



**The Role of Management Information Systems in Maritime Logistics
Management in Myanmar**

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This independent study has been approved as a partial fulfillment of the
requirements for the degree of Master of Business Administration

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ABSTRACT

This study investigates the role of Management Information Systems (MIS) in enhancing maritime logistics management in Myanmar, with a particular focus on the Port EDI System implemented at Yangon Port. The research explores how such information systems can improve port operations, streamline logistics processes, and foster economic growth in Myanmar, a country strategically positioned in Asia's growing trade and economic landscape. The study examines the benefits of the Port EDI System at Yangon Port, drawing comparisons with leading maritime nations like Japan, Korea, and Singapore, which have successfully integrated similar systems into their logistics management frameworks. By analyzing secondary data from sources including government reports, academic journals, books, and surveys conducted by agencies like the Japan International Cooperation Agency (JICA), this study provides a comprehensive understanding of the current state of Myanmar's maritime logistics industry and the potential of MIS to address operational challenges. It also emphasizes the importance of adopting a National Single Window (NSW) System to integrate various information systems, facilitating smoother trade operations across the country's ports. The study contributes valuable insights to the field of maritime logistics, highlighting the potential benefits of MIS for improving operational efficiency, reducing corruption, enhancing maritime security, and boosting Myanmar's competitiveness in global trade.

Keywords: management information system, maritime logistics management, Port EDI System, Myanmar

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06.03.2025

DECLARATION

I, PYAE SONE KO, hereby certify that the work embodied in this independent study entitled “The Role of Management Information Systems in Maritime Logistics Management in Myanmar” is result of original research and has not been submitted for a higher degree to any other university or institution.

Pyae Sone Ko

06.03.2025



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Chapter 1 Introduction

1.1 Background of the Study

Nowadays, one of the transportation modes called maritime logistics becomes very crucial as trade mainly relies on maritime transport because this can carry the cargoes at the lowest cost, with maximum transport capacity, through free waterways, and optimize mass transportation of goods. Moreover, Maritime logistics dominate among other modes of transportation in international transport. Maritime transportation is the most profitable and cost-effective than other kinds of transportation (Kovačević, 2014). Besides, the Asia region has become an important region for global economic, trade, and geopolitical transformation. For this transformation, the Indian Ocean has become a hub for maritime industry making transregional connectivity and China Myanmar Economic Corridor becomes one of the important parts of the Maritime Silk Road (Kharl et al., 2020).

To catch up with the global economic and geopolitical transformation in Asia, Myanmar needs to increase its capacity to mobilize its resources and improve both soft and hard infrastructure for the country's economic growth (Than, 2015). Myanmar is the largest country in Mainland Southeast Asia and has access to the Andaman Sea to its South and Bay of Bengal to its Southwest and adjacent to the Indian Ocean Region. Myanmar has a coastline of 2228 km (more than 1300 miles) stretching along the Bay of Bengal and the Andaman Sea. All ports of Myanmar are administered by a single and main organization known as Myanma Port Authority. There are altogether nine ports under the Management of Myanma Port Authority which is under the supervision of the Ministry of Transport and Communications (JICA, 2014). Yangon Port is the river port which is located in Yangon river and there are eight-out ports which are located along Myanmar's coastline. They are regionally grouped as Sittwe, Kyaukphyu, and Thandwe ports in Rakhine State; Patheingyi port in the Ayeyarwaddy Region; Mawlamyine port in Mon State; and Dawei, Myeik, and Kawthoung ports in Tanintharyi Region. Yangon port is the major port of Myanmar which handles more than 90% of the imports and exports of the country. Moreover, there are Deep Sea Ports in Myanmar. Dawei Deep Sea Port Project and Kyauk Phyu Deep Sea Port Project (*Port Information | Myanma Port Authority*, n.d.). All of these ports are critical for Myanmar's economic growth.

Having awareness of the importance of maritime trade and economic growth in Asia, the ten member states of the Association of Southeast Asian Nations (ASEAN) has the ambition to minimize delays and paperwork in trade by the use of the National Single Window (NSW) concept (ASEAN, 2006) that all members of ASEAN should introduce as part of the ASEAN Economic Community (AEC) (Walsh, 2015). In compliance with the progress of NSW, ASEAN countries are highly expected to develop information systems for port administrative procedures (Shibasaki, 2018). Myanmar is one of the Southeast Asian Nations and by the realization of the AEC blueprint to implement Single Market Production Base, the government decided to implement the Port EDI project in Yangon Port which will serve as the groundwork to join the ASEAN Single Window Initiative (About Port-EDI | Myanma Port Authority, n.d.). The information system that processes port administrative procedures which include port entry and departure, requests for berthing and other port related information between private and public sectors is called the port EDI system. The port EDI system provides a one-stop service for port administrative procedures. Therefore, the port EDI system can be a single window (SW) system when integrated with other management information systems in the maritime shipping industry (Shibasaki, 2018).

Moreover, Myanmar is also one of the seven-member states of BIMSTEC (The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation) which was founded on the 6th of June 1997 with the signing of the Bangkok Declaration. The seven-member states are Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka, and Thailand. Myanmar joined BIMSTEC on the 22nd of December 1997. One of the major seven sectors for cooperation among the member states in BIMSTEC is the ‘Connectivity’ sector which is formerly known as the ‘Transport and Communication’ sector. The BIMSTEC master plan for Transport Connectivity represents a ten-year strategy and action plan from 2018 to 2028 and is supported by the Asian Development Bank (ADB). The reason is to improve the region’s transport network and promote the well-balanced development of the waterfront facilities (*BIMSTEC*, n.d.). Therefore, Myanmar has the responsibility to follow the BIMSTEC master plan for the ‘Transport and Communication’ sector.

1.2 Trends in Myanmar's Foreign Trade

Myanmar's trade value for both exports and imports has seen significant growth. In terms of exports, natural gas leads the list, accounting for 30% of the total export value, followed by beans, garments, and teak. On the import side, refined mineral oil is the top commodity, followed by non-electric machinery, transport equipment, and base metals and manufactures.

Myanmar’s primary export partners include Thailand, which ranks first, followed by Hong Kong, China, India, and Singapore. The main export to Thailand is natural gas, while precious stones are the primary export to Hong Kong. Myanmar exports a variety of products to China, including precious stones, rubber products, fishery items, and agricultural goods, while India primarily imports pulses, teak, and hardwood.

Regarding imports, China is Myanmar’s leading partner, followed by Singapore, Thailand, Korea, and Indonesia. Myanmar imports non-electric machinery, transport equipment, electrical machinery, and garment materials from China. Refined mineral oil and machinery come from Singapore, while Thailand exports gas oil drilling machines and construction materials. Japan is the primary market for Myanmar's garment industry. In 2009 and 2010, nearly 40% of Myanmar’s garment exports were destined for Japan.

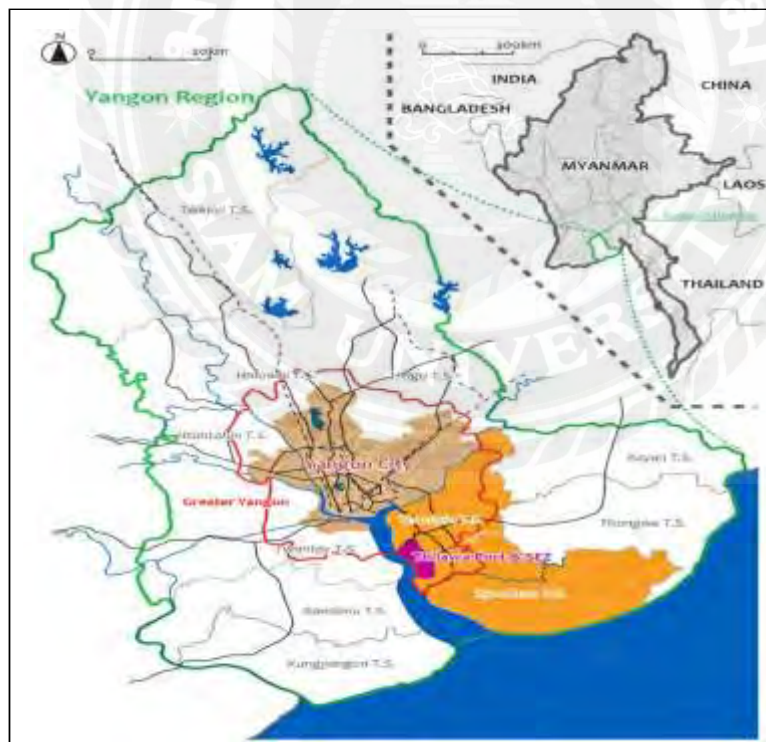
1.3 Strategic Location of the Port

Thilawa Area Port is strategically situated at the intersection of the Greater Mekong Subregion (GMS) economic corridors, including the East-West Economic Corridor, Western Economic Corridor, and Southern Economic Corridor, as well as the Asian Highway (see Figure 1). The port is located in Yangon Region, which consists of 46 townships, as depicted in Figure 2. While 33 of these townships fall under the jurisdiction of the Yangon City Development Committee (YCDC), Thilawa Area Port is situated in Thanlyin and Kyauktan Townships, which are outside of YCDC’s jurisdiction.



Source: JICA

Figure 1: Economic Corridor and Myanmar



Source: JICA

Figure 2: Location of Thilawa Port

Cargo Throughput at Myanmar Ports

The cargo handling volume throughput at Myanmar's ports is detailed in Table 1.

Table 1: Cargo Throughput at Myanmar Ports

		2006	2007	2008	2009	2010	2011
International	Import	5,168,750	5,812,793	5,735,245	9,172,538	11,908,660	14,225,240
	Export	5,146,594	5,541,104	8,122,714	11,146,486	7,146,366	9,059,520
	total	10,315,344	11,353,897	13,857,959	20,319,024	19,055,026	23,284,760
Coastal	Unload	937,622	929,259	814,511	760,640	1,027,881	1,101,651
	Load	1,115,308	1,134,394	1,114,189	1,140,100	1,372,667	1,309,746
	Total	2,052,930	2,063,653	1,928,700	1,900,740	2,400,548	2,411,397
Total		12,368,274	13,417,550	15,786,659	22,219,764	21,455,574	25,696,157

Source MPA

1.4 Problem of the Study

There is an urgent need to address the problems caused by not having an effective management information system in the maritime industry. The lack of a management information system in the maritime industry in Myanmar made its major setback in the maritime field. Presently, procedures for logistics management and port cargo handling in Myanmar are operated by the conventional paperwork and basic way of data processing resulting in the cargo staying in the port area for over one week or more making a significant economic loss for all the stakeholders. Moreover, most of these procedures and the documents application related to port arrival or leaving are done by passing by hand between the concerned parties. This kind of procedure takes time for the approver to get information and this would be one of the reasons for the delay. Before the arrival of a vessel at the port, some information is needed for preparation and it has to be obtained in advance. The information is transmitted by telephone, Fax, and email. However, the data entry work is duplicated and difficult for reusing data because the information is not gathered and saved in the database. To solve this problem, the Myanmar Ministry of Transport and Japan cooperated and the ministry asks for grant aid for the Port EDI system from Japan in August 2013 which would reduce the processing time of application and notification to be sent to the port authority. Implementing the Port EDI system in Yangon Port makes the processes of Maritime logistics management in Yangon port more effective and efficient than before. However, there is a Port EDI system in Yangon Port only and other ports of Myanmar are still lacking the system to manage the maritime-related processes (JICA, 2015).

There is increasing concern that maritime pilots are being disadvantaged by not having effective MIS. According to a survey by (Oldenburg et al., 2021), Maritime pilots need twenty-four-hour standby to navigate ships through challenging sometimes difficult waterways which is a very stressful working situation. Moreover, it is important to consider maritime pilots' safety behavior such as maritime pilots' mental health, psychological health consultation, and safety training which are maritime pilots' risky behavior (Xu et al., 2021). Without effective management information systems, maritime pilots have to deal with stress and strain because of poor management in maritime logistics. As maritime pilots are also key stakeholders, it would be beneficial a lot for them if there is effective management by using MIS.

Another problem to be investigated is corruption. The maritime industry remains vigilant to corruption and there are still many corruption challenges in the maritime field. Many stakeholders exist in the transportation of cargo and so chances for corruption increase. In addition, numerous port calls, limited supervision of ports in developing nations, unfamiliar maritime laws, and different bureaucracies faced by ships, officers, crew, and agents lead to corruption in the maritime industry. Corruption can also occur in custom processes, chartering, and procurement processes (DiDomenico, 2021).

