

**SVEUČILIŠTE U ZAGREBU**  
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**INTEGRALNA LOGISTIKA U FUNKCIJI UNAPRJEĐENJA SUSTAVA  
UPRAVLJANJA LUKOM**

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**SAŽETAK**

Složenost lučkog poslovanja zahtijeva sustavan pristup u promatranju strukture njezinog sustava upravljanja, temeljnih operativnih zadaća, utvrđivanju tokova tereta i informacija te raspona lučkih logističkih usluga. Optimalno funkcioniranje lučkog sustava znači usklađenost djelovanja svih subjekata koji čine njegovu strukturu s ciljem optimizacije opskrbnih lanaca u kojem luke imaju vitalnu ulogu. Konkurentnost luke se ne ogleda samo u njezinom utjecaju na svoje gravitacijsko područje već i na važnost koju postiže kao jedan od čvorova mreže opskrbnih lanaca.

Integralna logistika je po definiciji proces predviđanja potreba i zahtjeva kupaca, prikupljanje kapitala, materijala, ljudi, tehnologija i informacija potrebnih za ispunjenje tih potreba i zahtjeva; optimiziranje proizvodne mreže roba ili usluga s ciljem ispunjenja zahtjeva kupaca; te korištenje mreže s ciljem ispunjenja zahtjeva kupaca unutar zadanog vremenskog roka. Obzirom da suvremeni pristup upravljanju teži optimizaciji poslovnog sustava kao cjeline, ona se može postići samo na temelju nove organizacijske paradigme koja polazi od efikasnosti i djelotvornosti procesa unutar poslovnog sustava, ali i onih koji prelaze njegove postojeće granice.

U ovom će radu metodom deskripcije integriranih logističkih sustava MEDILS biti izrađen deskriptivni model postojećeg sustava upravljanja lukom temeljen na istraživanju sustava upravljanja i pokazatelja logističkih performanci lučkih procesa u Luci Ploče d.d., Luci Vukovar d.o.o. i Luci Koper d.d. Nad prikupljenim podacima vezanim uz dolazak, iskrcaj i ukrcaj kontejnera te odlazak broda feeder servisa iz luke biti će izvršena statistička analiza kojom će se utvrditi uska grla temeljem vremenskih indikatora cijelog promatranog procesnog lanca.

Nakon toga će se, poštujući načela integralne logistike predložiti mjere eliminacije ustanovljenih uskih grla i posljedično ispravljanja vrijednosti vremenskih indikatora performanci sukladno glavnim aktivnostima logistike usluga: upravljanjem vremenom

čekanja, kapacitetom usluge i osiguranjem isporuke usluge. Potom će se pristupiti analizi njihovog utjecaja po mjestu primjene mjere i u konačnici promatrane cjeline sa aspekta glavnih čimbenika efektivnosti – raspoloživosti, pouzdanosti i funkcionalne pogodnosti poslovnog sustava. Uvođenjem i modificiranjem koncepta integralne logistike specifičnim zahtjevima lučkog poslovanja pristupit će se stvaranju modela unaprijedenog sustava upravljanja lukom i većom razinom efektivnosti i efikasnosti lučkih procesa. Poboljšani, MEDILS metodom izrađen model, predviđen za djelovanje u realnom okruženju biti će testiran simulacijskim modulom programskog alata ARIS.

*Ključne riječi: sustav upravljanja lukom, integralna logistika, opskrbni lanci, feeder servis, logistika usluga, Metoda deskripcije integriranih logističkih sustava, simulacija poslovnih procesa*

## **INTEGRAL LOGISTICS IN IMPROVING THE PORT MANAGEMENT SYSTEM**

The complexity of port operation requires a systemic approach in studying the structure of its management system, basic operative tasks, determining of cargo and information flows as well as the scope of port logistic services. Optimal functioning of the port system means harmonization of the operation of all subjects that form its structure with the aim of optimizing the supply chains in which the ports play a vital role. The competitiveness of a port is not reflected only through its impact on the respective catchment area, but rather also through the significance it achieves as one of the nodes in the supply chain networks.

According to the definition, integral logistics is a process of forecasting needs and requirements of the customers, collecting capital, material, people, technologies and information necessary to meet these needs and requirements; optimization of the production network of goods or services with the aim of fulfilling the customer requirements; and usage of the network with the aim of fulfilling the customer requirements within a given time deadline. Since the modern approach to management tends to optimise the business system as a whole, it can be achieved only on the basis of new organization paradigm which starts from efficiency and efficacy of the processes within the business system, as well as from those who pass beyond the current borders.

In this thesis the method of describing the integrated logistic systems MEDILS will be used to develop a descriptive model of the current port management system based on the research of the management system and the indicators of logistic performances of port processes at the Port of Ploče plc., Port of Vukovar Ltd. and the Port of Koper plc. The collected data related to arrival, unloading and loading of containers and departure of the ship feeder service from the port will be statistically analyzed and the analysis will identify the bottlenecks shown through time indicators measused from the entire studied process chain.

After that, respecting the principles of integral logistics, the measures for the elimination of the established bottlenecks and consequently improving time indicators will be proposed in accordance with the activities of the logistic services: through management of waiting time, capacity of services and ensuring the delivery of service. Then their impact will be analyzed according to the point of measure application and finally of the studied unit from the aspect of the main factors of effectiveness – availability, reliability and functional suitability of the business system. An improved model of port management system and higher level of effectiveness and efficiency of port processes will be developed by introducing and modifying the concept of integral logistics to specific port operation requirements. An improved model developed by means of the MEDILS method, planned to function within the actual environment, will be tested using a simulation module of ARIS software.

*Key words: port management system, integral logistics, supply chains, feeder service, logistic service, Integrated Logistic System description method, business process simulation*