Design of Port Enterprise Security Management Information System Based on Mobile Platform

Mingqi Zhang
Tianjin Maritime College, China, 300350

Keywords: Mobile terminal, port enterprise safety information management, design.

Abstract: With the continuous development of network and information technology, the level of informationization of equipment construction and production management in the port is also constantly improving. As a city's waterway transportation hub, the port is the hub of the distribution of goods, which plays an important role in the modern transport network. The safety of the port plays an important role in the cargo transportation of modern ports. This text will analyze from the mobile platform background, harbor enterprise's safety management information system construction, and put forward the corresponding measure.

1 INTRODUCTION

With the continuous development of network technology and information technology, the level of information management in port enterprises is also constantly improving, and the level of production management is constantly improving. As an important distribution center for waterway transport, port enterprises are also involved in a wide range of areas. The operating environment is also quite complicated. The loading and unloading operations and production operations are also very difficult and involve many factors. Port security is also putting forward Some challenges. According to the status of the world's urban development, some of the more rapidly developing cities are located close to the seaside or river where transportation is more convenient and can rely on convenient geographical location to communicate with the major cities of the exchange and Communication is the link between cities. As an important node in the transport network, the port is also an important platform on business activities and plays an important role in promoting the urban economic development. The safe transportation in the port are also the premise and guarantee of the realization of safety logistics. With the continuous development of social economy, the cooperation between countries and cities is gradually strengthened, the throughput of ports is also constantly increasing, and the pressure of port production is also increasing in the course of carrying out production, some safety problems are also increasing. In the process of port safety information management, risk management will also be a new management method. Risk management mainly includes risk identification, risk assessment and risk control. The implementation of risk management also requires information technology supports (Liang Jin-xiong, 2015). The establishment of port enterprise security management information based on the mobile platform is also a modern information management platform. However, there are still a series of problems in the process of management, which requires effective design and analysis of the security management operating system, to achieve effective control of the risk.

2 ELABORATION OF THE CONTENT OF SAFETY MANAGEMENT INFORMATION SYSTEM

Security management information system is mainly based on the effective combination of computer network and geographic information system to establish a safe and reliable management of production safety supervision information system to achieve the safety of production monitoring through the network and digital means further to standardize and scientifically manage the business and set up a database of safety information management can fully grasp some problems in some safety projects and construction projects in the current safety production process of the port enterprises and make

Zhang, M.
Design of Port Enterprise Security Management Information System Based on Mobile Platform.
In *3rd International Conference on Electromechanical Control Technology and Transportation (ICECTT 2018)*, pages 136-140
ISBN: 978-989-758-312-4

use of the GIS technology to inquire the relevant geographical information so that the work of safety management can work together to strengthen cooperation between various departments for the management of enterprises. In order to provide timely and safe management of information and production information through the establishment of a platform for information technology for the production of enterprises to provide standardized management.

The characteristics of the port security system are mainly reflected on the following aspects. Firstly, the integrity of the port operations, the coordinated development of the systems of personnel, vehicles and equipment among the various systems in the process of port operations. Second, the hierarchical and modern port operations should be managed hierarchically according to a certain method. Among them, there are some hierarchical systems of companies, departments and individuals, and there is some coordination among the various systems. Among the various subsystems there is an important link ; third is the coordination of the port enterprises in the production and transportation process is a certain system to follow, according to the relevant rules and regulations for production and transportation, safety in the production process requires the relevant rules and regulations to be able to better play the role of the system, but also to achieve the relevant indicators (Xu Na, 2013), port safety management system is composed of 12 management systems, as shown in Figure 1 (Port Security Information System).

