PUBLIC-PRIVATE PARTNERSHIP - MANAGEMENT MODEL OF CROATIAN SEAPORTS

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The subject of this research paper is to analyze the possible models of using public-private partnerships in the management of sea ports in the Republic of Croatia. Public-private partnership, as a modern form of cooperation between the public and private sector, enables port systems to increase their efficiency and to base their port services on a commercial arm's length basis despite the limitations of public funding. The introduction of the private sector in port operations directly affects their management models. The aim of the paper is to point out, through the presentation of different management models of ports and possible forms of public-private partnerships, the differences in the approach of solving the problem of modernization of Croatian ports and achieving their sustainable developments goals. The research results indicate that the timely analysis of the port environment and basic port performance indicators precondition a strategic planning of some Croatian port systems both at regional and national level. In this way, a better implementation of investment projects will be achieved that will contribute to further growth and development of the Croatian port system.

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1. INTRODUCTION

Seaports are specially built places on the coast where the loading, unloading or reloading of cargo or passengers takes place They are the start and end point in the process of marine transport, and are therefore a key subsystem in the maritime and transport system. They are the accelerators of major traffic movement and of the development of many economic activities in a country (Zelenika et al., 2011).

The total turnover of cargo seaports occupies a significant proportion of container traffic, which has emerged as a promising form of cargo transportation. The result of these developments is the construction of specialized marine cargo ports exclusively for manipulating containers. Container terminals are specially constructed and equipped facilities with the primary function of handling and storage of full/empty containers. They connect different transport sectors (maritime, road, railway, and river), among which there are large differences in capacity. Therefore, in performing necessary manipulations, it is important to provide fast, safe and unhindered container flow (Beškovnik, 2008).

The key issue for container terminal management is the optimum balance between marine shippers requiring fast service for their ships and economic utilization of available terminal resources (Gudelj et al., 2010). Dealing with demands for handling a greater number of containers in a shorter period with a tendency to reduce handling fees determines the basic guidelines for the future development projects of each terminal. The concepts used in meeting the current and/or future needs in container terminal development are as follows (Twrdy & Beškovnik, 2008):

- construction of a new terminal with improved characteristics or
- replacement of obsolete equipment with a new one, with a higher efficiency, using the existing infrastructure.

Based on the abovementioned, investment activities can be directed towards the basic components of the container terminal system (Acciaro, 2004), namely:

- port infrastructure (channels, breakwaters, piers, quays, road and rail infrastructure, etc.),
- port superstructure (warehouses, service facilities, terminal input/output gates, etc.) and
- port equipment (shore cranes, warehouse dock levelers, tractors, trailers, auto cranes, forklifts, etc.).

The public sector has been a traditional investor for many years, but in the last two decades, the trend has seen major structural changes reflected in the increasing share of the private sector in port system capital investments. The reason lies in (Acciaro, 2004):

- the need for increasing the competitiveness of ports,
- the desire to stimulate the regional economy in port environment, and
- the reduction of government expenses for capital investments.

Depending on the level of the private sector involvement in port systems, their management models have been changed as well. They differ in the structure of ownership of port resources (equipment, infrastructure and superstructure), presence in management processes and port orientation (local, regional or global).

The process of cooperation between the public and private sectors is conducted through two basic models of public-private partnership, as follows (Official Gazette, 78/2012):

- contractual public-private partnership - in which the mutual relationship between the public partner and a society with special purpose is arranged by the agreement of public-private partnership and
- the status of public-private partnership - which is based on the contractual relationship between the public and private partners with the purpose of the public private partnership set up as a joint company.

The principal objective of the partnership must be the construction and/or reconstruction and maintenance of public buildings for the purpose of providing public services within the scope of the public partner. The common objectives of public and private sector are accomplished, while risks and costs of investing are shared, in order to achieve cheaper, better and more accessible public services for end users and taxpayers.

The opportunities for developing the public-private partnership in Croatian ports were created with the Amendments to the Maritime Domain and Seaports Act (Official Gazette, 141/06) where "cargo-handling equipment" was defined as a new term.

