of goods (Rodríguez et al., 2022). Storage as a system is directly linked to the places of origin and consumption of the product, ranging from production, reservation, and supplies to its distribution, which is delivery to end customers or consumers.

Finally, the literature stipulates storage as an activity (Gorzelańczyk & Wawrzyniak, 2023). A set is characterized by the activity that revolves around the tasks to be performed, which can be divided into several

activities, such as transport, stock maintenance, material handling, and packaging, among other activities in the logistics chain. The literature states that storage is a set of activities that begin with the receipt of goods, continue with the registration process, continue with the packaging and storage stages, then go through distribution to the production process, and end with the transportation of the product—finished to your end customer.

After completing the documentation required by law for the merchandise to be shipped and taken to intermediate and final destinations, companies choose to store it so that it is stored safely and effectively, and all cargo documentation is checked. Specific conditions are to be released for storage, as each item requires special care and may need to be placed in a specific environment with a higher or lower temperature. The Brazilian Federal Revenue requests the documentation for each cargo required by law so that the Ports can store it correctly.

Dry ports

Intermodal terminal was the most frequent term found in the literature as equivalent to dry port (Jeevan et al., 2022; Gong & Liu, 2020; Sarmadi, 2021; Li et al., 2022; Kurtulus & Cetin, 2019). Every intermodal terminal has the functionality to connect more than one mode. He is the one who transfers the cargo from one mode to another, be it rail, road, pipeline, waterway, or airway. The intermodal terminal is directly connected to seaports, as shown by studies by Jeevan et al. (2022), Gong and Liu (2020), Sarmadi (2021), Li et al. (2022) and Kurtulus and Cetin (2019). According to the literature, dry ports have at least one high-capacity means of transport from which customers can collect their respective goods directly.

Dry ports can also consist of an everyday use facility, as shown in the study by Taderera et al. (2023). An everyday-use facility is a designated location for storing and distributing goods that multiple companies may share. This installation offers the status of public authority that is necessary for a specific function, and that has decision-making power (Taderera et al., 2023). The literature presents the dry port as an everyday use facility because it is designed to allow cooperation and sharing of resources between companies, becoming the competent authority responsible for the administrative part.

The dry port can also consist of an inland location, according to a study by Wang et al. (2019). This interior location is a larger space within a legally delimited geographic space. Every dry port is located within a geographical space under public management, where it is permitted to carry out logistical activities. There is in this space. Therefore, the typical realization of modal integration constitutes a logistics center connected to several other modes of transport. For this reason, there are warehouses, branches, vehicles, customers, and practically all activities commonly carried out within a warehouse (Wang et al. (2019). The dry port aims to optimize the flow of goods and facilitate its legal clearance by public authorities.

Another conception shows the dry port as a link in multimodal transport (Dang & Yeo, 2020). Multimodal transport relates to one or more modes of transport for the movement of cargo, which can be air, water, or road. This multimodal transport link contributes to an essential reduction in transport costs (Dang & Yeo, 2020) and the speed of delivery and clearance. The cost reduction is because, by using more than one means of transport and in a planned manner, the dry port can integrate multi-means of transport in a rationalized and optimized way through modern information and communications systems.

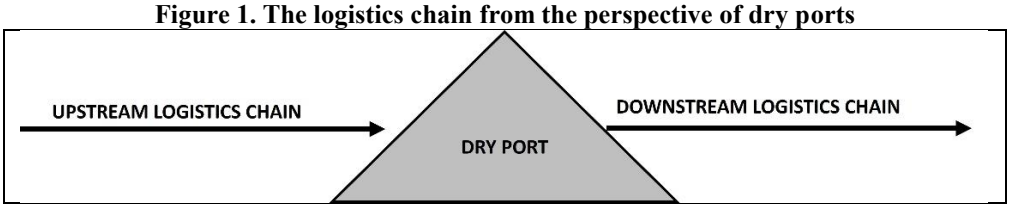
Finally, in the literature, one can also find the conception of a dry port as a modern logistics center (Yang et al. (2020). This modernity concerns its large structure, which can store, organize, and prepare large and countless volumes of loads simultaneously. A dry port can also manage functions, organize stocks, and plan the packaging and handling of any material it was designed for. These logistics centers can also temporarily separate and store everything that will be sent for distribution in a specific space. The literature highlights that the dry port as a logistics center has the function of customs declaration and inspection (Yang et al., 2020).