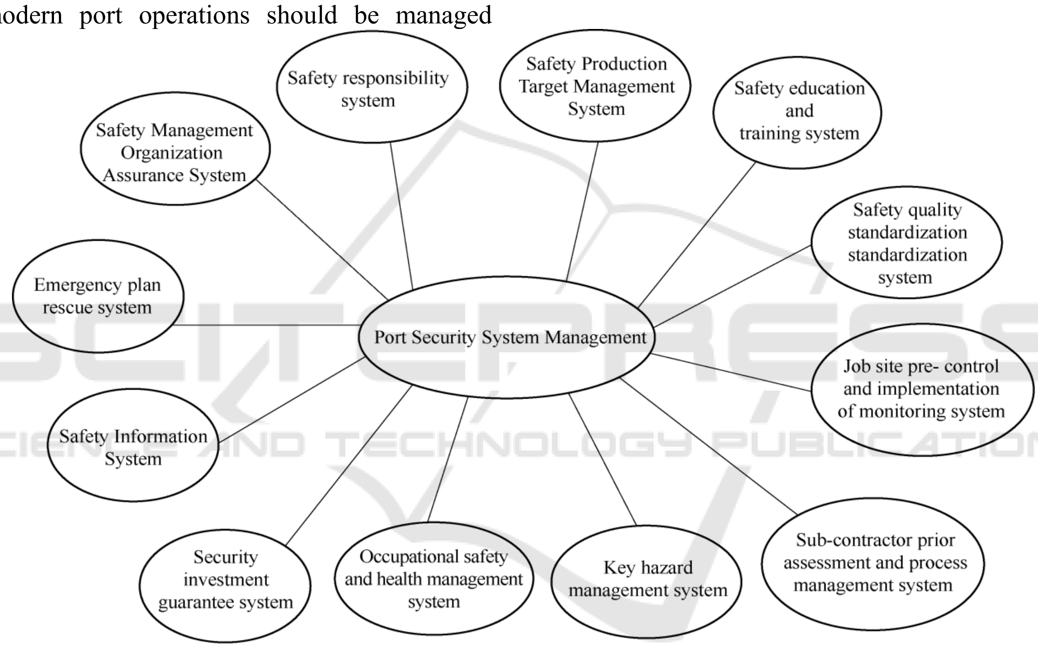

Figure 1 Port Security Information System

3 PORT BUSINESS SAFETY MANAGEMENT OF THE BASIC TASKS

The current development of information technology, information technology in the port enterprise safety management information system has an important role in the safety management of information technology is mainly related to the implementation of statistical information, assessment and other operations,it can not well achieve the safety management in the whole process of information technology, and cannot achieve the production and transportation of various types of risk control. Therefore, the information security management platform construction needs to take into account the following aspects: First, to achieve real-time monitoring, to have some mobile management capabilities, but also some potential risks of the process of troubleshooting (Figure 2),rectification and acceptance of safety management. The second is to use information technology to establish a data management platform, establish a comprehensive data management library, some of the management data and detailed input, to achieve real-time data inspection, and related data tracking management.