It includes port cranes and other main handling facilities no longer in the maritime domain, thus allowing the right to acquire ownership over them (Batur, 2010). This legal provision created the basic conditions for the accelerated modernization of Croatian ports.

The process of modernization of Croatian ports began with the Rijeka Traffic Route Redevelopment Project also known as the Rijeka Gateway Project. It is a very complex development program intended to redevelop and modernize the entire port complex, improve transport connections of the port with the international road and rail corridors, and privatize port operations. Both the construction and modernization of container terminal, as integral project components, will increase the existing capacities as well as achieve greater efficiency and technological integrity.

Estimated investment projects will consolidate both the public and private sector investments, representing a novelty in relation to the use of the existing financing models of constructing and modernizing Croatian ports, which focused solely on financial resources from the budgets of public institutions. In accordance with the problems of the research, the following fundamental proposition is made: *only the scientific knowledge about the fundamental laws, principles and implementation of public-private partnership, and certain forms of managing seaports will facilitate the creation of models that will ensure sustainable growth and development of the Croatian port system*.

To prove the hypothesis, and to facilitate the presentation of research results, the paper is divided into five interrelated components. The introductory section presents the object of study as well as the set basic hypothesis. The second part is based on comparisons between the basic models of port management. The third part deals with basic features, models and risks of public-private partnership, while the fourth section presents the development plans of sea ports in Croatia with special reference to the river port development program and the implementation of public-private partnership model in its management. In the final part and conclusion, a synthesis of research results is presented.

2. PORT MANAGEMENT MODELS

The private sector entry into the traditionally public port sectors has caused institutional changes and affected terminal management systems. It can be attributed to the reduction of public investments that resulted from a fast-paced development of information technology which has influenced the transparency in public activities, unpreparedness and inability of the public sector to make large investments into the port sector, thereby exposing itself to public criticism due to a possible deficit in the government budget (Desai, 2005). Considering investments, supervisory and operational functions, different management models are determined according to the assigned rights and obligations of the

terminal board members (national, regional or local authorities, port authorities, and the private sector). Four basic management models with different objectives have emerged over time (Đelović & Medenica, 2008):

- Service Port has a predominantly public character. All port assets are owned, maintained and managed by the Public Authority. Cargo handling is performed by port workers. Service Port operation is usually controlled by the Ministry of Maritime Affairs, Transport and Infrastructure.
- Tool Port is a model in which the port authority is responsible for investments, development and maintenance of port infrastructure, superstructure and equipment, while cargo handling is carried out by private companies which have signed contracts with shippers and/or cargo owners. In some cases, private companies are also allowed to use their equipment, but then partially lose the Tool Port character.
- Landlord Port is a combination of both the public and private sector, with a split ownership and management of port assets. The Port Authority, as the landowner, performs regulatory and supervisory functions through its acts, while the private operators are mainly concerned about the operational activities related to cargo handling. The Port Authority is responsible for the long-term port development, protection of public interests, safety and safe port operation, environmental protection policy and measure enforcement, maintenance and investment in port infrastructure. The private operators enter into long-term contracts with port authorities, undertaking the investments and maintenance of both port superstructure and handling equipment. Port labor is employed by the private operators.
- Private Service Port is a model of a fully privatized port. Besides the port infrastructure, superstructure and equipment, the private operators also own the land. Thus, the public sector loses complete control of the port system, which represents an extreme form of the port reform.

Each of these management models has its own specifics, so when choosing, one should take into account their main advantages and disadvantages (see Table 1). Both Service Port and Tool Port are models primarily focused on the public sector interests. Landlord Port model uses a combined approach of both the public and private sector within which it strives to achieve a balance between their individual interests and goals, while Private Service Port is exclusively focused on the private sector interest. The differences between the models relate mainly to the role played by the public sector and private operators, the ownership of superstructure, capital equipment and provisions of labor force and management.