Maritime security is one of the most frequently stated problems with the maritime industry. Therefore, maritime security has already become one of the major areas to prioritize for many countries. The development and security of many coastal countries are challenged by piracy, trafficking, and environmental crime at sea (Bueger et al., 2020). Vessels information can be tracked and traced in Port EDI systems and MIS. This could help identify the ships and help prevent the vessels from coming to port for their security. The system could also identify the ships which are in an emergency and prevent environmental crimes at sea.

1.5 Objective of the Study

This research examines the emerging role of Management Information Systems in the context of Maritime Logistics Management. This study aims to contribute to this growing area of research by exploring Port EDI systems and various researched systems in the maritime industry.

The specific objectives of this study are:

To examine the Management Information System for Myanmar's ports and maritime logistics industry, Yangon Port and its Port EDI system benefits.

To give recommendations on designing and developing the effective Management Information System in the future based on the findings and analysis of the study.

1.6 Scope of the study

This study was documentary research which analyzed the secondary data from journals, related websites from government bodies such as Myanmar Port Authority, articles, books, survey report papers relating to maritime industry and management information systems, previous research findings, and the port surveys done by the agencies such as the Japan International Cooperation Agency (JICA), which has helped a great deal in the implementation of the Port EDI system in Myanmar's maritime logistics industry.

1.7 Significance of the Study

The significance of this study is how information systems such as Port EDI Systems and Management Information System (MIS) can support maritime logistics management in Myanmar. The importance and originality of this study are that it explores various management information systems used in the field of maritime shipping logistics and Port EDI Systems of the leading country in this field such as Japan, Korea, and Singapore for the development of Myanmar's maritime industry. Therefore, this study makes the contribution to research on MIS for Myanmar's maritime logistics by demonstrating the benefits of using Port EDI System in Yangon Port and the experiences of maritime logistics management in leading countries. The study also highlights the possible benefits for logistics operations, maritime pilots, and

maritime security from introducing the Port EDI System and MIS in Myanmar. Moreover, the study make a contribution to the future development of the Single Window (SW) System of Myanmar.



Chapter 2 Literature Review

2.1 Maritime Logistics Management

The maritime logistics and shipping business have been essential to the development of economic activities because business transactions and trade rely on ships to transport cargoes. Hence, the movement of goods through maritime transportation is the economic lifeblood of many countries (Lun et al., 2010). According to (Yi, 2019), the port is the major center for maritime logistics being the focal point for modern commodity collection and scheduling transportation and ports efficiencies are important as it will affect the competitiveness of all the enterprises in maritime logistics and supply chain. Maritime logistics management directly indicates the status of a country's maritime transport. Shipping logistics enterprises can offer the satisfaction of customers by improving the logistics service systems (Zhao, 2020).

Maritime and shipping market is important to economic development that the two-way interaction between developments in shipping and developments in the world economy are intertwined and cannot be separated. Therefore, the strategic importance of the maritime and shipping industry cannot be underestimated as seaborne trade is at the apex of the world economy. Moreover, the maritime industry has supported an extraordinary growth of trade for international businesses and newly industrialized countries (Stopford, 2013).

From the strategic point of view, maritime transportation is the most important part of the logistics system because if maritime transport is not well integrated into the entire logistics stream, this may result in unnecessary waiting and additional costs. Besides, maritime transport serves as a bridge between all the units in the logistics network including customers, suppliers, other channels, and stakeholders. Maritime transportation is the most preferred and important type of logistic and global supply chain management under the influence of international trade and the global economy (Yorulmaz & Birgün, 2017).

2.2 Maritime Logistics Industry in Myanmar

Myanmar's logistics infrastructure needs to increase in investment vividly. The reason is most of the logistics infrastructure of Myanmar was established during the British colonial era. Myanmar also needs to have policy simulations proposed on its logistics infrastructure guaranteeing the effective use of limited resources to improve the national economy (Yamaguchi et al., 2021). To measure Trade Logistics, there are six key import components which are Customs, Infrastructure, Tracking and Tracing, Ease of international shipments, Logistics Services Quality, and Timeliness. Better logistics management can reduce trade costs, help nations to compete globally, and increase competitive advantage as logistics is the backbone of the trade (*Logistics Performance Index World Bank*, n.d.).

ASEAN countries have successfully established the ASEAN Economic Community (AEC), and to fully capitalize on its benefits, the member states are currently focusing on improving "Connectivity" in the region to ensure the free movement of people, goods, and capital. However, Myanmar lags behind in terms of connectivity within the Mekong region (comprising Cambodia, Lao PDR, Myanmar, Thailand, and Vietnam) and ASEAN. According to the World Bank's Logistics Performance Index (LPI) for 2016, Myanmar ranked 113th globally, the second lowest in the Mekong region after Lao PDR, with Cambodia, Vietnam, and Thailand ranking higher at 73rd, 64th, and 45th, respectively. (*Country Score Card: Myanmar 2018 | Logistics Performance Index*, n.d.). As such, improving "Connectivity" is crucial for Myanmar's sustainable economic development, particularly by leveraging the

development potential of the Greater Mekong Subregion's East-West Economic Corridor (EWEC) and Southern Economic Corridor (SEC), which can help drive investment and industrial growth along these corridors.

Table 2: World Bank Logistics Performance Index 2016

Country	LPI Rank		Customs		Infrastructure		International shipments		Logistics competence		Tracking & tracing		Timeliness	
	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Thailand	45	3.26	46	3.11	46	3.12	38	3.37	49	3.14	50	3.2	52	3.56
Vietnam	64	2.98	64	2.75	70	2.7	50	3.12	62	2.88	75	2.84	56	3.5
Cambodia	73	2.8	77	2.62	99	2.36	52	3.11	89	2.6	81	2.7	73	3.3
Myanmar	113	2.46	96	2.43	105	2.33	144	2.23	119	2.36	94	2.57	112	2.85
Lao PDR	152	2.07	155	1.85	155	1.76	148	2.18	144	2.1	156	1.76	133	2.68
India	35	3.42	38	3.17	36	3.34	39	3.36	32	3.39	33	3.52	42	3.74
Bangladesh	87	2.66	82	2.57	87	2.48	84	2.73	80	2.67	92	2.59	109	2.9
China	27	3.66	31	3.32	23	3.75	12	3.7	27	3.62	28	3.68	31	3.9

Source: Logistics Performance Index (LPI) 2016, World Bank

2.3 System Implementation for Connectivity

The connectivity issues are analyzed by comparing Myanmar with other countries in the Greater Mekong Subregion (GMS). The comparison table below outlines the current cargo clearance systems in GMS countries.

In Myanmar's case, an electronic cargo clearance system has been introduced, but it has not yet been implemented nationwide. The Port EDI system is in place, and the Myanmar Automated Customs Clearance System (MACCS) is designed to connect with the National Single Window (NSW). As Myanmar continues to develop its systems, it is expected to catch up with neighboring countries and improve its position in the World Bank's Logistics Performance Index (LPI).

Table 3: Comparison Table of Clearance Systems and Procedures with GMS Countries

	Myanmar	Thailand	Vietnam	Lao PDR	Cambodia
Electronic Cargo Clearance System (CCS)	MACCS (Nov. 2016 -)	E- Customs (Jan. 2007 -)	VNACCS (Apr. 2014 -)	ASYCUDA – World (2011 -)	ASYCUDA – World (Jan. 2008 -)

CCS Implemented area	Yangon port area and Yangon airport	Nationwide	Nationwide	11 clearance offices	Nationwide
Port EDI	Implemented at Yangon port	Yes	Yes	N/A (the inland country with no seaports)	Planning to implement at Sihanoukville and Phnom Penh new port
Advance ruling system	Yes	Yes	Yes (but not functioning sufficiently)	Yes (but not functioning sufficiently)	Yes
Post clearance audit	Planning to implement	Yes	Yes	Yes	Yes
AEO	Planning to implement	Yes	Similar system implemented	N/A	Similar system (Best Trader: June 2014 –)
NSW	No	Yes	Yes (partially, by 2020 full)	No (partially customs and bank)	No
ASW	No	Test operation	Test operation	No	No
SSI	Planning at Myawaddy with Thailand	Preparing CCA with Lao PDR at Mukdahan border check point	Implemented at Lao Bao border with Laos	Implemented at Dansavang with Vietnam, Preparing at Thailand border Savannakhet	No

Source: Daiwa Institute of Research Ltd. Myanmar part updated by the JICA survey team

2.4 Yangon Port Development

Improvements in port infrastructures are important to reduce maritime transport costs. Hence, with the help of local and foreign investment, port development at Yangon and Thilawa port area are carried out (S.N.S. Thein, H. L. Yang, 2019). Currently, international cargoes are handled at existing port facilities of Yangon Main Port which are Asia World Terminal, MIP Terminal, Sule Terminal, Bo Aung Kyaw Terminal, and Inland Container Depots. However, expansion of facilities in Yangon Main Port Area is not possible due to the limited land area. Therefore, to handle the future increasing cargo new port facilities are constructed at Thilawa Area Port in Yangon because it has got deep water and a wider land area (JICA, 2014).

2.5 Deep Sea Ports and Special Economic Zones Development

Deep-Sea Ports and Special Economic Zones development plays one of the strategic roles for Myanmar Maritime logistics industry development. In this part, strategic deep seaports of Myanmar Kyaukpyu Deep Sea Port, Kaladan Multi-Modal Transit Transport Project, and Dawei Mega Project are reviewed.

Kyaukpyu deep seaport is constructed by the Ministry of Energy and South East Asia Pipeline Company-CNPC of China are being taken Joint-Venture. The project is located in Made Island, Kyauk Phyu Township, Rakhine State. It starts construction on 31st October 2009. Moreover, the construction of the Crude Oil Terminal was implemented on 1st April 2011 and completed on 31st May 2013. Crude Oil Terminal can accommodate oil tankers of DWT 300,000 vessel with a draft of 22 meters, LOA 300 meter and 60-meter width (*Kyaut Phyu Port | Myanma Port Authority*, n.d.) (Hong, 2011).

Kaladan Multi-Modal Transit Transport Project is located Along the Kaladan River from Sittwe Port to Mizoram, India. The project objective is to facilitate the cargo transport to Mizoram through Rakhine State and the border of Myanmar and India. The project was signed in New Delhi, India on 2nd April 2008. Project execution includes the Development of Sittwe Port and Kaladan River, allocation of navigation aids along the Kaladan River from Sittwe to Paletwa, and construction of road link from Palatwa to India Myanmar border. The project cost is US\$ 117.38 Million. Progress of pre-engineering works includes a hydrographic survey for navigation Channel and Sittwe harbor. Construction of road link from Palatwa to India Myanmar border (*Ministry of Development of North Eastern Region, North East India*, n.d.).

Dawei deep seaport and special economic zone project is located in Tanintharyi Region, Dawei District, Yephyu Township, Nabule District, the mouth of Pantinn creek, near the Ngapitat village, Myanmar. The company for execution is ITALIAN THAI DEVELOPMENT PUBLIC CO., LTD. However, ITD was stripped of its position as the sole developer of the project in 2013 after failing to attract enough investment. Myanmar granted the contract led by ITD in August 2015 and March 2016 again. Thailand and Myanmar also asked Japan to become third-party investors in the project. Japan finally agreed to involve in the project as the equal partner with Myanmar and Thailand and pledge technical and financial support for the project (*Deep Sea Port | Myanma Port Authority*, n.d.) (*Thai PBS News*, n.d.).

2.6 Privatization of the Port Sector

To modernize the logistics industry of Myanmar, MPA started transferring the construction and operation of terminals to the private sector in the late 1990s. The aim is to promote privatization of state enterprises in line with the government policy and to reduce the enterprises which are suffering from underutilization, lack of technological modernization, uneconomical use of inputs, etc. In Myanmar, privatization is done on a project basis and approved by the Privatization Commission. Therefore, several companies are operating the port terminals along the Yangon River (JICA, 2014).

2.7 Management Information System (MIS)

Recently, researchers have shown an increased interest in Management Information Systems in the Maritime industry. Recent developments in the field of management information systems have led to a renewed interest in systems to apply in the maritime industry. Evaluation systems such as Analytic Hierarchy Process (AHP) can offer evaluation systems for shipping efficiency in logistics (Chen, 2019). Tracking and tracing systems become a

fundamental component in the shipping and logistics sector. Constant supervision and management are needed in logistics tracking and tracing so that it would be effective for dynamic logistics management these days (Garg et al., 2021).