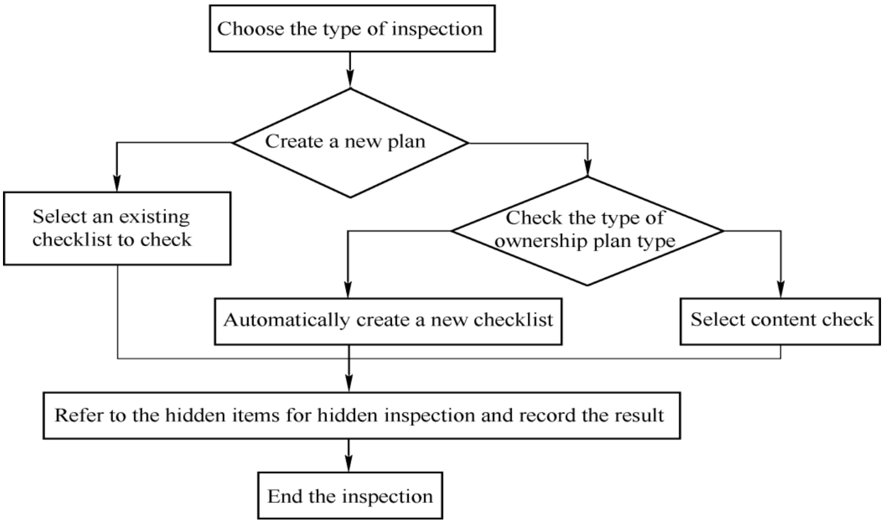

Figure 2 risk screening system

4 ANALYSIS OF PROBLEMS EXISTING IN HARBOR ENTERPRISE SAFETY MANAGEMENT

As the production and transportation of port enterprises and the environment are relatively complicated, the factors that affect their safety are also relatively large. According to some surveys, the enlightenment is that some of the time-based unsafe accidents that affect day and night shifts Is more, in day work because of overwork, prone to paralysis of the state, and night work is due to poor working conditions, lack of motivation; Second, the age of the workers will affect the efficiency of the work and the occurrence of accidents, of which the characteristics of port operations and the characteristics of personnel are also related, and third, the accident rate of the loading and unloading workers is relatively high, loading and unloading workers exposed some of the more dangerous things, lack of skills and safety awareness.

Information system in the port security management process also has some problems, such as hardware failure occurs, the specific meaning is:

PHD - unreliability P (t) = 1-R (t) = 1-E-t, where PHD is a temporal function,

Security Management Information System is a professional information management system, the system development project needs to be considered from the overall, do a good job of the corresponding planning work, some of the subsystems involved is also more complex, including subsystems can have a major hazard management system, safety education management system, a single safety management in the use of the process is very prone to a lot of inconsistencies, the need for coordination between the various subsystems of cooperation, the need for the integrity of the analysis and operation of dedication, to achieve the information Sharing between (Hu Dazheng, 2012). In addition, the development and application of the safety management information system is a relatively complex and difficult system development project. The development of this software project needs to have a profound understanding of this software. After the system is put into trial use, disposal is easy to have some differences, will also affect the normal application of the system.

5 DESIGN OF SAFETY MANAGEMENT INFORMATION SYSTEM

Design and development of safety management information system is also a certain degree of complexity, in that the system design and development works to ensure the completeness of application functions and easy operation, is conducive to the maintenance, to have a good user interface, can indeed solve the production and management processes some of the problems encountered, to be able to meet the needs of different systems, the system should also have some security and stability, to be able to adapt to changes in different periods.

The structure of the system is mainly composed of four parts, including the safety data layer, application technology layer, integrated business management layer and the communication layer of peripheral information. The data layer of production safety is also the core of the whole system platform, which can be used for the application of each subsystem and development to provide complete data information and services, but also to protect the security of data, including the basic database including enterprise information, geographic information (GIS) and knowledge base, the technology layer data exchange, statistical reports and knowledge base management some of the application of technology. Security management information system is related to the inspection information entered in the system, the system will form an established process, so that security risks will be completed, the system will automatically shut down, which also forms a security management structure, in the information of the circulation process, each level of management can see the relevant information and processes, including mobile terminals and WEB-side can be prepared according to the relevant preparation requirements, while setting the task assignment and the results of the inspection, to set the risk value, when the security risk exceeds this limit, the system will automatically alarm, which is also a way to monitor the risk, the relevant supervisors will take appropriate measures to manage and control the risk.

6 FUNCTIONAL DESIGN OF SAFETY MANAGEMENT SYSTEM

In order to better monitor and manage the safety management information system of port enterprises and strengthen the management of safety information systems, it is necessary to establish a safety management information base. Some related business processes and the design of mobile terminals also need to be added, and some safety management functions analysis platform. To achieve the following aspects of the safety management information platform management, (1) the development of inspection plans, through the establishment of special plans and role plans to strengthen the daily inspection of a particular type of project, make a special plan, we must first write out a plan that includes some aspects of when the plan is being executed, what it is planned to do, and what to inspect. Who needs to run those plans ? How long does it take for the actors of the role plan to check once ? What companies and departments have to check the contents of the list ? After the planning is completed, the process of establishing the safety inspection needs to be set up, the process of establishing the safety inspection in the system, some of the planning processes will be automatically saved from the relevant system, the safety management can be tracked through the safety inspection process, and the safety management can be strengthened, Improve management efficiency. (2) Among them, the dynamic device management can utilize the CMS system, among them the famous SIS system of Siemens and German companies are more advanced equipment management systems. After establishing the related system platform, there are some hidden dangers to be investigated, you need the relevant inspectors to use the mobile terminal troubleshooting process of the hidden troubleshooting system, there will be many hidden problems of the system, for example, the shift inspection and conduct routine examination, when you select one of the items, there will be a list of all tests (Xu Zuyuan, 2006). (3). For the maintenance of mobile terminal, in the process of safety management, the performance management of the safety management personnel needs to be checked. To track and manage the operational level and work performance of the safety management personnel, it is necessary to continuously improve the management level of the management personnel and management ability, in order to do a good job in the inspection of the relevant work processes, can accurately find a series of management problems exist. For example, the electronic map can be used to locate the hidden trouble. After some management information is input to the system, the system automatically records the current geographical location. When the hidden trouble occurs, the system checks the hidden danger, the risk value and the personnel track will appear on the WEB side, we can promptly detect the location of the hidden dangers, all the circumstances will be displayed on the mobile terminal, the use of this electronic map, to provide a guide for the management of the work, timely detection and management a series of problems in the process.