The primary function of Dry Ports is to improve movement, storage, and customs broker work with the control established by the Federal Revenue Service. For smooth processing, it is necessary to check the documentation of the goods that will be exported. As a secondary port, checking the invoice, emptying containers for cargo, and weighing vehicles, containers, volume, and movements are essential. Activities are excluded from the port "routine." The RFB requires that all goods and their documentation be checked before entering the Ports.

Logistics documents

Logistics documents are explicit manifestations of the formalization of the logistics process. This means that the entire logistics chain is carried out through the movement and transport of materials from the point of origin, which begins with the extraction of raw materials from nature, goes through the entire production chain, and then goes through the entire distribution chain. Moreover, it ends with the delivery of the product to the consumer or end customer. Leaving one point and entering another link in this chain is only permitted with the presentation of specific documentation, both for official government controls and for carrying out control of transporters and contracting organizations.

Figure 1. The logistics chain from the perspective of dry ports



Source: prepared by the authors.

Figure 1 shows the logic of the logistics chain from the perspective of dry ports. Upstream, the logistics chain starts with buyers of products that are entering the port's operations area. This is the case of organizations of different types that acquire products from other areas of operations other than the dry port operation area. For example, industrial organizations in the Manaus industrial hub can use the dry port services in their operating region for products they acquire from other Brazilian regions and other countries. The other is the logistics chain that starts with producers. This is the case for industrial organizations that produce and use the logistics services of dry ports to continue in the downstream logistics chain, which will culminate in the delivery of products to the next stage of the distribution chain.

As shown in the study by Luqmonjonov et al. (2023), the organization and management of transport and all types of material movement include several obligations, such as collecting and processing logistical documents. There are several reasons why this type of formalization is mandatory, many of them legal, while others are informational, so there is adequate logistical management. As seen in the study by Liu et al. (2023), the documentation issues several control instructions, which allows intelligent warehouse management and facilitates all export, import, and storage procedures. Logistics will record the entry and exit of materials and archive all logistical documents (Nuciferani et al., 2022). The more accurate these records are, the more agile the subsequent logistical procedures tend to be.

Logistics document types cover a wide variety of purposes. In general, they cover commerce between companies (B2B), the relationship between companies and governments (B2G), the interconnection between governments (G2G), and various internal spheres of government (such as the Federal Revenue Service and the Central Bank). Han's study (2022) presents an electronic platform called uTradeHub, which streamlines and accelerates the marketing process precisely because it is aimed at managing logistics activities and their documentation.

The migration of physical logistics documentation to the virtual world is the subject of numerous studies. For example, research by Sede (2023) shows that the digitization of logistics elements can be seen as the digitization of goods, packaging, and logistics documents. Hu et al. (2023) found that electronic certificates can all be digitally linked, including logistical documents, billing data, and digital identities. From the point of view of ports, particularly dry ports, electronic circulation, and online processing of relevant logistics documents, data from these documents can be shared between ports and governments to speed up the movement and transportation process (Cao et al., 2023). One should not fail to consider the possibility of fraud in electronic logistics documents, as warned in the study by Chen and Li (2023), which does not make virtual means less prone to the dishonesty sometimes seen with physical documents. The fact, however, is that documentation is a legal and operational requirement with which dry ports need to comply.

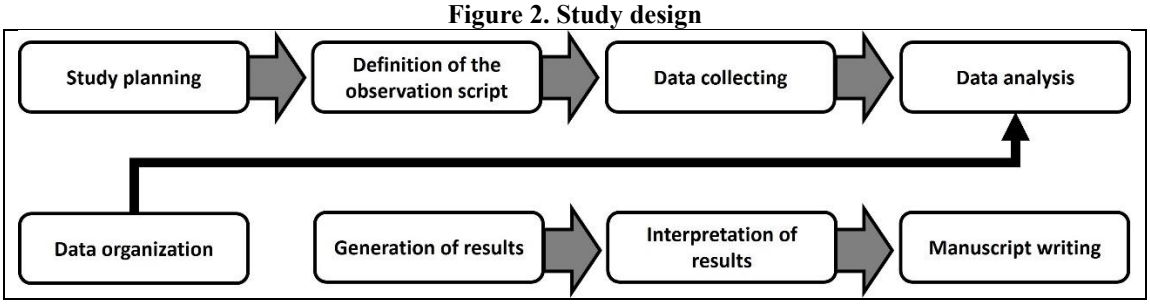
III. RESEARCH METHODOLOGY

This study aimed to identify the documents most used in the logistical operations of a dry port in Manaus, the capital of the state of Amazonas, located in the Brazilian Amazon. To this end, the following guiding questions were formulated: What are the primary documents used in dry port operations? What is the usefulness/purpose of each of these documents? What are the dynamics of operation and use of these documents? The entire methodological design of this investigation followed the guidelines contained in the studies by Nascimento-e-Silva (2020b; 2021a; 2021b; 2021c).