Systems such as Multi-ARPA (MARPA) concept can support the navigator onboard ship for safe headings while encountering other ships. Using adopting multi-level or binary classification, the system may evaluate and visualize safe heading (Ozoga & Montewka, 2018). Marine enterprise's information management system in (Levchenko, 2011) can do the high speed of data processing, keeping up a connection between events, reducing processed information volumes which are of great help. An automatic Matching System for Ocean-going Cargo can auto-match the cargo in international logistics based on fuzzy scheduling and wireless sensor communication networking technology (Liang, 2019). In addition, port emergency logistics distribution systems can reduce the adverse effects and impacts such as economic loss caused by emergencies that occurred in ports (Yang et al., 2020).

Information Management systems such as Financial Accounting system in (Lin, 2019) of a shipping company which is based on ERP and design the business flow in detail supporting more efficient information system aimed at the financial management of the shipping industry. Coastal line passenger traffic management systems (Rathman et al., 2016) can access and interact with the coastal transport service system and ensure the automatic data exchange and interaction and support to be efficient in transport service and the overall national economy. Logistics monitoring systems (Jiang et al., 2020) integrate the warehousing and distribution logistics process and based on the wireless sensor network software and hardware platform build a monitoring system framework combining sensor network and big data.

2.8 Port EDI System

Port EDI system is an electronic system that involves various application procedures for the management of Port Authority in the process of port arrival and leaving, allocation, billing, and statistics management (JICA, 2015).

In Port EDI System review, overseas Port EDI systems and Myanmar Port EDI system are reviewed.

2.8.1 Japan

The Kobe Chamber of Commerce & Industry requested the Japanese Prime Minister to facilitate the port-related administrative procedures in 1996 and the Japanese government provided those procedures paperless in 1997. The Ministry of Transport established a port EDI in 1999. In 2003, the government of Japan introduced the single window (SW) make collaboration among the port EDI, the customs clearance system, and the immigration system. In 2008, it becomes a single system by integrating these systems with the import/export restriction systems. The system is called the Nippon Automated Cargo and Port Consolidated Systems (NACCS). The port EDI system can be called the NACCS Port Subsystem as the system became one feature of the NACCS after the system integration. The private sector can submit the data to multiple public offices by a single input and submission through the process of the port EDI system in Japan (Shibasaki, 2018).

2.8.2 Korea

Korea Customs Service (KCS) successfully implemented Electronic Data Interchange (EDI) system in 1998 after the long effort since 1992. The system can process electronically for all clearance-related applications and declaration documents with effective transportation management. The system is called UNI-PASS. It is connected and utilized by about 110 thousand businesses. The stakeholders who use the system include import-export companies, banks, and logistic businesses such as shipping companies, airlines, carriers, forwarders, and warehouse operators. The internet clearance portal system is established in 2004. The portal system also includes a Single Window System in which clearance-related applications can be assessed with just a single-entry point. The system is developed for the benefit of both the trading community and government agencies (Service, 2010).

2.8.2 Singapore

Singapore is home to one of the busiest ports in the world. To have better port management, Singapore has implemented the Port EDI system. To look back on how Singapore developed its Port EDI System, Trade Development Board (TDB) was established in 1983. TDB processed 10,000 documents daily in 1986. However, it has been found out that growing trade with paper-based administration was infeasible. Therefore, Singapore has done an institutional approach to developing the system. Firstly, a steering committee that includes all relevant CEOs of involved public agencies and associations is formed. Then, Singapore Network Services Pte Ltd which involve TDB, SingTel, PSA, CAAS shareholders) is established. It took two years to develop the system and SGD 50 million are launched in January 1989. By 1992, thirty public agencies are linked to the system. By 1994, 99 percent of trade declarations are taking place through the system (*Port Community System – Singapore Experience*, n.d.).

2.8.3 Myanmar

Myanmar, as a member of Southeast Asia, is working towards achieving the ASEAN Economic Community (AEC) blueprint, which aims to establish a Single Market Production Base. The Port EDI system is essential for Myanmar's integration into the ASEAN Single Window Initiative, which will link the country's National Single Window to the global economic framework. To advance this, the Myanmar government, with assistance from Japan, decided to implement the Port EDI Project. An Exchange of Notes (EN) between Myanmar and Japan was signed on March 19, 2015, followed by a Grant Agreement between the Myanmar Port Authority (MPA) and the Japan International Cooperation Agency (JICA) on March 26, 2015. Mitsubishi Research Institute Inc. (MRI), a leading consulting and IT solutions company, was selected as the project's consultant. MPA, in collaboration with MRI, conducted a preliminary study and survey in August 2014, after which Hitachi Solutions Ltd., a global technology leader, was chosen to develop the system. From October 2015 onwards, MPA staff and MRI experts worked together to design the Port EDI system with expert guidance. Despite the challenges faced by all stakeholders, the system was successfully implemented at Yangon Port. (About Port-EDI | Myanmar Port Authority, n.d.).

Chapter 3 Research Methodology

3.1 Introduction

This research aimed to explore the emerging role of Management Information Systems (MIS) in the context of maritime logistics management in Myanmar, with a specific focus on the Port Electronic Data Interchange (Port EDI) system. The research investigated the benefits, challenges, and impacts of the Port EDI system on Myanmar's maritime logistics, contributing to the development of effective management information systems in the sector. In order to gain a comprehensive understanding of the implementation and effectiveness of the Port EDI system, the study adopted a qualitative research design. Qualitative methods allow for a deeper exploration of individual experiences, perceptions, and insights regarding the system's impact on logistics operations, transparency, security, and efficiency.

3.2 Research Design

This research followed a qualitative research design, which is particularly suited to understanding complex social phenomena, such as the implementation and benefits of the Port EDI system in Myanmar's maritime logistics sector. Qualitative research focuses on collecting non-numerical data, enabling an in-depth exploration of participants' experiences, perceptions, and perspectives. Through in-depth interviews with stakeholders involved in the Port EDI system, this study generated rich, detailed data about the system's impact on logistics operations, operational efficiency, transparency, cost reduction, and security in Myanmar's maritime industry.

3.3 Population and Sample

3.3.1 Target Population

The target population for this study included professionals and stakeholders directly involved in the management and operation of Myanmar's maritime logistics sector. This included individuals who work at Yangon Port, the country's primary port, as well as those involved with the Myanmar Port Authority (MPA), customs agencies, shipping companies, terminal operators, and other logistics-related services. These individuals were considered key informants who possess valuable insights into the functionality, benefits, and challenges of the Port EDI system.

3.3.2 Sampling Unit

The sampling unit refers to the individual participants who were selected for the study. These participants included key professionals and stakeholders actively engaged with the Port EDI system in Myanmar's maritime logistics sector. This included staff from the Myanmar Port Authority, representatives from shipping companies, customs officers, terminal operators, and maritime pilots.

3.3.3 Sample Size

The sample size for this research was set at 20 participants. This number was considered appropriate for a qualitative study, as it allowed for a comprehensive exploration of diverse viewpoints while maintaining the depth and richness of the data. Each participant provided

detailed insights based on their specific role in the Port EDI system, allowing the research to explore the system's impact from multiple angles.

3.3.4 Sampling Procedure

A purposive sampling technique was used to select the participants for this study. Purposive sampling is a non-probability sampling method where participants are chosen based on their knowledge, experience, and involvement with the Port EDI system. The researcher identified individuals who were directly involved in the operation and management of the Port EDI system in Myanmar's maritime logistics sector. This method ensured that the sample consisted of individuals with relevant expertise and experience to provide valuable insights for the study.

3.4 Research Instrument

The primary data collection method for this study was in-depth interviews. In-depth interviews are particularly effective for qualitative research as they allow for the collection of rich, detailed information from participants. The interview guide was semi-structured, containing open-ended questions designed to explore participants' experiences, perceptions, and insights about the Port EDI system. The questions focused on topics such as:

- The implementation process of the Port EDI system
- The perceived benefits of the system for port operations, customs clearance, and shipping efficiency
- The impact of the system on cost reduction, transparency, and security
- Challenges encountered during the implementation and usage of the system
- Suggestions for improving the system in the future

The interviews were conducted face-to-face or via digital platforms, depending on the availability and preferences of the participants. Each interview was recorded, transcribed, and analyzed for thematic patterns and insights. The following are some interview questions designed to gather insights on the benefits of the Port EDI (Electronic Data Interchange) system:

General Understanding and Awareness

1. How familiar are you with the Port EDI system implemented at Yangon Port and its benefits?

Operational Efficiency

1. How has the Port EDI system improved the efficiency of cargo handling and clearance processes at the port?
2. How has the system affected the overall turnaround time for ships at the port?

Cost-Effectiveness

1. Do you believe the Port EDI system has helped reduce operational costs for shipping agents, port authorities, and terminal operators?

Transparency and Security

1. Has the Port EDI system improved transparency in port operations and cargo handling? If yes, how?

2. In terms of security, do you think the Port EDI system has helped in preventing fraud or errors in customs clearance and cargo handling?

Integration and Connectivity

1. How well does the Port EDI system integrate with other national systems such as the Myanmar Automated Customs Clearance System (MACCS)?
2. Can you describe any challenges or successes in connecting the Port EDI system with international shipping systems and stakeholders?
3. Has the system enhanced the communication and coordination between different stakeholders (port authorities, customs, shipping agents, etc.)?

Impact on Maritime Security and Pilots

1. Has the Port EDI system had an impact on maritime safety and security at Yangon Port? If so, can you elaborate?
2. In your view, has the Port EDI system played a role in reducing corruption or unethical practices among maritime pilots and port staff?

Long-Term Benefits and Future Potential

1. What long-term benefits do you foresee for Myanmar's maritime logistics sector as a result of the Port EDI system?
2. How do you see the Port EDI system helping Myanmar in improving its rankings in the World Bank's Logistics Performance Index (LPI)?
3. What improvements or additional features would you suggest to further enhance the effectiveness of the Port EDI system?
4. Do you think the Port EDI system can be expanded to other ports in Myanmar? If so, how could this expansion improve the overall maritime logistics infrastructure?

These questions are designed to understand the impact of the Port EDI system on operational efficiency, cost savings, transparency, security, and long-term improvements in Myanmar's maritime logistics sector.

3.5 Data Collection

3.5.1 Qualitative Interviews

The data collection for this study was primarily conducted through in-depth qualitative interviews. These interviews provided a platform for participants to share their experiences, insights, and perspectives on the Port Electronic Data Interchange (EDI) system and its impact on Myanmar's maritime logistics sector. Qualitative interviews are ideal for exploring complex topics where participants' subjective experiences and perceptions are key to understanding the research question.

3.5.1.1 Interview Process

The interviews were semi-structured, meaning the interviewer used a set of open-ended questions to guide the conversation while allowing flexibility for participants to share their opinions freely. The interviews were conducted with stakeholders directly involved in the operation, implementation, and usage of the Port EDI system in Myanmar.

Table 4: Interview Focus

Participant Role	Interview Focus
Myanma Port Authority (MPA) Staff	Overview of system implementation, operational challenges, and internal benefits
Customs Officials	Impact on customs clearance procedures and efficiency
Terminal Operators	Insights on cargo handling, invoicing, and operational improvements
Shipping Agents	Experiences with the Port EDI system, customs procedures, and logistics operations
Maritime Pilots	Views on vessel management, berth allocation, and system integration for port safety
IT System Developers/Consultants	Technical insights on the system's design, functionality, and integration challenges
Logistics Managers	Perceived impact of the system on logistics efficiency, cost reduction, and security

3.5.2 Data Collection Procedures

Selection of Participants: Based on purposive sampling, the research identified key stakeholders involved with the Port EDI system in Myanmar. These included Myanma Port Authority staff, customs officers, terminal operators, shipping agents, maritime pilots, and IT system consultants.

Scheduling and Consent: Once the participants were identified, the researcher contacted them to schedule the interviews at their convenience. Before the interview, participants were informed of the study's purpose, and their consent was obtained. They were also informed that participation was voluntary, and that they may withdraw at any time without consequence.

Conducting Interviews: The interviews took place either face-to-face or through online platforms such as Zoom or Skype, depending on the participant's location and availability. Each interview lasted between 30 to 60 minutes, allowing ample time for participants to provide detailed responses.

Recording and Transcription: Interviews were audio-recorded with the participants' consent. Afterward, the researcher transcribed the recordings verbatim to ensure that no details were missed and to facilitate analysis.

Data Analysis: The interview data were analyzed using descriptive analysis to identify patterns and correlations.

3.6 Ethical Considerations

Ethical considerations are crucial in ensuring that the research process is conducted with respect for participants' rights and well-being. The following ethical guidelines were adhered to throughout the research:

Informed Consent: All participants were informed of the purpose of the study and their role in it before the interview. Written consent was obtained to ensure that participants understand their rights and agree to participate voluntarily.

