A QUALITATIVE ANALYSIS OF USING SWIBŻ SYSTEM INTO CREATION OF POLISH PORT COMMUNITY SYSTEM

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Abstract

The paper provides a qualitative analysis of the proposal to introduce SWIBŻ into creation of Polish Port Community System. The key information from SWIBŻ system would be widely used by national and international administration institutions in order to achieve expected level of shipping monitoring and control. The article highlights the possible role of SWIBŻ system as the most complex and intelligent system for PCS creation. The analysis of the SWIBŻ system has to identify ways to introduce it into the Polish Port Community System. Analysis run by the author indicates pros and cons of using SWIBŻ system into creation of PCS. Common use of this system by national marine administration would be a significant step in the way to create Polish Port Community System.

Keywords: Port community system, SWIBŻ system, Polish port community system

1.   INTRODUCTION

In an article, the author outlined the need for a full empirical analysis to determine the possibilities of use SWIBŻ informatics system operated by Polish Marine Authority to create polish port community system. It would, therefore, have seemed appropriate to conduct a benefit analysis of the current option to create the communication system. Unfortunately, since last years, even less statistics and quantitative data was not available to undertake a rigorous benefits analysis. Consequently the author decided to use a qualitative analysis method and selected information system analysis as a suitable approach to evaluate SWIBŻ system in the absence of hard statistical data. There is also lack of hard statistical data of port community system because it does not exist in the Polish area [1].

2.   PORT COMMUNITY SYSTEM

Therefore is a wide range of approaches to information system analysis. But first we will clarify what we mean by a port community system. J. Rodon and J. Ramis-Pujol define a port community system as: "an electronic platform that connects multiple systems operated by a variety of organizations that make up a seaport community" [2]. PORTEL, definite port community system "as a collaboration platform that facilitate the exchange of electronic information regarding commercial and administrative matters that have a business-to-business character in port environment" [3]. Moreover EPCSA completes this definition and explains PCS as "a neutral and open electronic platform enabling intelligent and secure exchange of information between public and private stakeholders in order to improve the efficiency and competitive positions of the sea and airports' communities" [4]. Studies of port community systems have generally concentrated on benefits gain by the end users of the system (see [5,6,7]) and on specific investigations into pcs' implementation [8,9,10,11,12], and promoting data exchange with port community system (see [13,14]. Among the general studies looking at benefits for public institutions are L. Long, M. Klopott, J. Miklińska, for Customs [15,16] and CORDOVA F.,DURAN C. for strategic and operational knowledge management of port community [17]. Empirical studies on port community system include one by Y. Keceli, H. R. Choi, Y. S. Cha, Y. V. Aydogdu [18,19,20], which gathers data on state severe resistance of the port users which causes failure of the port community system implementation or delays and additional costs.

Port community system in this connection means that most of the organizations engaged in the movement of goods - for instance shippers, forwarders, haulers, rail companies, shipping lines, main seaports, feeder seaports, sea and inland terminals, depot companies, logistic operators, customs authorities, maritime administration, financial institutions, cargo insurers and, last not least, the port authority - feed into an extract from a system which handle the flow of information. Port community system connects public marine institutions and private companies engaged in sea-borne trade. Presently, many documents are sending by internet via e-mail. It becomes a common practice. The delivery of data and information in such ways must be re-typed into the port's information systems, which is time consuming and vulnerable to typing errors. Port community system must allow for the all stakeholders to make service requests and input their information directly into the port information system. Thus, the system decreases paperwork, improves data quality, enables data and information connections among different stakeholders, and improves and supports the operation in whole transport and logistic chain. The main idea of port community system is to produce data as seldom as possible and to use them as often as possible.

3. SWIBŻ SYSTEM

There are SWIBŻ is a communication system based on data and information flow which come from AIS (Automatic Identification System) [21], SafeSeaNet, PHICS (Polish Harbors Information and Control System) [22] and VTS (Vessel Traffic System). Thanks to link up the above-mentioned systems it is easy to monitoring and controlling traffic of vessels which are calling to polish seaports. Moreover SWIBŻ system as integrated national information system makes some functions:

- The system allows to support operational acts in polish maritime area in such circumstances as [23]:
- Monitoring of vessel traffic and on its safety of exploitation, exploration and research of water resources in the polish marine area.
- Running acts to protect live and assets on sea and combat marine spills.
- Offering of Maritime Assistance Services for vessels who needs supporting or giving a shelter against the storm.
- Alarming on crisis situation during cooperation with local Pomeranian Central Crisis Management.
- Alarming on crisis and antiterrorism acts in the framework of ISPS code for cooperation with Central Contact Point, Reginal Contact Point and Safety Port Officers and operational services of important national resorts.
- System SWIBŻ is collecting, processing and transmitting data and information to some users whose place of origin is national and international.
- System of data records movement and survey of vessel traffic in polish maritime area. The communication system, also, records data concerning conventional and unconventional vessel traffic.
- The system is an element of National SafeSeaNet System - electronic information exchange between Polish Administration and European Union Marine Administration. The information exchange concerns on vessel traffic and same distinctly described data and information.
- Supporting of some institution and companies which act in sea-borne trade, especially such as: Fuel Station, Port Authority, Departments of Shipping Services and so on.

The SWIBŻ system is the main data base of Polish Marine Administration and takes the data and information from the following additional data bases: VTS, AIS, Small ports, position of the vessel in the seaports, Dysport, PHICS 2008, iMARE SSN, iMare DMIS, SSN, EMSA Vessels, data base of vessels, Navtex messenger, LRIT and VHF.

The system uses the following data and information [24]:

- The Information from European System SafeSeaNet.

- Flow of data AIS from polish coastal stations.
- Data from VTS Gdansk Gulf system.
- Information from Lloyd's Vessel Register.
- Navigational warnings and sailing news comes from BHMS.
- Weather forecasting made by IMGW.
- Declarations received by operators of users of the system.
- Information from European Satellite System which monitoring marine spills by the CleanSetNet system.
- Data from hydro-meteo automatically sensors which are located in the Gdansk Gulf area.
- Data from radar's system located in the Gdansk Gulf.

The user of the SWIBŻ system has to definite type of incidents and describe procedure of acting with some types of incidents (service of incidents). The user of system may to create some incidents manually or automatically base on the data recorded from appliances, from other communication systems or data base. When some data concerning incident will put into the SWIBŻ system then the system serve the incident according with precisely definite procedure for this type of incidents i.e. some information are sending to some users of the system, and system is waiting for writing some decision which will be undertaken by its addressee.

4. THE METODH OF ANALYSIS

For the purposes of this research, it was identified the specific stakeholders of the SWIBŻ system and theirs tasks within the system. Methodology of the analysis looks as follows:

- Developing a stakeholder's map with the major stakeholder groups.
- Classifying the individual or organization submissions under each of these stakeholder group (in **Table 1**).
- Preparing a stakeholder impact matrix (in **Tables 2** and **3**).

Table 1 Classifying the public and private units' submission under each of these stakeholder group

SEAPORTS	MARINE AUTHORITY	OTHER PUBLIC INSTITUTION
Gdansk seaport	Ministry of Maritime Economy and River Transport	Centrum of Navy Operation of Polish Marine
Gdynia seaport	Gdynia Marine Authority	Centrum of Pomeranian Crisis Management
Szczecin and Swinoujsce seaports	Szczecin Marine Authority	Marine Mobile Group of Customs Administration
Hel seaport	Slupsk Marine Authority	Centrum of Survey Radio localization
Wladyslawowo seaport	Gdynia Harbor Master Office.	National Coordinator of Navigation Protection
Leba seaport	Ustka Harbor Master Office.	PRIVATE COMPANIES
Ustka seaport	Darlowo Harbor Master Office.	Marine pilots
Darlowo seaport	Gdansk Harbor Master Office.	Tugs companies
Kolobrzeg seaport	Hel Harbor Master Office.	Crewing companies
Trzebiez seaport	Wladyslawowo Harbor Master Office.	Marine training companies
Swinoujsce seaport	Kolobrzeg Harbor Master Office.	Shipowner's agents
Dziwnow seaport	Trzebiez Harbor Master Office.	
Elblag seaport	Swinoujscie Harbor Master Office.	

Figure 1 clearly demonstrate the wide range of stakeholders who are within the existing SWIBŻ system. The stakeholders and the main tasks of the system identified here are based only on the interviews with persons employed by the Polish Marine Authority. In reality, a much wider range of stakeholders and theirs tasks have been described in SWIBŻ system. Unfortunately, many of SWIBŻ system stakeholders' use it's from time to time. Exchange of data and information is run by the following public and private organization, see **Figure 1**.