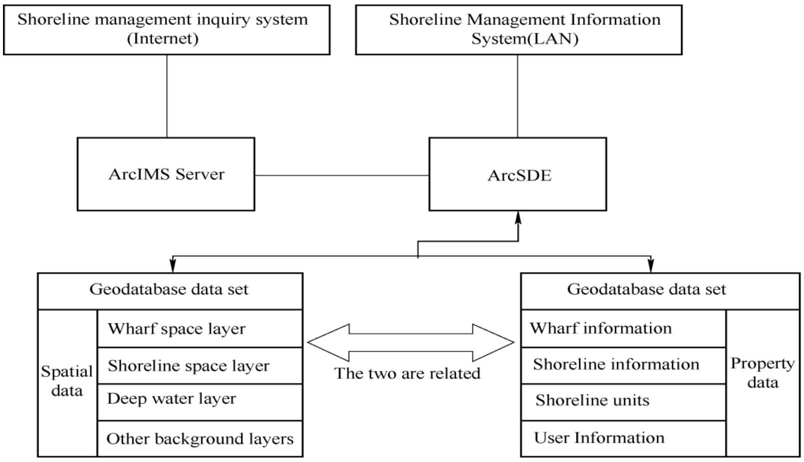

Figure 3 information management area diagram

For the safety management of port enterprises need to do daily work management, safety management which are: First, to promptly release the relevant notice of production safety, safety management in the port business process, to promptly release the relevant safety notice, to enable relevant personnel to find out from the system in time the safety notice; Second, we must do a good job in the port construction site safety management, strengthen the safety management of on-site operations is also an important part of enhancing safety management, site operations, the safety can be effective to achieve the transport of goods safety, safety management personnel can promptly analyze the security situation. Third, managers should do a good job on the analysis of production safety, production safety analysis is the basis for managers to make decisions, every day to analyze the work safety, sum up experience to provide follow-up safety management to learn from, do Good analysis of safety inspections. Among them, the working environment in port is also an important factor in safety management.By establishing a geographic information system to monitor the environment, we can find out where the safety problem occurred in time. To entered port space information into the system, establish different layers, including the building layer, power system layer and traffic road layer, the relevant safety information statistics and management.

7 CONCLUSION

In summary, the management of the port enterprise safety information system can make the port safety management in real time, classify the related risks, strengthen the risk accounting, timely take measures to rectify, the continuous development of the current information technology, the level of production management technology of port equipment is also constantly improving. Use information technology to manage risks is also an active means of safety management through risk identification and control.

REFERENCES

Liang Jin-xiong. Design of Port Enterprise Security Management Information System Based on Mobile Platform [J]. Transportation Science and Technology, 2015, (05)

Xu Na. Economic Analysis of Port Security Investment [D]. Tianjin University, 2013.

Hu Dazheng. Guangxi Port Security and Security Management Information System Design and Implementation [D]. Beijing Jiaotong University, 2012.

Xu Zuyuan. Create a new situation in our port security management [N]. China Water Transport Daily, 2006,05

Yu Jian-Zhou, Wang Fang, Guan Xu-Xin, Wu Wen-Bin.Development and Application of Safety Information Management Platform for Zhangjiagang Port Group [J]. Port Handling, 2014, (02): 41-43.