해상운송을 위한 ebXML 기반으로 하는 single window의 실현가능한 협업 모델

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Single Window Collaboration Model based on ebXML

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Abstract : XML 기반의 Single Window은 국제 표준에 입각하여 해운 분야의 전자문서를 사용하여 국제해사기구와 전세계적으로 공통된 양식을 사용한다. 이는 동일한 양식의 전자문서를 사용하는 사용자들 간은 통용될 수 있다는 의미이며, 민원인 입장에서는 정보의 재사용성과 중복 입력의 불합리함을 줄일 수 있다. 이로써 민원인들은 입출항 수속 간소화 뿐만 아니라 해운 업무 자체에 많은 업무 개선 효과를 볼 수 있다. 본 고에서 제안한 XML 인프라스트 럭처(XML infrastructure for Single Window)는 ebXML 기반의 Single Window에 적합하도록 설계 및 구현되었으며, 자 원의 재사용성과 중복 투자를 방지할 수 있도록 하였다. 즉, 사용 환경에 유동적으로 적용가능 하도록 컴포넌트 방 식으로 구성되었으며, 기존 시스템을 최대한 활용하도록 구성할 수 있도록 하였다.

Key words : XML, Infrastructure(하부구조);Logistics(물류);Entity(주체);Single window(단일창구)

1. Introduction

For the facilitation of international maritime transport, in the FAL 27/5,Netherlands suggested a uniform system to standardize and simplify EDI systems relating to the arrival/departure, stay, and clearance of ships, persons, and cargoes. In the FAL 30th Convention, Netherlands proposed the concept of single window system in order to enhance the efficiency of the report procedures for arrival/departure of ship. In the FAL 32nd committee, ROK proposed the framework of XML-based Single Window system for the simplified clearance of ships. In this connection, the system suggested in this paper was based on ebXML (electronic business XML) proposed by UN/CEFACT in the FAL 32/5/3. This system includes the concept of Single Window, which is expanding the existing port information system confined to the national boundary to the global one. So, it is expected that the system suggested in the paper will lead to the global Arrival/Departure Clearance System for the international logistics. Hereby, ROK proposes the detailed and technical item for business collaboration between business entities of logistics area(Marine, Air and Rail, etc.).

Following precedence requirement must be satisfied before Single Window service starts.
.1 Simplification and Unification of electronic document form
.2 Work flow simplification

Also, following advantages by applying Single Window for marine transport area can be achieved.
.1 Minimization of Legacy system modification
.2 Maximization of Resource reusability

.3 Build-up of National Competitive Power(Maximizing of economical effect)
.4 Interoperability Increment between countries

2. XML Infrastructure System for Single Window

The Single Window service has been commenced from 2004, Korea Standards Organization revised the following documents to be suitable for each government organization according to UN/CEFACT Standards vessel arrival/departure(DEOVAD: Declaration of ocean-going vessels' arrival and departure), passenger/crew list(PAXLST: Passenger list message), cargo(manifest) (CUSREP: Customs conveyance report message, CUSMAN: Customs response message, MACAGO: Export/Import cargo report). The version of documents is D97A. Korea designedthe XML infrastructure system to support Single Window concept and IMO FAL documents. Up to now, most of users have used EDI to declare the clearance of Vessel and Cargo, etc.
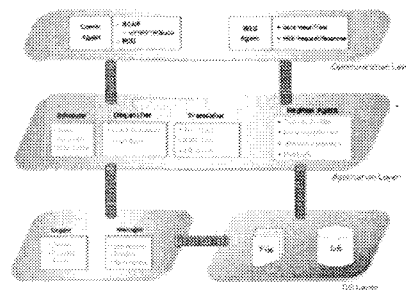

Fig. 1 Configuration of the proposed XML infrastructure

The proposed system in this paper could be easily

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migrated to user legacy system with minimum modification because it supports EDI, XML and Database all together. The proposed system by Korea was designed on the concept of ebXML technology and implemented with open framework, Java. Because this system was developed in component-based method, it is possible to compound the various configurations according to the system environment. Also, it is available to install the proposed system to any platform with JVM(Java Virtual Machine). The proposed system supports the following functionalities, such as translation, database interface, security and so on. <Figure 1> shows the configuration of the proposed system. Because the translation module leads to improvement of service by reducing the resource usage and processing time, it plays an important role in the proposed system.
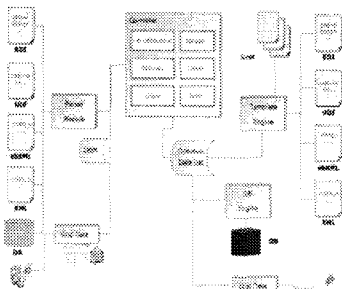

Fig. 2 Translation module

The translation module is constructed as <Figure 2> and designed on the basis of open framework.

3. Application of Single Window Service

The User generates an EDI message using legacy system and sends the message to XML Hub system. The XML Hub system received an EDI message translates the message into designated message in conformity with the recipient type. Then, the XML Hub system delivers the results to multi-recipients. <Figure 3> shows a flow of transmitting the message between logic entities of business. If a shipper sends a EDI document(DEOVAD which is similar to CUSREP) for vessel arrival/departure to the XML Hub system, the XML Hub system transfers this EDI document to three destinations   Ministry of Maritime Affairs and Fisheries(MOMAF), Customs Service and Korea Maritime

Fig. 3 Single Window work Flow

Dangerous Goods Inspection Center(KOMDIC). In this case, three different formats was applied; EDI for MOMAF, XML for Customs Service and a private format for KOMDIC. The XML Hub system converts the received EDI document into three different document formats EDI, XML and private formats. And, it transfers the
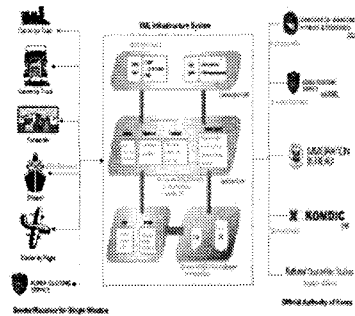
converted documents to each official authority. A user can easily make arrival/departure declaration of vessel to each official authority with only a single document sent(one input).

4. Conclusion

Single Window can eliminate the user's duplicated input and maximize the data reusability. Also, the administrative authority can promote simplification and unification of government documents. Therefore, work procedure of government would be improved and business collaboration with other organizationcould be achieved. As the proposed system in this paper can be applied to Single Window, interoperability between countries can be increased. It could have an effect on national or international economical advantages. In case of Korea, re-definition of government document was completed in 2004 in accordance with the international standard for Single Window System. As a result, total $13million of operation costs were cut down.

참고문헌

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