Study design

The study design was based on the study by Craveiro et al. (2023) and consisted of eight stages. The first was planning the study, where the general objective, research question, and unit of analysis were defined. The second was the choice of observation as a data collection strategy and constructing an observation script as a data collection instrument. The third stage was data collection, previously agreed with the dry port managers. It was carried out with notes on the logistical operations and the respective documents that accompanied them. The fourth was done by typing the notes and breaking them down into a) the document type, b) what it is for, and c) how it was handled.

Figure 2. Study design



Source: prepared by the authors based on Craveiro et al. (2023).

The fifth stage was the organization of the collected data, based on the categorizations made in the previous stage, but now linking one stage with the other so that the dynamics of the documents could be understood. The sixth step was generating results, which consisted of defining the document, its use, and why it was used. The seventh stage was the interpretation of the results, made by comparing the documents and their uses in the dry port under investigation with the results of other investigations found in the literature but based on the previous literature review. The last stage consisted of writing the manuscript according to the guidelines of Nascimento-e-Silva (2020b).

Population and sample

The population of this study consisted of all documents used in the logistical processes of the dry port that operates in the city of Manaus. Sampling was done for convenience, based on the consensus among port employees that four documents were considered fundamental for operations: the MAWB, HAWB, Invoice, and the Maritime Bill of Lading (BL). Some even admitted the existence of another document, the CE Mercante, but soon after, it was realized that this fifth document was another form of the BL. Thus, the four documents on which observations and subsequent analyses were made were selected.

Instrument and data collection strategy

The instrument used to collect the data was the field notebook (Nascimento-e-Silva, 2023). In this instrument, all data relating to documents used in logistical operations were noted, with emphasis on the type of document, its content, form of completion, agents responsible for completion, purpose of use, and other fundamental information so that it could adequately respond to the guiding questions of the study. The data was collected during logistical operations in the dry port, first with mapping operations from the reception of materials to their dispatch, then with identifying documents that accompanied internal operations, preceding operations, and subsequent operations. For all these stages, data was collected so that it could be guaranteed that those documents were the most important.

Transcription, analysis, and organization of data

First, the data was transcribed from the field notebook to the computer. The transcription followed the order of the identified documents so that all information relating to each could be together, avoiding data mixing. Thus, separate files were created by documents. The notes contained data from port operators, managers, and employees, generally organized by day of operation and shifts. Afterward, the notes were transformed into data when they sought to answer the guiding questions and were divided into a) type, b) main characteristics, c) purposes, and d) form of use or handling. After all the data obtained throughout the observation and collection period were allocated according to the guiding questions, the organization stage was completed according to the guidelines of Nascimento-e-Silva (2021a; 2020a).

Generation and interpretation of results

The results were generated based on semantic analysis, characterized by searching for the meaning of words, phrases, and sentences per what is specified in the standard or specialized usage. For example, the bill of lading means “knowledge” and “understanding” in the traditional standard, but the logistical meaning is different and concerns a document with material and transport specification content. The reference points for generating results have always been the guiding questions. In this way, the results relating to the type of knowledge were generated from the analysis of the modalities, finding documents specific to the air modal (MAWB and HAWB) and specific to the maritime modal (BL) and a document expected to both modalities (invoice). The results regarding the usefulness of the documents were generated by crossing information from operators with information from the contents of the documents. This exact procedure was used to generate results regarding how documents were handled.

The interpretation of the results was made by comparing the findings in the dry port study with the findings of other studies in the literature based on the theoretical framework of this research. Through comparison, it was possible to verify that those documents found in the dry port studied were those considered essential in other ports in other countries, that their uses were similar or identical, and that the form of handling in the port of Manaus is practically that reported in the literature. Practice of other ports.

Study limitations

Two are the most critical limitations of this study. The first concerns data collection based on observations and dialogues with employees of the dry port studied. The ideal would be to mix more data collection schemes, such as semi-structured interviews with logistics agents upstream and downstream of the dry port, document analysis, and more completed documents. However, this was not possible due to both the dynamics of the port's operations, which reserved very little time for data collection, and the confidentiality of the data and information that many of these documents contained. The second limitation concerns the synchronic meaning of the study, that is, taking reality from a static perspective. Again, the most recommended would be a diachronic, longitudinal analysis, in which logistical operations could be observed and analyzed over time based on their different stages upstream and downstream of the dry port. However, this impossibility was also due to the dynamics of the port's operations and the access to logistics agents.