Table 1. Characteristics of the basic port management models

PORT MANAGEMENT MODELS	ADVANTAGES	DISADVANTAGES
SERVICE PORT	• management and responsibility of an organization, • possibility of adapting to the public interest and • port remains a public asset.	• decreased ability to solve the efficiency and flexibility, • lack of international competition, • irrational use of available resources, • high state influence, • port operations have a low market orientation, • lack of innovations, • direct dependence on the government budget and • limited role of the private sector.
TOOL PORT	• avoiding double investments in port assets, • possibility of adapting to the public interest and • port remains in the public domain.	• risk of absence of investments, • lack of technological innovations, • high state interference, and unused port resources.
LANDLORD PORT	• one sector (the private one) manages port activities, • adequate level of investments, • small state influence, • high responsibility of the port operator to a port, • maximum utilization of port resources and • a low level of dependence on the government budget.	• risk of overcapacity due to mismatch between plans • for the construction of new capacities, • duplication of resources as a result of activities of several operators and • presence of monopoly in certain cases.

PRIVATE SERVICE PORT	• maximum flexibility in both port operations and investments, • increased port efficiency because of no state interference, • market-oriented development and price policy of port services, • high cost of port land at sale to a private operator and • ability of a private operator to expand the scope of port activities.	• monopolistic behavior of operators without state control, • inability of the state policy in achieving the long-term economic development of port activities, • state must allocate large funds to regain ownership of port land and • high risk of land manipulations by private owners.

Source: Desai (2005).

3. PUBLIC-PRIVATE PARTNERSHIP IN THE PORT SECTOR

The construction and financing of the public and infrastructure facilities have traditionally been executed by the public sector. However, the economic liberalization and privatization process of state enterprises have caused significant changes which has made the government lose both control and management of public interest facilities. In order to protect its interests, the State has enabled the entry into public-private partnership, thus establishing a balance between state funding and complete privatization. Such cooperation has united the private sector know-how and assets with the public sector objectives and requirements oriented towards satisfying some public needs.

Public-private partnership in the ports sector is an important guideline in the port development process using new access to sources of financing the port infrastructure and equipment. The need for the introduction of private capital in the port operation resulted from the inefficiency of the public sector to fulfill the following objectives (Čišić & Perić, 2005):

- provide services efficient in terms of port users (expenses, transparency, business),
- respond to new challenges in cargo handling imposed by modern technological achievements,
- respond to changing demands of port service users,
- enable choice and variety of port services creating market competition,

- provide sufficient capital for investing in the expansion of the existing capacities or the construction of new ones,
- provide better physical and business connections with inland transport and
- develop working discipline and create a positive impact on labor productivity.

Public-private partnership models emerging on container terminals have their own specific qualities, directly related to (Acciaro, 2004):

- vast selection of container lines (shipping companies easily change shipping lines towards other terminals),
- adequacy of infrastructure (quality, speed, availability, basic characteristics of terminals adapted to users' needs),
- presence of concessions as the most widespread contracts with the private sector, and
- increase of terminal capacity with a service rate restriction in order to strengthen the market position or the need for opening new markets (continuous policy pursued by the public sector).

Partnerships commonly used in container terminal management have the structure of the Landlord Port Model (predominantly present in large and medium-sized ports such as Rotterdam or Antwerp) in which the public authority, represented by the port authorities, enters into public-private partnership contracts with the private sector (The World Bank, 2007). The role of the Port Authority consists in managing the public infrastructure (breakwaters, entrance channels towards terminals, road and rail access, etc.), the arrangement of public-private partnership individual contracts, planning and implementation of port expansion and development models.

3.1. Basic features of public-private partnership

Public-private partnership is a partnership between the public and private sector in which the public sector allows the private one to finance and manage both public services and infrastructure in order to increase financial investment opportunities, improve the quality of public services, infrastructure development and modernization, and introduce marketing into the public sector (Bajrambašić, 2004). The need for such a partnership was created as a direct consequence of the inability of the public sector to make considerable financial investments to improve both the public infrastructure and services.

Limited financial, material and human resources of the public sector often result in the inability to increase the level of state standards and falling behind the growing needs of society. The cooperation between the public and private sector is not exclusively based on financing, but public-private partnership also applies to project processes, construction, utilization, management and maintenance of the public infrastructure and services. The result of such a wide range of cooperation is the emergence of many different partnership models with several characteristics in common (Marenjak & Kušljić, 2009):

- the relatively long duration of the partnership,
- projects financed by the private sector with the possibility of the public sector participating and financing,
- the public partner defines the strategic and project goals aimed to achieve the public interest in terms of quality of the service rendered, forms price policy and takes responsibility for monitoring the achieved set aims, while the private partner takes the expertise of various project phases, and
- the private sector assumes the risks otherwise borne by the public sector, with the exact risk distribution determined for each project according to individual abilities to evaluate, manage and respond to some risk.