Confidentiality: Participants' personal information and responses were kept confidential. No identifiable information was used in the analysis or publication of the results. Pseudonyms were used for all participants in the final report to ensure anonymity.

Voluntary Participation: Participation in the study was entirely voluntary, and participants had the right to withdraw at any time during the interview or before data analysis began, without any penalties or negative consequences.

Right to Privacy: The privacy of participants was respected. Only the researcher and the research team had access to the raw interview data, and this data was stored securely.

Transparency and Honesty: The researcher were transparent with the participants about the nature and purpose of the study, and the results were reported honestly, regardless of whether they supported the initial hypothesis or not.

3.7 Limitations

While this research aims to provide valuable insights into the Port EDI system's benefits and challenges in Myanmar's maritime logistics, there are several limitations to consider:

Limited Scope: The study focuses solely on the implementation of the Port EDI system in Myanmar and may not fully capture the broader, global context of port EDI systems, potentially limiting the generalizability of the findings to other regions or countries.

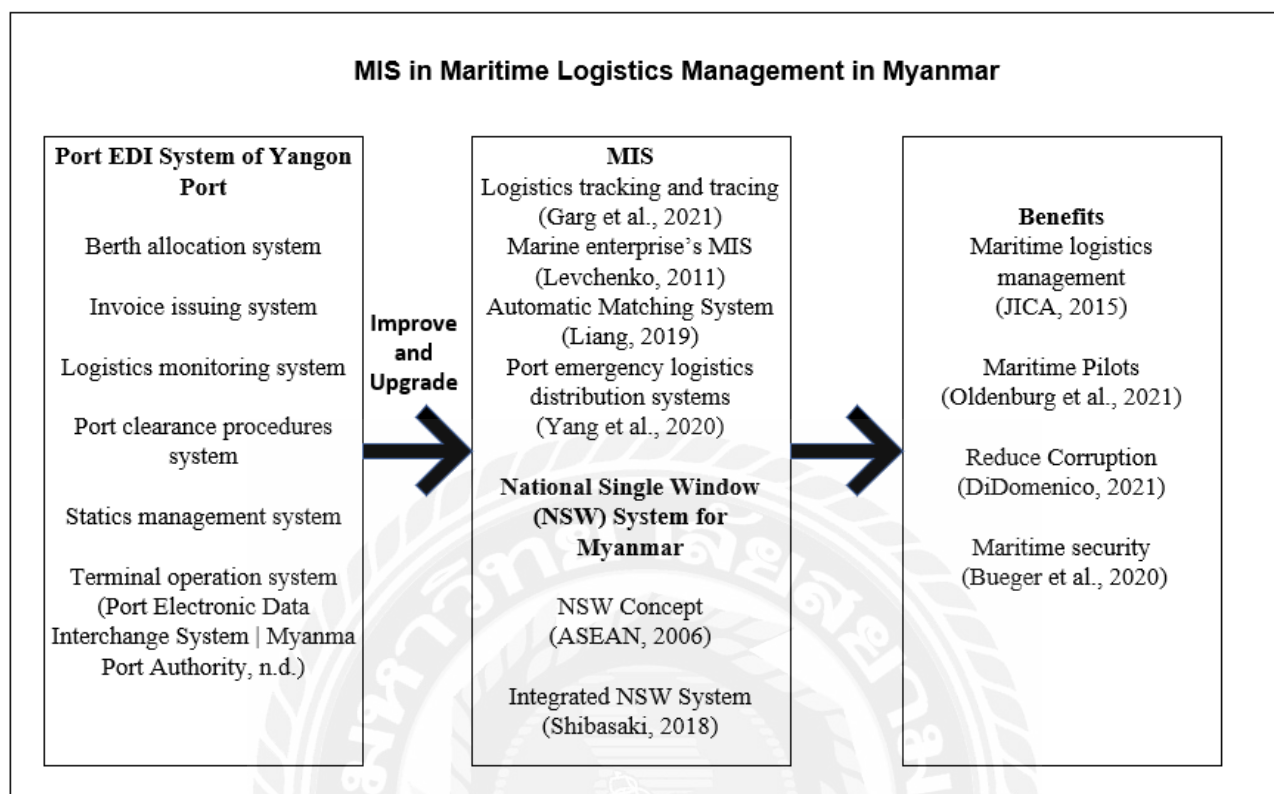
Sample Size: The sample size of 20 participants is relatively small and might not fully represent the views of all stakeholders in the maritime logistics sector. However, the in-depth nature of the interviews and purposive sampling method will allow for rich insights from the key individuals involved.

Subjectivity in Responses: As qualitative research relies on personal experiences and perceptions, the findings may reflect individual biases or subjective opinions, which could influence the interpretation of the results.

Language and Communication Barriers: Interviews may be conducted in both Burmese and English and language barriers could influence the clarity of responses or limit the depth of insights.

Chapter 4 Findings

4.1 Descriptive Analysis



interviews with key stakeholders, including port authority representatives, customs officers, terminal operators, shipping agents, maritime pilots, logistics managers, IT system developers, and consultants, several key findings have emerged. The findings reveal that the Port EDI system has brought significant benefits across various aspects of port operations, including efficiency, maritime safety, security, and governance.

Benefits of Port EDI Systems

The Port EDI system in Yangon Port has substantially improved operational efficiency by automating key processes such as berth allocation, invoicing, and port clearance. This automation reduces manual errors, accelerates processing times, and enhances port management overall, contributing to a smoother flow of logistics operations. These improvements have helped reduce bottlenecks, streamline cargo handling, and strengthened Myanmar's competitiveness in both regional and global trade.

Benefits for Technological Integration with MIS

Technological integration, particularly the use of tracking and tracing systems, has been crucial for enhancing the operational capabilities of maritime logistics. These systems help monitor cargo and vessel movement effectively, reducing the likelihood of theft, fraud, or misplacement of goods.

Furthermore, integrating management systems such as financial accounting, emergency logistics, and tracking systems has enhanced the operational efficiency of maritime logistics. These integrated systems, which have been used successfully in countries like Japan, Korea,

and Singapore, can be adapted to strengthen Myanmar's maritime logistics resilience. For example, port emergency logistics systems can mitigate crises, minimize economic losses, and improve response times, further improving the country's port operations.

Benefits for Maritime Logistics Management

From a logistics management perspective, the Port EDI system has proven highly effective for tracking and managing cargo flow. The system provides real-time information on cargo movements, enhancing transparency, reducing delays, and improving decision-making across the supply chain. With features like cargo tracking via container numbers and bill of lading (BL) numbers, stakeholders can gain better control over cargo, improving operational efficiency and minimizing the risk of losses. Furthermore, the automation of financial processes, such as invoicing, billing, and auditing, ensures more accurate and streamlined operations, contributing to enhanced overall supply chain performance.

Benefits for Maritime Pilots

The implementation of the Port EDI system has also brought significant benefits for maritime pilots. Real-time vessel movement data, including information on arrivals, berth availability, and weather conditions, has greatly improved the coordination of vessel navigation. This data allows maritime pilots to plan safer routes, avoid congestion, and make more efficient pilot assignments, ultimately contributing to smoother and safer maritime operations. By automating pilot assignments based on real-time data, the system reduces the risk of human error, ensuring the safe movement of vessels through busy ports.

Benefits for Reduction of Corruption

In terms of governance and anti-corruption measures, the transparency provided by the Port EDI system has significantly reduced opportunities for corruption. By automating processes such as port clearance, inspection requests, and invoicing, the system minimizes direct human interaction, which reduces the chances for bribery and other corrupt practices. Moreover, the ability of the system to record and store all data electronically creates an audit trail that can be reviewed by relevant authorities, further discouraging illicit activities. This fosters trust among stakeholders and improves the governance of port operations.

Benefits for Maritime Security

The Port EDI system has greatly contributed to enhancing maritime security. The system enables real-time checks on vessel and cargo details, ensuring that all necessary inspections are conducted electronically by relevant agencies such as Customs, the Department of Marine Administration, and Immigration. This reduces the risk of unauthorized or illegal activities within the port. The integration of various security stakeholders into the Port EDI system ensures that critical information is shared promptly and securely, improving security coordination across the port and allowing for quicker responses to potential threats.

Additionally, the Port EDI system ensures compliance with international maritime security standards, contributing to the prevention of criminal activities such as smuggling and human trafficking. This enhanced security framework not only improves the safety of port

operations but also builds confidence in Myanmar's ability to maintain secure, regulated trade activities.

Implementing National Single Window (NSW) system

There are clear opportunities for Myanmar to expand and enhance its use of integrated systems. By fully implementing the National Single Window (NSW) system and improving data-sharing practices, Myanmar can improve its maritime logistics capabilities, enhance trade efficiency, and better integrate into the ASEAN region. Drawing inspiration from successful global examples, such as Japan, Korea, and Singapore, Myanmar has the potential to modernize its port operations further and achieve greater trade competitiveness.

4.2 Summary of Interview Results

The interviews conducted with key stakeholders in Myanmar's maritime logistics sector—such as port authority representatives, customs officers, terminal operators, shipping agents, maritime pilots, logistics managers, IT system developers, and consultants—provided valuable insights into the benefits, challenges, and impact of the Port Electronic Data Interchange (EDI) system at Yangon Port. The interview results highlight several key factors that have contributed to the system's success and the challenges that remain.

The following table summarizes the key factors identified in the interviews, along with the corresponding results and observations:

Table 5: Report of Interview Results

Factor	Results/Observations
Efficiency of Cargo Handling	Interviewees noted a significant reduction in manual processes, speeding up cargo handling and clearance, and reducing the time spent on paperwork. The automation has allowed for quicker turnaround times and reduced delays.
Ship Turnaround Time	The Port EDI system has reduced ship turnaround times by facilitating faster processing of cargo and paperwork, which directly affects port throughput. Stakeholders highlighted the importance of real-time data exchange.
Cost Reduction	Stakeholders observed a decrease in operational costs due to reduced manual labor, fewer errors, and streamlined coordination between various port entities. This led to better resource allocation and cost efficiency.
Transparency and Security	The system improved transparency by offering real-time data sharing among stakeholders, minimizing fraud, and ensuring secure access control to data. Interviewees felt this increased trust and accountability in port operations.
Integration with National Systems	The integration with the Myanmar Automated Customs Clearance System (MACCS) and other national platforms has been largely successful, but some challenges remain with international system integration, especially regarding data standardization.
Communication and Coordination	The centralized platform for data exchange has greatly enhanced communication and coordination between port authorities, customs,

	shipping agents, and terminal operators, minimizing miscommunication and ensuring streamlined operations.
Impact on Maritime Safety	Interviewees emphasized that real-time data access improved ship navigation planning, safety inspections, and coordination, reducing the likelihood of errors and safety risks during port operations.
Reduction in Corruption	Transparency and real-time tracking within the Port EDI system have helped reduce opportunities for corruption. All stakeholders expressed that the system helped ensure accountability and minimized unethical practices.
Long-term Benefits for Myanmar	Interviewees expressed optimism about the long-term benefits, noting that the Port EDI system could increase Myanmar's competitiveness in the global logistics market, attract international trade, and improve the country's Logistics Performance Index (LPI).
Suggestions for Improvement	Suggestions included enhancing real-time tracking capabilities, incorporating predictive analytics for supply chain disruptions, and expanding the EDI system to other ports to standardize operations and boost overall logistics efficiency.

The results from the interviews show that while the Port EDI system has brought substantial improvements in operational efficiency, safety, transparency, and cost reduction, there are still opportunities for enhancing the system, especially in terms of broader integration and real-time data capabilities. Expanding this system to other ports across Myanmar and ensuring smoother coordination with international systems could further improve Myanmar's maritime logistics infrastructure and competitiveness.

Chapter 5 Conclusion and Recommendation

5.1 Conclusion

This study aimed to examine the impact of the Port EDI (Electronic Data Interchange) system on Myanmar's maritime logistics sector, focusing on Yangon Port, and to evaluate the broader implications for the country's economic growth and competitiveness in the global shipping industry. Through interviews with key stakeholders such as port authority representatives, customs officers, terminal operators, shipping agents, logistics managers, and IT developers, several valuable insights were gained regarding the benefits, challenges, and opportunities presented by the implementation of the Port EDI system.

The findings of the study demonstrate that the Port EDI system has significantly improved operational efficiency, reduced turnaround times for ships, and lowered operational costs for various stakeholders involved in port operations. The automation of administrative processes has decreased human errors and minimized delays, leading to faster cargo handling, improved ship scheduling, and more streamlined customs clearance. These improvements have enhanced transparency and security within port operations, fostering greater trust among stakeholders and reducing the risks of corruption and unethical practices.