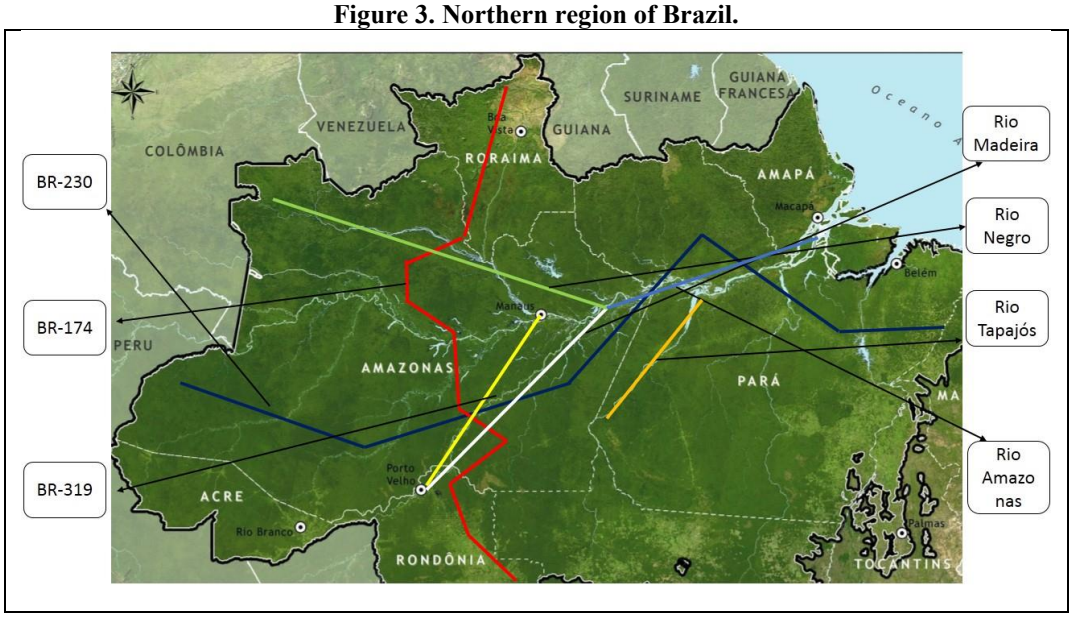
IV. RESULTS AND DISCUSSION

The Manaus Dry Ports, called EADI (Interior Customs Station), aim to relieve primary zones. To fulfill this mission, it needs to interact with different types of customers, improve their level of satisfaction, offer competitive prices, invest in improving its processes, and assist companies in the region in various activities and operations with guaranteed safety and quality of services. In addition, it also offers movement services, storage of goods, a private bonded warehouse, inspection operations, and customs clearance. To do this, it is necessary to receive authorization from the Brazilian Federal Revenue Service to provide public services for moving and storing goods.

As shown in Figure 2, the dry port is a warehouse where several highways and waterways converge and are close to the international airport in Manaus. In dark blue, we can see the BR-230, also known as Transamazônica, which connects João Pessoa (Paraíba) to Lábrea (Amazonas), was inaugurated in 1972 and aims to integrate the North and Northeast of the country, improving transport conditions—housing in the Amazon region. In yellow is BR-319, which connects Porto Velho (Rondônia) to Manaus (Amazonas), a highway that even today has unpaved sections that cause damage; the estimated journey from Manaus to Porto Velho is 12 hours, but with the lack of paving, it becomes practically impassable.

Next, in red, we can see BR-174, which connects Boa Vista Roraima) to Manaus (Amazonas), passing through the state of Amazonas and is currently in a precarious state, making it difficult for trucks to pass. It is approximately 810 kilometers long and is one of the essential transport routes between two cities, facilitating trade and tourism in the region, as shown in Figure 3.

Figure 3. Northern region of Brazil.



Source: Prepared based on Google Maps.