According to the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP, 2011) the public-private partnership models can be classified into five main groups according to the method of implementation:

- management and service provision contracts,
- 'turnkey' contracts,
- rental lease agreements,
- concession contracts and
- private finance initiative contracts.

By signing a management and service provision contract, the private sector takes over the provision of certain services on behalf of or for the account of the public sector in a partial, or a complete takeover of a public company. Such contracts allow both the private sector know-how and experience to be used in service creation, operational monitoring, workforce management and equipment procurement. The private sector must pay a fee, while the public sector retains ownership of all assets and equipment. Contract duration is three to five years.

'Turnkey' contracts are traditional partnership models, through which the public sector implements the infrastructure projects. The private partner, chosen

by a tender, defines its level of service as a fixed, percent or total expense, while the criterion for the choice of partners is the most advantageous offer.

These are contracts with a low private investment rate and are implemented in a shorter period of time. According to a rental lease agreement, the public sector leaves the public property to a private partner. The private operator is responsible for managing and maintaining both infrastructure and equipment, and is usually also in charge of its functional and technological development. Under the lease agreement, the operator pays a certain rent to the public sector, while under the rental agreement, service users pay a fee of a certain percentage to both the public sector and private operator. These agreements last from 15 to 30 years, thus allowing the private partners to invest greater financial resources.

Under concession contracts, the public sector transfers a part of its construction and exploitation rights or a certain service provision to a private partner for the contracted period. The private partner pays a concession fee for the granted rights.

However, in cases when it is necessary to make a project market-viable or reduce the level of commercial risk assumed by the private partner in the new market development and opening, the fee can be paid to the concessionaire by the public sector. These contracts are concluded for a period of 5 to 50 years. In private finance initiative contract models, the private sector is responsible for planning, construction and managing the infrastructure assets. In some cases, the public sector may cede its ownership of certain assets. According to the domains of these contracts, the public sector rents or buys a specific type of public goods or services from the private partner under long-term contracts. After the contract expires, the public sector repossesses assets.

3.2. Possible partnership models in the ports sector

Public-private partnership models in the port sector can be divided into three main groups (Farrell, 2011):

3.2.1. Management and investment models for the existing public assets

The private operator manages assets in public ownership, makes additional investments in them, and gets the right to use them for a specified period of time. The ownership of public assets remains in the public property throughout this period. Privately-funded infrastructure and superstructure solid facilities are usually taken into public ownership immediately after construction, while

privately-funded mobile port assets, such as cranes, tractors, trailers, forklifts, etc. usually remain the property of private operators. After the contract expires, the right to manage public assets is transferred back to the public sector, which can re-assign these rights to another private operator.

The differences in the models of these contracts relate mainly to the existence of possible reimbursement of expenses to a private operator for the incurred financial differences in investment during the contract period, the model of extraction of movable port property purchased by a private operator, or its sale to the public sector.

3.2.2. Management model of the newly invested private assets (BOT: Build-Operate-Transfer)

Private investors buy the right from the public sector to build basic port assets and have exclusive right to use them during the contract period. After its expiry date, the ownership of built assets is transferred back to the public sector. The need for this type of partnership was created when the current basic port assets proved insufficient in relation to the private sector interest. Important reasons for the application of this management model relative to fully privatized ports are as follows:

- according to the Roman law, the seabed up to the highest water line traditionally belongs to public authorities and cannot be transferred to private companies;
- the high costs of port infrastructure (breakwaters, gully channels, etc.) require continuous investments in their maintenance from the revenue of port activities, which would not be possible if the ports were fully privatized;
- due to a small number of sites suitable for building ports and possible restrictions in both road and rail infrastructure, public authority wants to retain a permanent stake in the ownership and participate in the strategic development and profit realization;
- public authority seeks to preserve the value of existing ports in its possession and compete on its terms with newly built cheaper private ports.