Furthermore, the integration of the Port EDI system with national and international systems, such as the Myanmar Automated Customs Clearance System (MACCS), has enabled smoother data flows and facilitated timely cargo clearance, though challenges related to international system integration remain. The system's ability to improve communication and coordination among various port entities, including customs, shipping agents, and logistics managers, has resulted in better overall management of port operations. Additionally, the positive impact of the Port EDI system on maritime safety and security has been highlighted, as real-time data enables more effective planning for ship arrivals and departures.

The study also points to the promising long-term benefits of the Port EDI system for Myanmar's maritime logistics sector, particularly its potential to improve Myanmar's ranking in the World Bank's Logistics Performance Index (LPI). An enhanced position in the LPI will improve Myanmar's standing in the global logistics market, attracting more international investment and trade, which will ultimately support the country's economic growth.

Despite these successes, the study identified several areas for improvement. Challenges such as data standardization issues in international integration, the need for expanded training programs for stakeholders, and the importance of further technological advancements such as predictive analytics were highlighted. The study also emphasized the importance of expanding the Port EDI system to other ports across Myanmar to achieve nationwide operational efficiency and competitiveness.

In conclusion, the Port EDI system has proven to be a vital tool for modernizing Myanmar's maritime logistics sector. By continuing to expand and improve the system, leveraging advanced technologies, enhancing stakeholder engagement, and addressing integration challenges, Myanmar can position itself as a competitive player in the regional and global logistics markets. The successful implementation of the Port EDI system at Yangon Port offers a model for further improvements and expansion, with the potential to transform Myanmar's entire logistics infrastructure into a more efficient, transparent, and secure network. The recommendations presented in this study provide a roadmap for achieving these objectives and ensuring the long-term success and sustainability of Myanmar's maritime logistics sector.

Finally, the findings underscore the crucial role of management information systems (MIS) in driving efficiencies, reducing corruption, and enhancing maritime security, and how

such systems can serve as a catalyst for broader economic growth and development in Myanmar.

5.2 Recommendation

Based on the findings of the study, several recommendations are proposed to further improve the Port EDI system and enhance Myanmar's maritime logistics sector. These recommendations focus on addressing identified challenges, optimizing the current system, and expanding its benefits to other regions and stakeholders within the sector. The goal is to continue fostering the growth and modernization of Myanmar's maritime logistics infrastructure while positioning the country as a competitive player in the global logistics market.

5.2.1 Expanding the Port EDI System Nationwide

One of the most important recommendations is the expansion of the Port EDI system beyond Yangon Port to other ports across Myanmar. The successful implementation at Yangon Port provides a solid foundation for scaling the system to other key ports such as Mandalay, Thilawa, and Sittwe. Expanding the EDI system nationwide will standardize operations across different regions, improve connectivity, and streamline port processes throughout the country. This will help reduce inefficiencies and bottlenecks at smaller ports and enhance the overall competitiveness of Myanmar's logistics network.

Action Plan: Myanmar's government, in collaboration with relevant stakeholders such as the Myanmar Port Authority, port authorities, and international partners, should prioritize the rollout of the Port EDI system at additional ports. Dedicated teams should be assigned to tailor the implementation to local conditions while maintaining a uniform system that allows for efficient data exchange.

5.2.2 Enhancing Integration with International Systems

While the integration of the Port EDI system with national systems such as the Myanmar Automated Customs Clearance System (MACCS) has been successful, integration with international shipping systems has encountered challenges related to data standardization and coordination with foreign stakeholders. To strengthen Myanmar's position in the global logistics landscape, further efforts should be made to enhance the system's compatibility with international standards.

Action Plan: Myanmar should work closely with international shipping and customs organizations to align the Port EDI system with global standards, ensuring seamless data exchange and reducing delays in cross-border trade. Workshops, conferences, and collaborations with countries that have advanced EDI systems, such as Singapore, Japan, and Korea, could facilitate this process. Additionally, the development of a common data format and protocols for information exchange would help in addressing data standardization issues.

5.2.3 Introducing Predictive Analytics and Advanced Technologies

The study highlighted the potential benefits of incorporating predictive analytics to anticipate delays and disruptions in the supply chain. By integrating predictive technologies, the Port EDI system can further enhance operational efficiency, reduce unexpected delays, and improve decision-making capabilities. Technologies such as machine learning, artificial

intelligence (AI), and big data analytics can be leveraged to predict potential bottlenecks and optimize cargo flow.

Action Plan: The Myanmar government, in collaboration with IT developers and logistics stakeholders, should invest in advanced technologies like predictive analytics, AI, and IoT sensors to improve the Port EDI system. Developing algorithms that analyze historical and real-time data will help identify patterns, predict disruptions, and offer proactive solutions for smoother operations.

5.2.4 Strengthening Capacity Building and Training Programs

As the Port EDI system becomes more integrated into Myanmar's maritime logistics sector, there is a need to enhance the skills and knowledge of the workforce to effectively manage and operate the system. This includes training port authorities, customs officers, shipping agents, logistics managers, and IT staff in the use of the Port EDI system and associated technologies. Effective training programs will ensure that all stakeholders can maximize the system's capabilities and minimize errors.

Action Plan: The government and relevant agencies should invest in comprehensive training programs for all stakeholders involved in the maritime logistics supply chain. These programs should focus on both technical aspects of the Port EDI system, such as data entry and system integration, as well as soft skills related to communication, collaboration, and problem-solving. Collaboration with international logistics companies and educational institutions could provide best practices and ensure that the training is aligned with global standards.

5.2.5 Fostering Public-Private Partnerships (PPPs)

Public-private partnerships (PPPs) have been successful in other countries in driving technological innovation and enhancing infrastructure development. Myanmar should consider fostering greater collaboration between government entities, private companies, and international partners in the development and expansion of the Port EDI system. This collaboration can lead to increased investment, improved system design, and enhanced operational performance.

Action Plan: The Myanmar government should actively seek partnerships with both local and international companies involved in maritime logistics, technology, and infrastructure development. By leveraging private sector expertise and investment, Myanmar can expedite the development of the Port EDI system and improve its overall effectiveness. In particular, international companies with experience in implementing EDI systems can offer valuable insights and resources.

5.2.6 Strengthening Security Features and Compliance

While the Port EDI system has already improved security by digitizing processes and improving transparency, additional measures should be implemented to strengthen data security and ensure compliance with international maritime security standards. Given the increasing threat of cyberattacks and data breaches, it is crucial to invest in robust cybersecurity measures to protect sensitive data and ensure the safe flow of information across stakeholders.

Action Plan: The government should work with cybersecurity experts to conduct regular audits and vulnerability assessments of the Port EDI system. Implementing additional

encryption, multi-factor authentication, and other cybersecurity protocols will help protect the integrity of the system. Moreover, compliance with international maritime security standards, such as the International Ship and Port Facility Security (ISPS) Code, should be regularly reviewed and updated.

5.2.7 Promoting Transparency and Reducing Corruption

The transparency offered by the Port EDI system is a significant advantage in reducing corruption. To further enhance the system's anti-corruption capabilities, the government should ensure that all transactions and actions are thoroughly audited, and that stakeholders have access to transparent and real-time information. Strengthening oversight mechanisms and creating a culture of accountability is essential for sustaining the system's ethical framework.

Action Plan: Myanmar should establish an independent monitoring body that regularly reviews the use of the Port EDI system and conducts audits to detect any irregularities or corrupt practices. Encouraging transparency in all interactions and making the system accessible to all relevant authorities will foster a stronger culture of accountability. Additionally, awareness campaigns aimed at stakeholders can reinforce the importance of ethical behavior and adherence to regulations.

5.2.8 Enhancing Stakeholder Engagement and Communication

Effective communication among stakeholders is critical for the success of the Port EDI system. Stakeholders, including shipping agents, logistics managers, port authorities, and customs officials, should be regularly engaged to ensure that the system is meeting their needs and addressing their concerns. Periodic feedback loops, workshops, and consultations can help identify areas for improvement and foster a collaborative approach to solving problems.

Action Plan: The Myanmar government, in partnership with port authorities and private sector stakeholders, should establish regular meetings, workshops, and surveys to gather feedback on the Port EDI system. This collaborative approach will help identify issues in real time and enable timely solutions, ensuring that the system continuously evolves to meet the needs of all stakeholders.

Conclusion

The implementation of the Port EDI system at Yangon Port has shown considerable benefits in terms of efficiency, cost reduction, transparency, and security. However, there is significant room for improvement and expansion. By addressing the challenges identified in this study and implementing the recommendations outlined above, Myanmar can enhance its maritime logistics capabilities, improve its global competitiveness, and create a more efficient, secure, and transparent port environment.

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Appendix

Questionnaire

1. How familiar are you with the Port EDI system implemented at Yangon Port and its benefits?
2. How has the Port EDI system improved the efficiency of cargo handling and clearance processes at the port?
3. How has the system affected the overall turnaround time for ships at the port?
4. Do you believe the Port EDI system has helped reduce operational costs for shipping agents, port authorities, and terminal operators?
5. Has the Port EDI system improved transparency in port operations and cargo handling? If yes, how?
6. In terms of security, do you think the Port EDI system has helped in preventing fraud or errors in customs clearance and cargo handling?
7. How well does the Port EDI system integrate with other national systems such as the Myanmar Automated Customs Clearance System (MACCS)?
8. Can you describe any challenges or successes in connecting the Port EDI system with international shipping systems and stakeholders?
9. Has the system enhanced the communication and coordination between different stakeholders (port authorities, customs, shipping agents, etc.)?
10. Has the Port EDI system had an impact on maritime safety and security at Yangon Port? If so, can you elaborate?
11. In your view, has the Port EDI system played a role in reducing corruption or unethical practices among maritime pilots and port staff?
12. What long-term benefits do you foresee for Myanmar's maritime logistics sector as a result of the Port EDI system?
13. How do you see the Port EDI system helping Myanmar in improving its rankings in the World Bank's Logistics Performance Index (LPI)?
14. What improvements or additional features would you suggest to further enhance the effectiveness of the Port EDI system?
15. Do you think the Port EDI system can be expanded to other ports in Myanmar? If so, how could this expansion improve the overall maritime logistics infrastructure?

In-depth interview transcription summary

Interviewee 1: U Ne Aung, Former Managing Director, Myanma Port Authority

1. While Myanmar's infrastructure has made notable strides, particularly with the introduction of the Port EDI system at Yangon Port, there are still gaps, especially in terms of technological integration and nationwide consistency. There is a need for significant upgrades in equipment and automation.
2. The Port EDI system has undoubtedly improved operational efficiency. It has reduced manual errors, minimized processing times, and increased the flow of goods. However, there is still room for improvement in terms of integrating the system across all sectors and ensuring that all stakeholders are fully trained and proficient in using it.
3. The system has reduced clearance times, making it easier to process large volumes of cargo quickly. It's particularly effective in handling customs declarations and entry procedures, which previously took a lot of time and effort. With automation, we have seen a direct reduction in delays and increased overall efficiency.

4. Absolutely. With the Port EDI system, ships can dock, unload, and depart much more efficiently. The system provides accurate information on berth availability, allowing for faster assignments. Real-time data sharing has also minimized paperwork-related delays, contributing to overall shorter turnaround times.
5. The cost savings are significant. The system has reduced the need for paperwork, which in turn reduces human errors and costly mistakes. It has also streamlined coordination between port authorities and other agencies, improving resource allocation and reducing operational costs across the board.
6. The system has provided a more streamlined communication channel, allowing stakeholders to work from a shared data source. This has reduced the chances of miscommunication, ensuring that everyone is on the same page regarding cargo status, documentation, and clearance procedures.
7. The digital record-keeping and real-time data sharing have helped reduce corruption. By automating clearance and other procedures, we've minimized human intervention, which is typically where corrupt practices occur. This system's transparency has fostered greater accountability among port staff and external agencies.
8. The system has played a crucial role in improving security by ensuring that all necessary checks are performed electronically and in real time. It also facilitates the timely sharing of vital information with security agencies, helping to address potential security threats before they arise.
9. The main challenges have included overcoming resistance to change among some staff members, as well as ensuring seamless integration with national and international systems. There are also occasional data standardization issues that can hinder smooth international transactions.
10. The Port EDI system is pivotal to Myanmar's future in international trade. It will help position Myanmar as a more attractive destination for international shipping lines, boosting trade volumes. Additionally, it will improve the country's Logistics Performance Index (LPI), potentially increasing foreign investments.
11. I foresee Myanmar's ports becoming highly automated and integrated with international trade systems. The future will be more connected, with real-time tracking, predictive analytics, and enhanced data exchange across all stakeholders, leading to more efficient and secure port operations.
12. I would suggest incorporating features like real-time cargo tracking to provide more visibility into the movement of goods. Furthermore, the system could benefit from enhanced international integration, ensuring smoother data exchange with global shipping and customs authorities.
13. Myanmar has the potential to become a logistics hub in Southeast Asia, but we must continue to enhance our infrastructure and technology. The Port EDI system will be a cornerstone of this growth, as it aligns Myanmar's port operations with global standards, driving efficiency and improving trade facilitation.
14. I believe the Port EDI system will have a substantial impact on Myanmar's rankings in global logistics performance. The system's efficiency will contribute to better port performance and an improved Logistics Performance Index (LPI), which is crucial for attracting foreign investments and trade.
15. The long-term impact will be substantial, with Myanmar emerging as a competitive logistics hub in Southeast Asia. The system's ability to improve operational efficiency, reduce costs, and increase transparency will position Myanmar to attract more international trade, leading to broader economic growth.