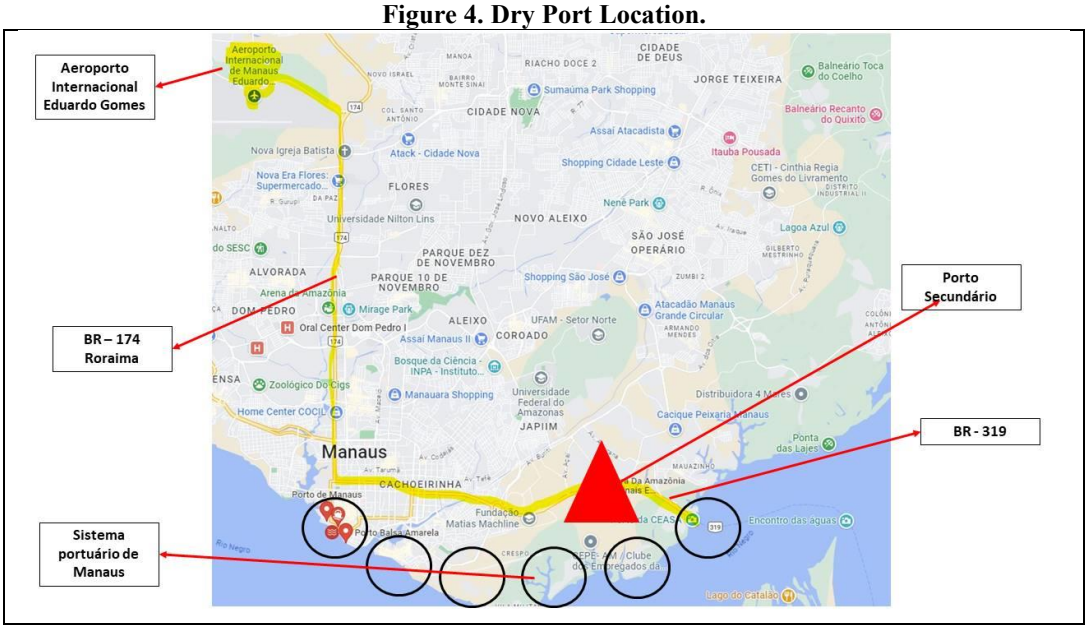
The Madeira River waterway, highlighted in white, has a length of approximately 2,160 km, is navigable, and allows cargo transport between Porto Velho (Rondônia) and the Amazon River. This is an important transport route in the region, allowing the flow of products along the waterway; it has a navigation support structure, such as ports and river terminals. It has tremendous economic importance, as it facilitates the transport of goods and reduces costs. The Amazon River waterway is light blue; it is one of the most essential riverways in the world; it cuts through countries such as South America, which is the main waterway in the region and allows navigation along the Amazon River, connecting cities such as Manaus (Amazonas), Belém (Pará) and Santarém (Pará). Navigation on the waterway faces some challenges, such as the silting of some sections, the presence of sandbanks, and the lack of adequate signage in certain areas.

Next, we can check the Tapajós River Waterway in orange, which is one of the primary effluents of the Amazon River and is known for its natural beauty and economic importance. It allows the transport of cargo and passengers between the cities of Itaituba and Santarém, both in the state of Pará, through vessels of different sizes, such as cargo boats, ferries, and tourist ships.

Finally, we have the Rio Negro Waterway highlighted in orange, which allows river transport between Manaus (Amazonas) and Barcelos (Amazonas), as well as other cities along the Rio Negro. The Rio Negro is an effluent that plays a fundamental role in transporting cargo and people in the region. It is approximately 1,400 km long, stretching from Manaus to its mouth on the Amazon River.

According to Figure 4, we can see in the upper left part the location of Eduardo Gomes International Airport, one of the main airports in the North region; it carries more than 12.5 million passengers and strategically integrates the Amazon region with the rest of the world: country and the cities within it. Manaus is one of the leading cargo transport hubs in the country, so its airport has three cargo terminals dedicated to this purpose. Next, we can see that BR-174, better known as Manaus-Boa Vista, has 715 kilometers. Its current route begins in Céceres-MT and passes through the cities of Vilhena, Canumã, Manaus, Caracaraí, and Boa Vista and ends at the border with Venezuela, which totals a length of 3,202 km, as shown in Figure 4.

Figure 4. Dry Port Location.



Source: Prepared based on Google Maps.

At the bottom of the image is the Manaus Port System. Which, in turn, has a structure for receiving cargo and passengers, both regional and international. They have two floating canals, terminals, yards, a parking lot, and storage for goods. Cargo arrives at ports and goes through several stages until release, such as movement and storage. The objective of ports is for cargo to have its integrity preserved and to improve logistical operations.