The **Tables 2** and **3** provide a summary of the direct research of the stakeholders and their tasks in SWIBŻ system. The main variables of interest (e.g. concerning the characteristics of vessels traffic, passengers' traffic, cargoes traffic - mainly dangerous «hazmat» cargoes) are shown in the columns, and the main stakeholders are shown in the rows. The potential data and information flow among the stakeholders of the SWIBŻ system are shown in the **Tables 2** and **3** from a particular stakeholder's point of view.

Table 2 Stakeholders data and information flow matrix of SWIBŻ system - arrive vessel to seaport

	24h arrivals and departure (agency)	24h arrivals and departure (last port / next)	Arrivals and departure by cargo	Arrivals and departure by general cargo	Arrivals and departure by hazmat cargo	Arrivals and departure with definite	Current list of tankers	Current list of vessels with passengers	Current list of vessel with security level	Current list of vessel with hazmat	Current list of vessels with hazmat short	Current number of vessels in VTS
Centrum of Navy Operation of Polish Marine	x	x	x	x	X	X	x	x	x	x	x	x
MRCK SAR	x	x	x	x	x	X	x	x	x	x	x	x
Center of Pomeranian Crisis Management	x	x	x	x	x	X	x	x	x	x	x	x
Marine mobile group of Customs Administration	x	x	x	x	x	X	x	x	x	x	x	x
Harbor Master Office	x	x	x	x	x	X	x	x	x	x	x	x
Special departments of Marine Administration	x	x	x	x	x	X	x	x	x	x	x	x
National Coordinator of Navigation Protection	x	x	x	x	x	X	x	x	x	x	x	x
Centrum of Survey Radiolocalisation	x	x	x	x	x	X	x	x	x	x	x	x
Marine Authority	x	x	x	x	x	X	x	x	x	x	x	x

Table 3 Stakeholders data and information flow matrix of SWIBŻ system- departure vessel from seaport

	List of tanker vessels	List of vessels currently moored	List of vessels having passengers	List of vessels historically berthed	List of vessels with hazmat	List of vessels of with passengers	List of vessels with security in last ten ports	Masters	Number of vessels in VTS area	Number of visits by capacity vessel	Number of visits by vessel type	Passenger traffic in harbor	PEC holders	Pilots	Port State Control (PSC)	Vessels passing a reporting line	Vessel passing a reporting (Gulf)
Centrum of Navy Operation of Polish Marine	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MRCK SAR	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Center of Pomeranian Crisis Management	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Marine mobile group of Customs Administration	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Harbor Master Office	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Special departments of Marine Administration	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
National Coordinator of Navigation Protection	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Centrum of Radiolocalisation Survey	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Marine Authority	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Overall, this analysis indicates that there would be a positive effect of using SWIBŻ system in creation polish port community system. Many data and information as well as connection among public marine institution and some private companies just exist in the closed informatics system. Describe SWIBŻ information system like any other management information system is primary a tool to increase the present and future efficiency of the stakeholders, to utilize resources more effectively to reduce costs of traditional documentary flow. Comparing this advanced system with the traditional manner of data collecting and processing, the benefits achieved are obvious. The scope of data reporting is enlarged and a faster processing is possible, that means more and more actual facts concerning vessel traffic, cargo traffic and passenger traffic will be continuously a the disposal of the stakeholders. The author, hence, recommended to the SWIBŻ system should be used in creation a polish port community system because it gives many opportunity, saves money and time for company which will be created the information system.

5.   CONCLUSION

For the analysis of the effects of using SWIBŻ system, indicated that the system shall be use for creation polish port community system because provides on-line all-important data and information and may give the quicker sustainable growth of polish sea-borne trade. Unfortunately, there will be many problems which may accrue

during creation polish port community system. One of them is the exchange communication between various public and private users. The problem is not only highly technical - integration of many different information systems used by private companies and public institutions but first of all many private companies may not be inclined to open parts of their data banks to others - mainly due to competitive reasons. Problem of the port community system integration exist also from the public institution side because their can collect data and information which are precisely described within the polish law system. In this situation, the principle difficulties in setting up those advanced information structures are the conflicting interests of various pcs users participating in the movement of different kinds of goods. The aim at different objectives which is reflected in specific operational requirements, i.e. the information standards and needs of each party direct involved in the logistic supply chain must be examined at an early stage in order to define a common basis. Moreover, a cost-benefit analysis should underline the financial assessment before starting into the implementation of polish port community system.

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