Interviewee 2: U Win Thu Min, Chief Marine Engineer, Myanmar Port Authority

1. Myanmar's maritime logistics infrastructure is improving but still developing, with challenges in outdated equipment and limited facilities for larger ships.
2. The Port EDI system has improved efficiency by automating processes, reducing delays, and optimizing vessel scheduling.
3. The Port EDI system has sped up cargo handling and clearance by automating manual tasks, reducing delays and improving operational flow.
4. Yes, by providing real-time data, the system enables quicker docking, unloading, and departure, reducing vessel turnaround times.
5. The system reduces delays and manual processes, saving costs on fuel, labor, and maintenance.
6. The system enhances communication among stakeholders, providing real-time updates that help coordinate vessel and port operations.
7. By automating processes and logging actions, the system increases transparency and reduces opportunities for corruption.
8. The system enhances security by sharing real-time data among agencies, ensuring timely security checks and reducing risks.
9. Integration with legacy systems and staff training were the main challenges in implementing the system.
10. The Port EDI system will make Myanmar's ports more competitive by improving efficiency and attracting international trade.
11. Port operations will be more automated and efficient, with advanced technologies supporting higher traffic volumes.
12. Adding predictive maintenance features and more comprehensive real-time tracking could enhance the system.
13. Myanmar has great potential as a regional hub, and the Port EDI system will be key to making its ports more competitive.
14. The Port EDI system will improve Myanmar's logistics performance, boosting its global rankings and attracting more international shipping.
15. Long-term impacts include higher port capacity, increased trade, and better safety, security, and environmental standards.

Interviewee 3: U Kyaw Wunna, Warehouse Manager, Myanmar Port Authority

1. I'm very familiar with the system. It improves efficiency by automating processes like vessel scheduling and cargo handling.
2. It has streamlined cargo handling and clearance, reduced manual work and speeded up processing times.
3. It has reduced turnaround times by improving coordination and eliminating delays.
4. It has cut operational costs by automating tasks and reducing the need for manual work.
5. It improves transparency by providing real-time data on vessel and cargo status for all stakeholders.
6. The system minimizes fraud by reducing manual paperwork and automating checks.
7. It integrates well, allowing for smoother customs processing and data synchronization.
8. There were initial challenges with technical compatibility, but we've successfully linked with major international stakeholders.
9. It has improved communication by providing real-time data to all parties involved.
10. It enhances safety by monitoring vessels and ensuring compliance with security protocols.
11. It reduces corruption by increasing transparency and accountability.

12. Long-term, it will increase efficiency, attract investment, and improve Myanmar's competitiveness in global trade.
13. The system will improve operational efficiency, helping Myanmar move up in the LPI rankings.
14. Expanding automation in document verification and improving mobile access could enhance the system's effectiveness.
15. Expanding it to other ports would unify operations, reduce delays, and improve the overall logistics infrastructure.

Interviewee 4: U Myo Nyein Aye, Former IT Manager, Myanma Port Authority

1. Myanmar's maritime logistics infrastructure is gradually improving, with more focus on digitalization and automation, but challenges remain in fully modernizing the system.
2. The Port EDI system is highly effective in automating processes and improving communication between stakeholders, leading to greater operational efficiency.
3. By automating cargo handling and clearance, the Port EDI system speeds up processing, reduces manual errors, and enhances overall logistics efficiency.
4. The Port EDI system helps reduce vessel turnaround time by streamlining documentation and data sharing, leading to faster ship arrivals and departures.
5. The system reduces operational costs by automating manual tasks, leading to more efficient use of resources and reduced error correction costs.
6. Real-time data exchange improves coordination between stakeholders, ensuring seamless communication and better decision-making, thus enhancing port operations.
7. The Port EDI system enhances transparency by digitizing processes, which limits the potential for corrupt practices and increases accountability across port operations.
8. The system improves port security by providing accurate, real-time data for better coordination among security agencies, ensuring safer cargo handling and vessel movements.
9. Integration with legacy systems and ensuring system compatibility across different port stakeholders have been the primary challenges during implementation.
10. The Port EDI system supports growth by enhancing operational efficiency, attracting more international trade, and positioning Myanmar as a competitive trade hub.
11. Future operations will become more automated and data-driven, increasing speed, reducing manual tasks, and optimizing resource allocation at the port.
12. Continuous system updates and integration of AI-powered analytics for predictive management of port operations and potential disruptions would improve the system's effectiveness.
13. With further digitalization, Myanmar has strong potential to become a regional logistics hub by leveraging technology to streamline operations and attract global investments.
14. The Port EDI system will improve Myanmar's ranking by making port operations more efficient, secure, and transparent, which will attract more international trade.
15. Long-term impacts include more seamless port operations, reduced costs, and improved global competitiveness, benefiting both the IT infrastructure and broader port management.

Interviewee 5: U Nyi Nyi Lwin, Former Chief Port Officer, Sittwe and Kalatan Port, Myanma Port Authority

1. Myanmar's maritime logistics infrastructure is evolving. While some modern digital systems are in place, there are still gaps in full automation and integration.
2. The Port EDI system is highly effective in improving operational efficiency by automating administrative processes and facilitating faster, error-free data exchanges.
3. Cargo handling and clearance have significantly improved, with the Port EDI system reducing the time required for customs clearance and port documentation, speeding up the process.
4. The system has reduced vessel turnaround time by eliminating delays in paperwork and improving real-time coordination between stakeholders.
5. Cost efficiency has increased due to reduced manual interventions and minimized errors, leading to more streamlined operations and better resource allocation.
6. Communication and coordination have improved through seamless data sharing across stakeholders, enhancing decision-making and ensuring smoother operations at the port.
7. The Port EDI system enhances transparency by digitizing operations, which reduces the risk of corruption and ensures accountability in port management.
8. Port security has been strengthened with real-time data and automated clearance processes, ensuring better monitoring of cargo and ships, reducing security risks.
9. Challenges included initial resistance to change and technical issues related to integrating the EDI system with existing legacy systems at the port.
10. The Port EDI system plays a key role in boosting Myanmar's maritime trade by making port operations more efficient, secure, and competitive.
11. The future of port operations is bright with Port EDI. We expect further automation, faster processing times, and a stronger global position for Myanmar's ports.
12. There should be more emphasis on integrating AI and predictive analytics to enhance operational forecasting and better handle disruptions.
13. Myanmar has great potential to become a regional logistics hub by fully implementing digital solutions like the Port EDI system, improving efficiency, and attracting more international trade.
14. The system will positively impact Myanmar's global ranking by increasing port efficiency and attracting international shipping lines, boosting the nation's competitiveness.
15. Long-term impacts include sustained growth in trade, improved operational standards, and Myanmar's emergence as a leading port in the region.

Interviewee 6: U Kyaw San, Former Supervisor at Sittwe Port, Myanma Port Authority

1. The infrastructure is improving, but there are still areas that need modernization, particularly in terms of fully integrating digital systems.
2. The Port EDI system has been effective in streamlining operations, reducing paperwork, and improving overall efficiency at the port.
3. The system has significantly reduced the time spent on cargo clearance, enabling faster processing and less manual intervention.
4. The EDI system has helped reduce vessel turnaround time by eliminating paperwork delays and improving coordination between departments.
5. Operational costs have decreased due to fewer manual processes and reduced errors, allowing for better resource allocation.

6. Communication between port staff, customs, and shipping agents has improved with the centralized data-sharing system, ensuring smoother operations.
7. Transparency has increased, making it easier to track transactions and reduce opportunities for corruption by digitizing operations.
8. Security has improved due to better data management, with real-time tracking of shipments and clearer procedures for cargo inspections.
9. Some initial resistance to change and issues with integrating the system with older processes created challenges during the rollout.
10. The Port EDI system is crucial in enhancing the efficiency of operations, which will attract more shipping companies and promote growth in maritime trade.
11. The future looks promising, with further improvements in efficiency and security expected, making port operations more competitive on the global stage.
12. Greater integration with international shipping systems and enhanced user training for staff would help streamline operations even more.
13. Myanmar has strong potential as a logistics hub, and the Port EDI system is a key step toward attracting more international trade.
14. The system will likely improve Myanmar's global rankings by improving port efficiency and positioning the country as a competitive player in maritime logistics.
15. Long-term, it will lead to more streamlined operations, greater competitiveness, and more efficient port management, supporting economic growth.

Interviewee 7: U Aung Kyaw Oo, Former Custom Officer, Export/ Import Control Division

1. I am very familiar with the system. It helps streamline customs processes and improves the efficiency of cargo clearance.
2. The system automates customs declarations and documentation, which reduces processing time and improves accuracy.
3. It has significantly reduced turnaround time by speeding up the clearance process and minimizing delays.
4. Yes, it reduces operational costs by automating paperwork and reducing the need for physical handling of documents.
5. Yes, the system provides real-time data and tracking, making the entire process more transparent and easier to monitor.
6. Yes, it enhances security by reducing human errors and making the customs clearance process more accurate and transparent.
7. The Port EDI system integrates well with MACCS, allowing seamless exchange of information for efficient clearance.
8. Initially, there were some compatibility issues, but now the system is well-integrated with international standards, making cross-border transactions smoother.
9. Yes, it has improved communication by providing centralized data that is accessible by all stakeholders, reducing miscommunication and delays.
10. The system improves safety by ensuring that all cargo is properly documented and inspected, reducing the risk of illegal or dangerous items entering the port.
11. Yes, it has played a role in reducing corruption by increasing accountability through automated processes and reducing human intervention.
12. In the long term, the system will enhance efficiency, increase trade volume, and attract foreign investment, boosting the logistics sector.

13. The system will enhance the overall efficiency of port operations, helping Myanmar improve its LPI ranking by improving clearance times and logistics processes.
14. Enhancing the system's capabilities for real-time risk management and customs inspections could further improve its effectiveness.
15. Yes, expanding the system to other ports would standardize operations across the country, leading to more efficient customs clearance and better coordination nationwide.

Interviewee 8: U Moe Yu, Former Custom Officer, Automated Cargo Clearance and Control Division

1. Myanmar's maritime logistics infrastructure is evolving, but there are still improvements needed in automation and integration across all ports.
2. The Port EDI system has greatly improved the efficiency of cargo clearance by automating documentation and enabling faster processing of shipments.
3. Automated clearance processes have reduced manual errors, expedited cargo handling, and improved compliance with regulations, enhancing overall efficiency.
4. The system has decreased waiting times for cargo clearance, resulting in faster vessel turnaround and reduced port congestion.
5. Automation has lowered administrative costs and minimized errors that previously led to costly delays, improving the overall cost efficiency for customs operations.
6. The system has improved communication between customs, port authorities, and shipping agents, ensuring better coordination and reducing delays.
7. The Port EDI system enhances transparency by digitizing all customs transactions, making it easier to track and audit, thus reducing the opportunities for corruption.
8. Real-time data sharing with other authorities enhances security by enabling better tracking of cargo and vessel movements, reducing the risks of illegal activities.
9. The main challenges were training personnel and overcoming resistance to change. However, the system has proven its worth over time in improving efficiency.
10. The Port EDI system supports the growth of Myanmar's maritime trade by streamlining clearance processes and improving overall port efficiency, attracting more international business.
11. As the system continues to develop, it will further improve efficiency, making Myanmar's ports more competitive in regional and global trade.
12. Further integration with international shipping systems and the ability to predict potential customs bottlenecks could enhance its effectiveness.
13. With the ongoing improvements in Port EDI and logistics infrastructure, Myanmar is well-positioned to become a key player in regional trade.
14. The Port EDI system is expected to positively affect Myanmar's Logistics Performance Index (LPI) by improving customs processes, reducing delays, and enhancing overall port efficiency.
15. Over time, the system will streamline customs operations, reduce errors, increase compliance, and attract more international trade to Myanmar's ports.