In the lower right part of the Image is located the BR-319, which in turn connects the secondary port of Manaus, which is strategically located in one of the most critical areas of the North region, the Industrial Pole of Manaus, it is just 22km from the International Airport Eduardo Gomes and 7km from the Port of Manaus, it has a fiscal area of 75,000m², with 11,600m² of covered warehouse and a storage capacity of 85,000m³—duly paved yard for heavy traffic with 30,877m², with storage capacity for up to 1,500 containers.

Dynamics of logistics services in the dry port

Faced with a borderless and highly competitive economic market, adequate logistics planning becomes essential. Based on this vision, dry ports offer more than just marketing services; they offer professionals specialized in transport logistics and general matters related to foreign trade, as well as agility, excellence, and professionalism to their customers. The Customs Transit Declaration (DTA|) is a regime that allows the transportation of imported goods within the national territory, still under the jurisdiction of the Federal Revenue Service. This is transported from one customs area to another, with taxes suspended. Pick-up is done later, after arrival at your destination.

SISCOMEX (Integrated et al.) creates the DTA in the maritime mode. The documentation required for registration must be sent by the Cargo agent or the Importer (Customer) via email; this procedure is called "Pre-Alert." For the air transport mode, there is a figure called the shipowner (the one who arms or equips the ship for navigation, that is, the owner), who is responsible for bringing the cargo from the origin (outside) to the ports (destination/primary zone). The documentation must be sent by the Broker, Shipowner, or Importer (Customer) in advance via email. These documents are contained in Table 1.

Table 1. Documents transited in dry port.

Document	Description
MAWB (Master Air Way Bill)	Knowledge from the airline to the cargo agent with the necessary information about the goods, such as quantity, volume, weight, origin, and destination.
HAWB (House Air Way Bill)	The cargo agent issues knowledge to accompany the shipment to the destination, with information about the exporter, importer, cargo agent, freight value, quantity, volume, and weight.
Invoice	Invoice with merchandising details.
BL (Bill of Lading)	It is the maritime bill of lading with the necessary information about the goods, quantity, volume, weight, origin, and destination.
CE Mercante	Electronic merchant knowledge is generated by the electronic system for controlling the collection of additional freight for the renewal of the merchant marine.

Source: data collected by the authors.

The MAWB (Master Air Way Bill) is the bill of lading issued by the Airline for consolidated or direct cargo and sent directly to the Cargo Agent. It contains the total number of products received or sent by the agent and delivered to the airline so that shipment can continue. The Master is known as "mother knowledge," as it is a descendant of the consolidated cargo company for the unconsolidated company. It refers to the space purchased on the plane, which can be divided into different HAWBs. Therefore, it encompasses knowledge of individual loads (DI). For the document to be prepared, the airline must provide data such as the name and address of the parties (exporter, importer, and consignee), place of loading and unloading, details of the means of transport, value, and payment method for freight.

The HAWB is the air waybill issued by the cargo agent directed to each shipper and sent to the airline and port of destination (Cargo Identity). HAWB supports customs clearance by registering the DI (Import Declaration). This is where the loads consolidated in the Master are detailed; that is, for a single MAWB, several HAWBs can be issued. It is possible to enter data such as the dominance of the issuing company, order number of the document, complete details of the exporter and importer, quantity of volumes, type of packaging, gross weight, and description of the merchandise.

The Invoice is also prepared by the cargo agent and forwarded to the airline destination ports. The Invoice is a document like an invoice used to collect values for commercial transactions between companies and their customers who are in different countries; that is, it regulates the operations of imports and exports of products, meaning that there are no problems with the RFB, it can only be issued when there is an international commercial relationship. On the invoice, we can identify the merchandise data, date of issue, document number, name and address of the issuer, name, and address of the recipient, and complete description of the merchandise. Table 2 summarizes these findings.

Table 2. Agents are responsible for operationalizing documents.

Document	**Origin**	**Destiny**
MAWB	Airline	Cargo agent
HAWB	Cargo Agent	Port/Airline/
Invoice	Cargo Agent	Port/Airline/
BL	Shipowner (Transporter)	destination port
CE MERCANTE	Dispatcher (Importer)	destination port

Source: data collected by the authors.

The BL (Bill of Lading) is the maritime bill of lading prepared by the Shipowner (Transporter) and sent to the Port. It is the transport contract agreed between the shipper and the carrier; it contains the necessary

information about the goods, quantity, volume, weight, origin, destination, sender and recipient data, port of shipment, place of receipt, port of discharge, and vessel name. The primary purpose of the BL is the Receipt of delivery of the goods. The possession of the BL is the documentary proof of the shipowner receiving the cargo for transport, credit title, which is the document of the withdrawal of the goods together with the destination carrier, it also has the contract of carriage between the shipper and the carrier that is issued after the cargo has been loaded.

The Mercante CE is the electronic knowledge of the merchant BL generated by the Electronic Freight Additional Collection Control System for the Renewal of the Merchant Marine (AFRMM). The person responsible for filling out the CE Mercante information is the Dispatcher (Importer), and only the number is sent by the dispatcher to the Port. In the electronic document, we can identify the manifest number, loading port, vessel code, shipping company, shipping agency, total knowledge reported, bill of lading, port of origin, date of issue, and port of destination; it is necessary to Inform whether it will be National, foreign and inform the National Register of Legal Entities (CNPJ).

Discussion of results

The results obtained in this investigation show that the dry port of Manaus acts according to what is described in several scientific studies regarding the most frequently found documentation. The study by Wang and Li (2023) found that MAWB is used when there is an urgency to transport small packages, such as quick deliveries of samples and spare parts, which air transport companies do. Small package services were accompanied by multiple HWB slips and a master air waybill (MAWB) issued by the airlines. In contrast, express services had only one HWB under one MAWB, and services called Courrier, for shipments transported on board aircraft as hand or checked baggage, having only an HWB and no MAWB, also called On Board Courrier or simply OBC.

The study by Divyaranjani et al. (2023) confirms the findings of this investigation in that the air waybill contains cargo data and is issued in five copies accompanying the cargo after the completion of the customs export process. Of these five copies, one is for the transporter, another for the consignor (exporter), and a third for the recipient (the importer). There are two distinct types of air waybills: MAWB and HAWB. The MAWB is issued by the carrier to the forwarder upon receipt of the goods as a delivery agreement, while the forwarder issues the HAWB to the shipper. These documents are not documents of title to the goods, as with maritime bills of lading. They are a form of receipt for the merchandise, proof of the transport contract between the exporter and transporter, and an invoice with the total value of the freight. They must be presented at the unloading airport for clearance purposes.

Air waybills are issued in English, mandatory for national and international transport (Merisaari, 2020), in at least three original copies and several duplicates, when applicable. The rules stipulate that the green sheet is intended for the carrier, the pink one for the recipient, and the blue one for the sender. The document has an 11-digit number, three of which specify the carrier (Akter, 2020). The study by Antonowicz et al. (2022) shows that the broker issues the HAWB to the consignor, is intended for the shipment of consolidated cargo and includes the list of goods, as well as transportation costs; the MAWB is issued by the carrier in which the broker is considered the consignor, intended for the transportation of consolidated cargo to a single destination point. These studies confirm the empirical findings that the MAWB is a type of mother guide containing data from the importing and exporting agent (Wintaco, 2018) and that the HAWB is a species derived from it (Cárdenas, 2018).

It was confirmed that the HAWB is a domestic air waybill (Antonowicz et al., 2022) issued by the forwarder to the consignor for consolidated cargo containing the list of goods and transportation costs. The HAWB makes up the MAWB, with each sender having a single WAWB. For example, the combination of several shipments on the same flight is also called consolidation, sent through a single MAWB seen as a complete shipment by the airline (Nussy, 2022). Each shipment has a HAWB. A similar finding was described in the study by Merisaari (2020), where HAWB was often used in circumstances where a forwarder combined small cargo shipments for direct transport to the destination. These separate shipments comprised a single MAWB, which also served as a contract between the forwarder and the airline.