Interviewee 9: U Thein Htay, Former Custom Officer, Trade Related Procedure Division

1. Myanmar's maritime logistics infrastructure is improving, but there are still areas needing further automation and standardization to match global practices.
2. The Port EDI system has significantly improved trade-related procedures by automating documentation and streamlining the cargo clearance process.
3. The automation has reduced the time needed for cargo clearance, minimized errors, and ensured smoother coordination between stakeholders.
4. The Port EDI system has reduced the waiting time for cargo clearance, helping ships dock, unload, and depart faster, improving port throughput.
5. By automating manual processes, the system has reduced administrative costs, minimized paperwork, and decreased the risk of costly errors.
6. Enhanced real-time communication between customs, port authorities, and logistics providers has optimized processes and reduced delays.
7. The system improves transparency by digitizing all trade-related transactions, making it easier to track and audit, reducing corruption and unethical practices.
8. Real-time data sharing through Port EDI improves port security by providing better tracking of shipments and enabling coordination with security agencies.
9. The primary challenge was transitioning from manual to automated systems, which required significant training and adaptation by staff.
10. The Port EDI system has supported growth by streamlining the trade process, making Myanmar's ports more attractive to international trade and investment.
11. With continuous upgrades, the Port EDI system will further enhance efficiency, making Myanmar's ports more competitive in the region.
12. The system could benefit from better integration with global trade networks and predictive analytics to prevent potential bottlenecks.
13. Myanmar has the potential to become a key regional logistics hub, provided the EDI system continues to evolve and is expanded to other ports.
14. The system's efficiency is expected to positively impact Myanmar's Logistics Performance Index (LPI), improving the country's ranking in global trade logistics.
15. In the long run, the system will improve customs compliance, reduce delays, and increase Myanmar's competitiveness in international trade.

Interviewee 10: Mr. Sohee, CEO, KMTTP Port and former MIP Port (Terminal Operator)

1. Myanmar's logistics infrastructure is progressing, but there are still gaps in modern technology adoption and integration across ports.
2. The Port EDI system has proven effective in improving operational efficiency, reducing errors, and enabling better management of terminal activities.
3. The system has greatly streamlined cargo clearance, reduced bottlenecks and improved processing speed, which directly benefits terminal operations.
4. Faster data exchange through Port EDI has reduced vessel turnaround time, increasing the terminal's throughput and capacity.
5. The automation of processes has significantly cut operational costs by reducing manual labor, paperwork, and human errors, enhancing overall cost efficiency.
6. Communication has improved across various stakeholders, which allows us to manage terminal activities more efficiently and reduce delays.

7. The Port EDI system has enhanced transparency by tracking every transaction, which reduces the chances of corruption and improves operational integrity.
8. The system has bolstered security by allowing for real-time tracking of cargo and improving the coordination of safety inspections.
9. The main challenge has been the transition period, including training staff and overcoming resistance to change, but the long-term benefits outweigh these hurdles.
10. The system is pivotal in boosting Myanmar's maritime trade by making port operations more efficient, attractive to international shipping lines, and improving competitiveness.
11. The future of port operations looks promising, with further integration of digital systems that will streamline processes and improve service offerings.
12. Enhancing interoperability with international systems and upgrading the user interface for better ease of use could make the system even more effective.
13. Myanmar has significant potential to become a regional logistics hub, and the Port EDI system is a key enabler in realizing this ambition.
14. The system will positively impact Myanmar's ranking in global logistics, making its ports more competitive and attractive to international trade.
15. The long-term impact will be a more efficient, secure, and transparent terminal operation, increasing Myanmar's global competitiveness and attracting more trade and investment.

Interviewee 11: Mr. Kumar, Deputy CEO, KMTTP Port and former MIP Port (Terminal Operator)

1. The infrastructure is developing, but challenges remain in modernizing operations and achieving full integration of technological systems across all ports.
2. The Port EDI system has significantly improved operational efficiency, reduced paperwork and streamlined terminal operations, which has had a positive effect on our bottom line.
3. Cargo handling has become faster and more accurate due to automated clearance processes, reducing waiting times and improving overall service quality.
4. The system has allowed for quicker vessel processing, reducing turnaround times and increasing the number of ships that can be handled in a given time frame.
5. The reduction in manual work and delays has lowered operating costs, making our terminal more competitive and enabling better resource allocation.
6. Improved communication between port authorities, shipping agents, and terminal operators has streamlined processes and minimized the risk of miscommunication.
7. The transparency provided by Port EDI reduces the opportunity for corruption by recording all transactions and actions, ensuring accountability across all stakeholders.
8. Real-time data on vessel movements and cargo tracking enhances security and safety protocols, reducing the risks associated with unauthorized activities.
9. Initial challenges included training staff and overcoming resistance to new technologies. However, these hurdles have been addressed, and the system's benefits are now evident.
10. The Port EDI system is vital for enhancing Myanmar's competitiveness in global trade by making port operations more efficient and reliable, which attracts more business.
11. With further integration and continuous improvement, the Port EDI system will continue to enhance operational capabilities, positioning Myanmar as a regional logistics leader.
12. Expanding real-time tracking features and improving system interfaces for easier navigation could further enhance efficiency and user satisfaction.
13. Myanmar has significant potential, and the Port EDI system is a crucial step in realizing this by modernizing the logistics infrastructure and boosting regional trade.
14. The system will positively impact Myanmar's Logistics Performance Index (LPI), increasing the attractiveness of Myanmar's ports for international trade and investments.

15. Long-term, the system will ensure smoother operations, cost reductions, better customer service, and higher competitiveness, further strengthening Myanmar's position in the global maritime industry.

Interviewee 12: Mr. Vikash, Former Operation Manager, Myanma Industrial Port (Terminal Operator)

1. I am quite familiar with the system. It helps improve the efficiency of cargo handling, reduces paperwork, and streamlines communication across stakeholders.
2. The system automates and speeds up cargo documentation, reducing the time required for physical checks and allowing us to allocate resources more effectively.
3. It has significantly reduced turnaround time by enabling faster cargo processing, better coordination, and minimizing delays due to paperwork.
4. Yes, the system has helped lower operational costs by reducing the manual workload and the risk of errors, thus improving overall productivity.
5. Yes, it has improved transparency by providing real-time tracking of cargo movements and transactions, making the process more visible to all stakeholders.
6. Yes, it enhances security by reducing human errors, ensuring that all cargo handling and clearance activities are properly documented and tracked.
7. The system integrates well with MACCS, allowing for smoother data exchange and reducing redundancies in processing, which ultimately improves efficiency.
8. Initially, there were some challenges with compatibility across different systems, but over time, the integration with international systems has become much smoother, improving communication with global stakeholders.
9. Yes, the system has significantly improved communication and coordination by providing a shared platform where all stakeholders can access relevant data in real-time.
10. The system has improved safety by ensuring accurate cargo documentation, which helps prevent illegal or dangerous goods from entering the port, and ensuring that cargo handling is done in compliance with safety regulations.
11. Yes, by automating processes and creating a transparent record of activities, the system helps reduce opportunities for corruption or unethical practices among port staff.
12. The long-term benefits include improved efficiency, reduced operational costs, better competitiveness, and increased foreign investment in Myanmar's maritime sector.
13. The system will help Myanmar improve its LPI ranking by streamlining port operations, reducing clearance times, and improving the overall logistics infrastructure.
14. Adding real-time updates on cargo location and availability for better planning, as well as incorporating automated scheduling tools for terminal operations, would enhance the system's effectiveness.
15. Yes, expanding the system to other ports would standardize operations across the country, improve cargo flow, reduce delays, and enhance overall logistics coordination nationwide.

Interviewee 13: U Kyaw Kyaw, Shipping agent

1. I am very familiar with the Port EDI system. It has greatly improved our operations by simplifying communication with port authorities and other stakeholders, making the cargo handling process more efficient.
2. The system has streamlined the entire cargo clearance process by automating document submissions and reducing the time spent on manual paperwork. This has sped up the clearance process significantly.

3. Turnaround times have definitely improved. The Port EDI system ensures that all necessary paperwork is processed in advance, which reduces delays at the port and speeds up the ship's departure.
4. Yes, by automating and digitalizing many processes, it has reduced operational costs for everyone involved, including shipping agents, as we now spend less time on paperwork and manual tasks.
5. Yes, it has improved transparency. The system provides real-time updates and access to relevant documents, allowing all stakeholders to track the cargo and shipment status, which minimizes confusion or errors.
6. Absolutely. The digital records help ensure that all shipments are properly documented and authorized, which reduces the chances of fraud or mistakes in customs clearance.
7. The integration with MACCS is smooth. The system allows for easy data transfer between customs and port authorities, which minimizes delays and reduces the chances of miscommunication.
8. There have been some initial challenges with compatibility issues and coordination with international systems, but over time, the system has proven effective in facilitating communication with global stakeholders, improving overall efficiency.
9. Yes, the system has significantly enhanced communication. It centralizes data and documents, making it easy for us to communicate with port authorities, customs, and other involved parties.
10. Yes, the system has had a positive impact on security. It ensures that all cargo is properly documented, reducing the risk of illegal shipments or errors that could affect safety.
11. Yes, by creating a transparent and trackable process, the system has reduced the opportunities for unethical practices, such as bribery or corruption, among port staff and other involved parties.
12. In the long term, the Port EDI system will enhance Myanmar's competitiveness in global trade, improve operational efficiency, reduce delays, and attract more international business.
13. The Port EDI system will definitely improve Myanmar's ranking by reducing inefficiencies, lowering costs, and improving the speed and accuracy of cargo handling, which are all factors in the LPI.
14. It would be beneficial to incorporate features such as automated shipment tracking updates and advanced data analytics to help with operational planning and forecasting.
15. Yes, expanding the system to other ports would help create a more uniform and efficient logistics network across Myanmar, reducing delays and improving the overall port and customs operations nationwide.

Interviewee 14: U Kyaw Moe Htwe, Maritime Pilot, Myanma Port Authority

1. I'm quite familiar with the Port EDI system. It has brought significant improvements to how operations are managed at Yangon Port. The system has automated many processes, making the workflow much smoother. As a maritime pilot, it helps me receive real-time data on vessel movements, berth availability, and clearance processes, making navigation and planning more efficient.
2. The Port EDI system has drastically reduced delays related to cargo clearance. With all stakeholders (customs, port authorities, terminal operators) integrated into one system, there is much less paperwork and manual processing. This makes the clearance process faster and more efficient, and I can receive real-time updates on cargo statuses, which helps in planning safe and efficient navigation.

3. The system has reduced the turnaround time significantly. Previously, ships would often experience delays due to inefficient manual processes and coordination. Now, the Port EDI system ensures that all required paperwork and clearance are done before the vessel arrives at the port, which allows for quicker berthing and unloading processes. This directly benefits maritime pilots as we can reduce waiting times and optimize vessel movements.
4. Absolutely. By automating many processes and reducing the need for manual data entry, the system cuts down on administrative costs and minimizes errors. For us, maritime pilots, this also means fewer delays and smoother communication, which ultimately reduces costs associated with vessel scheduling, waiting time, and fuel consumption.
5. Yes, the Port EDI system has greatly enhanced transparency. All the information related to vessel movements, cargo status, and port clearances is available in real time, accessible by all relevant stakeholders. As a maritime pilot, I have visibility into vessel schedules, clearance statuses, and expected docking times, which allows me to plan my operations more effectively and avoid miscommunication or errors.
6. Definitely. The Port EDI system ensures that all data is captured electronically, reducing the chance for human errors or fraudulent activities. As a maritime pilot, this system also ensures that all security checks and inspections are conducted properly before a ship is allowed to dock or leave. This enhances both the security of the port and the safety of the vessels navigating in and out.
7. The integration between the Port EDI system and other national systems like MACCS works seamlessly. This integration ensures that once the ship arrives at the port, all the necessary clearance procedures are already in place, and I'm informed about the status instantly. As a maritime pilot, I benefit from this integration, as it minimizes delays and ensures that the port is ready for safe and timely vessel docking.
8. Initially, there were some challenges related to technical connectivity and aligning with international standards. However, over time, the system has successfully connected with global shipping systems, allowing for smoother data exchange with international stakeholders like shipping companies and customs authorities. This success has made navigation much more predictable and safer for maritime pilots like myself, as we now receive more accurate and up-to-date information.
9. Yes, the Port EDI system has significantly enhanced communication and coordination between all stakeholders. As a maritime pilot, I can easily communicate with customs, port authorities, and terminal operators via the system. This ensures everyone is aligned regarding vessel schedules, docking arrangements, and cargo handling, which ultimately leads to smoother operations and fewer delays.
10. Yes, the system plays a crucial role in enhancing maritime safety and security. By ensuring that all required documentation and safety checks are completed before a vessel docks, it prevents unplanned risks and miscommunications. As a maritime pilot, I can be confident that all clearance and safety procedures have been followed before guiding a vessel into the port, reducing the potential for accidents or security breaches.
11. Yes, the Port EDI system has contributed to reducing corruption. With all processes being automated and recorded electronically, there is little room for manual intervention or manipulation. As a maritime pilot, this transparency helps build trust among port staff and stakeholders, ensuring that operations are conducted ethically and according to the regulations.
12. In the long term, I believe the Port EDI system will enhance Myanmar's position as a logistics hub in the region. By improving efficiency, reducing errors, and ensuring safer navigation, the system will attract more shipping companies and stakeholders to use Myanmar's ports. For us as maritime pilots, it will mean smoother, safer, and more coordinated operations, contributing to the growth of the sector.