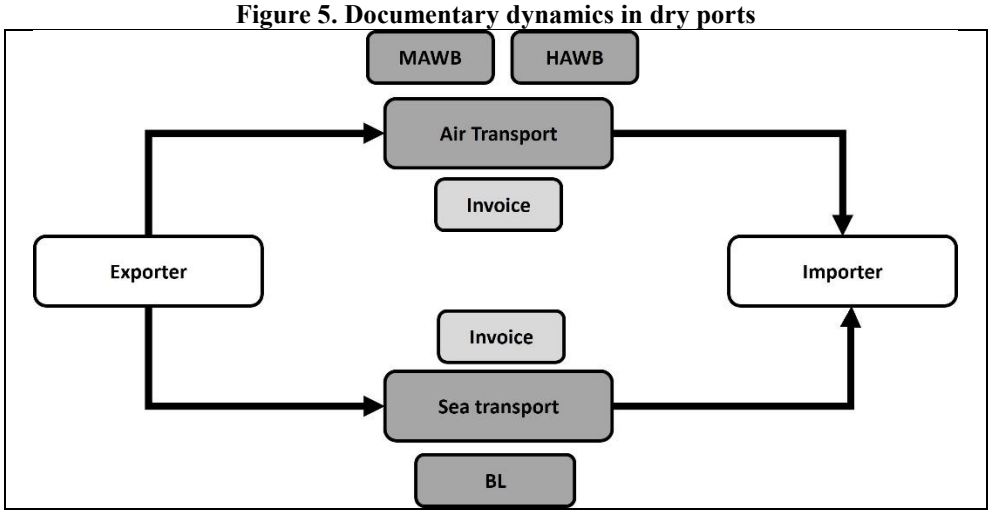
Observation revealed that bills of lading (Bill of Landing) are considered the central pillar that represents the legal guarantee, both for the carrier and the shipper, in the maritime transport process (Tamini, 2023; Gavrilov et al., 2023; Gunarsih et al., 2023; Al-Azzam, 2022). It functions as a contract for the carriage of goods, a receipt from the carrier who accepted certain goods for transport, a title of ownership, and a guarantee according to which the holder can dispose of the cargo or demand its issuance at the port stipulated in the contract. Indeed, Bills of Lading are essential to facilitate the flow of cargo at the port (Amico & Cigolini, 2023) and grant the holder the right to deliver the goods specified in the document (Refisyanti & Putra, 2023).

From the shipper's perspective, the bill of lading verifies the delivery of the goods to the carrier and whether the contract terms were complied with (All-Azzam, 2022). The study by Díaz and Pérez (2023) found an interrelationship between the documents translated at ports and their importance for operators. After the Packing List, the maritime bill of lading is the most important because it was the second one companies needed to translate.

The reason for this importance is to avoid non-conformities, which cause significant losses, as detected by the study by Li (2021), which is why new ways of issuing and handling the document are being proposed, as is the case with blockchain (Li, 2021), which implements the same functions as a maritime bill of lading contract (Poleshchuk et al., 2022). Furthermore, it would greatly facilitate operations in multimodal transport systems, as found in the study by Osinuga (2022).

Lastly, invoices detail transactions between the transport service contractor and the transporter (Ardakani & Nik-Bakht, 2021). It was observed that there are invoices for the transported goods and the provision of transport services, both of which have significant roles in commercial and economic movement and are therefore considered the cornerstone of any sale (Ballout et al., 2023). In times of technology, most invoices operated in the dry port are electronic, allowing for automatic and electronic processing, as also shown in the study by Kotyla et al. (2021). Our observations confirmed the findings of Kuokkanen (2023), that when the invoice is issued, the routing requests that the carrier collect each shipment and then create the waybills. Invoices accompany goods from the point of issue to their destination. If, in the event of material shortages or substantial damage to the goods contained in the invoice, there is often an automatic transfer of the refund amount to the applicant's account, as was also discovered and described in the study by Hu and Xue (2023).

Figure 5. Documentary dynamics in dry ports



Source: prepared by the authors.

These results show a documentary dynamic in dry ports, which starts from the exporter to the importer, as shown in Figure 5. The difference is whether the goods will be transported by air or sea. If the mode is air transport, the goods are accompanied by an MAWB bill of lading, as many HAWB bills are required depending on the consolidation of the load. If transportation is carried out by sea, the sea bill of lading is used. In all situations, however, the invoice accompanies the materials transported.

V. CONCLUSION

This study showed that four are the primary documents that formalize the operations of goods in the dry port, based on the observation made in the practice of a dry port that operates in the city of Manaus: MAWB, HAWB, Invoice (invoice) and Bill of Landing (sea bill of lading). These documents have different purposes and perform different functions, such as a service provision contract, proof of cargo ownership, and usefulness as a letter of credit, among many others. The invoice is the standard document used in both modes of transport, which functions as an identity card for the goods to be transported.

The study also empirically proved that logistics documents fulfill different roles throughout the chain of transport operations. First, they formalize both the existence of goods and the agreement of their movement from one point to another; second, they serve as a guarantee, for example, for the transporter that the handling services will be effectively paid, either by the exporter or the importer. Thirdly, they allow the quality of transport services to be assessed, mainly about the quantity and specificity of the materials transported. Dry ports, therefore, function as a warehouse throughout the logistics chain, allowing the temporary storage and packaging of goods, especially in regions where operations lack frequent interconnections and transport modes are few, such as the Amazon region. For this reason, storage is one of the most evident and substantial activities of dry ports.

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