13. The system is a crucial step towards improving Myanmar's Logistics Performance Index (LPI). By enhancing efficiency, reducing delays, and improving coordination, it can directly impact Myanmar's LPI ranking. For maritime pilots, the system's success means smoother operations, quicker turnaround times, and more reliable services, all of which contribute to better logistics performance.
14. I would suggest integrating predictive analytics for better vessel scheduling and optimizing berth planning. This could help maritime pilots plan more effectively by predicting port congestion and minimizing waiting times. Real-time weather data integration would also be beneficial, allowing for safer navigation in adverse conditions.
15. Yes, expanding the Port EDI system to other ports in Myanmar would greatly benefit the overall logistics infrastructure. It would standardize processes across the country, improve coordination between ports, and enhance overall efficiency. For maritime pilots, this means smoother inter-port operations and improved safety as vessels move between different ports within Myanmar.

Interviewee 15: U Thiha, Maritime Pilot, Myanma Port Authority

1. I'm familiar with it. It simplifies ship tracking and port operations.
2. It speeds up clearance and reduces waiting time for vessels.
3. It has significantly reduced turnaround times by minimizing paperwork delays.
4. Yes, it lowers operational costs by streamlining processes.
5. Yes, it allows for real-time tracking, improving transparency for all stakeholders.
6. Yes, it minimizes human errors and fraud by automating tasks.
7. It integrates smoothly, allowing for efficient data exchange.
8. Integration was challenging but successful, especially in aligning international standards.
9. Yes, it improves communication and coordination by centralizing information.
10. Yes, it enhances safety by providing accurate vessel information and tracking.
11. Yes, the system's transparency helps reduce corruption and unethical practices.
12. It will improve Myanmar's competitiveness and efficiency in maritime logistics.
13. It enhances port efficiency, which should help improve Myanmar's LPI ranking.
14. Real-time vessel tracking and better communication tools would enhance the system.
15. Yes, expanding it would standardize operations and improve overall logistics efficiency.

Interviewee 16: U Swe Oo, Maritime Pilot, Myanma Port Authority

1. Myanmar's maritime logistics infrastructure is improving, but there is still a need for further modernization, particularly in digital systems and coordination across ports.
2. The Port EDI system is effective in streamlining port operations, especially in providing timely data about vessel arrivals and berth availability.
3. Faster clearance and reduced paperwork allow for quicker ship departures, optimizing maritime operations and ensuring better planning for vessel movements.
4. The system has drastically reduced turnaround times by speeding up clearance and berth allocation, ensuring vessels spend less time in port.
5. Reduced delays and smoother operations contribute to cost savings by allowing ships to operate more efficiently and reduce waiting times.
6. The system improves real-time communication between port authorities, shipping agents, and pilots, ensuring smoother operations and better coordination.
7. The transparency of the system reduces opportunities for corrupt practices by automating documentation and creating an audit trail.

8. The real-time data provided by the system enhances port security by ensuring that vessels are properly tracked and cleared before entry or departure.
9. The transition to fully automated systems was challenging initially, as it required new technology and training for all involved stakeholders.
10. The system supports trade growth by improving operational efficiency, which helps attract more international shipping companies to Myanmar's ports.
11. As the system continues to evolve and expand, it will further optimize vessel traffic management and port operations, making Myanmar a more competitive player in global maritime trade.
12. Greater integration with weather data and predictive analytics could further improve the safety and efficiency of vessel navigation in busy ports.
13. With continued improvements in digital systems, Myanmar has the potential to become a key maritime hub in Southeast Asia.
14. The improvements from the Port EDI system will positively impact Myanmar's position in global maritime logistics rankings, attracting more shipping lines to the country.
15. Over time, the system will improve the safety, efficiency, and security of maritime operations, contributing to better coordination and smoother port operations.

Interviewee 17: U Myo, IT System Developer, Myanma Port Authority

1. I'm highly familiar. The system integrates port operations, enhancing efficiency, reducing delays, and improving coordination among stakeholders.
2. The system automates cargo tracking and clearance, speeding up operations and enabling real-time decision-making.
3. By reducing manual paperwork and communication delays, it shortens ship turnaround times significantly.
4. Yes, it cuts costs by minimizing manual work, reducing errors, and streamlining operations.
5. Yes, it centralizes data access, ensuring all stakeholders have up-to-date, transparent information.
6. Yes, it reduces errors and fraud by automating processes and ensuring secure, traceable digital records.
7. The system integrates well with MACCS, allowing smooth data exchange between customs and port authorities.
8. Aligning technical standards was a challenge, but we successfully established reliable connections for seamless international operations.
9. Yes, it provides a unified platform for real-time data, improving communication and reducing delays.
10. Yes, by improving vessel tracking and coordination, it enhances port safety and security.
11. Yes, automation and digital records reduce opportunities for corruption by ensuring accountability.
12. Improved logistics efficiency, better trade facilitation, and higher global competitiveness.
13. The system enhances efficiency, reduces delays, and improves reliability, which will boost Myanmar's LPI ranking.
14. Adding predictive analytics for demand forecasting and real-time cargo monitoring would optimize port operations further.
15. Yes, expanding the system to other ports would standardize operations, improve efficiency, and strengthen Myanmar's overall maritime logistics infrastructure.

Interviewee 18: U Wunna, IT System Consultant, Myanmar Port Authority

1. I'm very familiar. It streamlines port operations by digitizing cargo handling, clearance, and logistics.
2. It automates tracking and clearance, speeding up processing and reducing errors.
3. It reduces turnaround times by minimizing delays from manual paperwork.
4. Yes, it reduces costs by cutting paperwork and improving efficiency.
5. Yes, it provides real-time digital data that all stakeholders can access.
6. Yes, by automating processes, it reduces human errors and fraud.
7. It integrates well, enabling smooth data exchange between systems.
8. The challenge was aligning international standards, but integration was successful.
9. Yes, it centralizes data and improves communication between stakeholders.
10. Yes, it improves safety by better tracking ships and reducing accidents.
11. Yes, it reduces corruption by ensuring transparency with automated processes.
12. It will make Myanmar's logistics sector more efficient and competitive globally.
13. It improves port operations, reducing delays and improving the LPI ranking.
14. Adding predictive analytics and real-time cargo tracking would improve efficiency.
15. Yes, expanding it would standardize operations and improve Myanmar's logistics network.

Interviewee 19: U Myo Wai Win, General Manager, Ninja Van Logistics Myanmar

1. I am quite familiar with the Port EDI system. It has greatly improved the flow of logistics operations, enabling smoother coordination between various stakeholders at the port. As a logistics manager, I've seen the benefits in terms of enhanced communication, reduced paperwork, and quicker processing times. It has made cargo handling more efficient, which directly benefits our operations.
2. The Port EDI system has significantly enhanced the efficiency of cargo handling by automating key processes like cargo clearance and port entry procedures. This has reduced delays caused by manual document processing and has streamlined communication between port authorities, shipping agents, and terminal operators. As a result, we are able to clear shipments faster and manage cargo more effectively, leading to overall improved logistics performance.
3. The Port EDI system has drastically reduced turnaround times for ships. With real-time data exchange and automated clearance procedures, ships spend less time waiting for documentation or customs approval. The elimination of manual paperwork delays means that ships are able to dock, unload, and depart more quickly, which is essential for maintaining efficient operations and meeting delivery deadlines.
4. Absolutely. By reducing the reliance on manual processes, the Port EDI system has lowered the administrative costs associated with cargo clearance and document management. It minimizes errors and delays, reducing operational inefficiencies, and allowing all parties—shipping agents, port authorities, and terminal operators—to allocate resources more effectively. This reduction in costs translates to significant savings for all involved parties.
5. Yes, the system has significantly improved transparency. With real-time data sharing and access to up-to-date information about cargo movements, shipping statuses, and port activities, all stakeholders can track operations more effectively. This level of transparency not only improves accountability but also builds trust between port operators, shipping agents, and customers, ensuring that everyone is aligned and informed at every stage of the process.
6. Yes, the system has enhanced security by reducing the risk of fraud and errors. Since data is entered and processed digitally, the chances of human error in customs declarations and

cargo handling have been significantly reduced. Moreover, secure access controls ensure that only authorized users can make changes or process critical information, thus further safeguarding the system from fraudulent activities.

7. The Port EDI system integrates smoothly with national systems like the MACCS, which ensures that the clearance processes are synchronized. This integration enables a seamless flow of data between the port and customs, ensuring that there are no delays or discrepancies in cargo clearance. As a logistics manager, this integration makes my job easier because I can access all relevant information from a single platform.
8. While integrating the Port EDI system with international shipping systems posed some challenges, particularly regarding data standardization and coordination with foreign stakeholders, the process has been largely successful. These challenges were overcome through constant communication and collaboration with international partners. Now, the system allows for smoother information exchange across borders, ensuring that cargo can move through Myanmar's ports without delays or complications.
9. Yes, the Port EDI system has greatly enhanced communication and coordination. All stakeholders, from port authorities and customs officials to shipping agents and terminal operators, now have real-time access to the same data. This centralized communication platform reduces miscommunication and ensures that every party is aware of the status of shipments, which improves overall efficiency.
10. Yes, the system enhances safety by providing accurate data for timely inspections, reducing risks associated with outdated information.
11. Yes, the system's transparency and traceability reduce opportunities for corruption by logging all actions and promoting accountability.
12. In the long term, the system will enhance Myanmar's competitiveness in the global logistics market by improving efficiency, reducing costs, and attracting more international trade.
13. The system boosts efficiency, reduces delays, and enhances transparency, which will improve Myanmar's logistics infrastructure and its position in the LPI.
14. Enhancing real-time tracking across the supply chain and integrating predictive analytics could further optimize logistics management and reduce disruptions.
15. Yes, expanding the system to other ports would standardize logistics operations nationwide, improve connectivity, and enhance Myanmar's overall maritime logistics infrastructure.

Interviewee 20: Ma Lay Mon Htwe, Manager, Ninja Van Logistics Myanmar

1. I'm familiar with it. It has streamlined logistics operations and improved overall efficiency at the port.
2. The system reduces paperwork, automates processes, and speeds up cargo clearance, making handling more efficient.
3. It has significantly reduced turnaround times by eliminating delays caused by manual processes and paperwork.
4. Yes, by reducing delays, improving accuracy, and increasing efficiency, the system has helped lower operational costs.
5. Yes, it enables real-time tracking and data sharing, enhancing transparency among all stakeholders.
6. Yes, automation reduces human errors, while secure data transmission helps prevent fraud.
7. The system integrates well, enabling seamless data exchange between customs and other relevant agencies.
8. While integrating with international systems was challenging, it has been successful in improving coordination and compliance.

9. Yes, the system has enhanced communication and coordination by providing a centralized platform for all stakeholders.
10. Yes, the system enhances safety by ensuring accurate and timely information about shipments, reducing risks associated with cargo handling.
11. Yes, the transparency provided by the system has minimized opportunities for corruption and unethical practices.
12. The long-term benefits include improved efficiency, better global competitiveness, and greater investment in the sector.
13. By improving port efficiency and reducing delays, the system will help boost Myanmar's performance and ranking in the LPI.
14. Integrating more real-time tracking and enhancing the system's capacity to handle larger data volumes would further improve the system.
15. Yes, expanding the system would standardize operations across the country, improving efficiency and strengthening the overall logistics infrastructure.