3.2.3. Management model of common public-private projects

In these management models, the public sector allows a very liberal entry of private capital in the port sector, while maintaining a very high public influence or control over the newly built port assets. The model is commonly

used in China and Indonesia. Great cultural and historical differences between countries of the world have resulted in the application of a large number of different forms of public-private partnership. The basic characteristics common to all models can be defined by eight fundamental points (Farrell, 2011):

- activities transferred to private operators,
- the need to invest a certain amount of private capital,
- contract duration,
- monopolistic rights of exclusive exploitation of port assets,
- the level of achievement of the objective by public authorities,
- the attitude towards employees,
- the rate and way of port service formation and
- determining the fee for port asset exploitation.

3.3. Project risks of public-private partnership in the ports sector

Public-private partnership projects in the ports sector are exposed to various types of risk. They can generally be divided into two main groups directly dependent on the time of their formation and various financial indicators (Bajrambašić, 2004). The first group of risks emerges in the initial construction phase before all the necessary facilities have been completed. It is characterized by negative financial indicators due to high initial investments. The basic risks arising at this stage are: project risks, development risks, financial risks, construction risks, project completion risks and force majeure risks.

The second group of risks occurs during utilization and maintenance of constructed facilities and lasts until the contract expires. It is marked by planned positive financial indicators because of increased revenues and investment commitments made. The main risks arising at this stage are: revenue risks, financial risks, operational possibilities and risks, legal risks, environmental risks, and market risks.

However, all the risks affecting public-private partnership projects, with respect to their emerging sources, can be divided into five main groups (Roumboutsos & Pallis, 2010), namely:

- Technical risks - include project shortcomings, use of innovative technology projects, subsequent changes in projects, availability of labor and materials, a low level of expertise resulting in overtime, unexpectedly adverse geotechnical conditions, weather conditions, accessibility and availability of land, delay in the estimated and

allowable project deadlines, amendments to construction laws, archaeological site location, changes to construction contracts, funds availability and force majeure (causes delays in construction projects and the given budgets are exceeded),

- Market risks - are the ratio of the invested amount and unsafe predictions of needs for a port service, as well as willingness of users to pay for it (the dependence on constant market changes and trade flows determines the repayment of investment and profit realization),
- Financial risks - include external risks relating to the location of project realization (profit taxation, foreign exchange and stock market, state credit rating) and internal project risks relating to financing sources (credit interest rate and its repayment deadline, financial subsidies, credit availability),
- Environmental risks - the compliance of the risk level of the project with standards on environmental protection and continuous adjustment to constant amendments to legislation on environmental protection,
- Political risks - relate to the political stability of an area and the public sector activity to provide conditions allowing the private sector to make money.

One of the key causes for the emergence of these risks is the lack of knowledge of strategic and project processes. Their timely involvement in investment projects through strategic project management would reduce the risk impact to the lowest possible level, and enable rapid growth and development of the port sector.

4. PORT MANAGEMENT SYSTEM IN CROATIA

Croatian port system, the most important subsystem of the marine transportation system of the state is the base for the development of numerous economic activities at local, regional and national levels. Its viability is directly related to the ability to adapt to modern business conditions resulting from the processes of globalization, liberalization, privatization and computerization of the world market.

Possibilities to introduce public-private partnership were considered, because the state has limited funds for business improvement of Croatian seaports. The partnership should bring greater efficiency (economy, profitability) to port operations at the global level, ensure price competitiveness against other Northern Adriatic and Mediterranean ports and raise the quality of port services to the global level (Perić Hadžić, 2011).

4.1. Development programs of Croatian seaports

Six Croatian seaports open to public transport and of particular economic interest are Rijeka, Zadar, Šibenik, Split, Ploče, and Dubrovnik. The development processes of construction and modernization implemented in all ports aim to achieve fundamental goals in port system improvement, consistent with the expected future development of the Republic of Croatia. According to the Strategic Plan of the Ministry of Maritime Affairs, Transport and Infrastructure from 2012 to 2014 (Ministry of Maritime Affairs, Transport and Infrastructure of the Republic of Croatia, 2012), the investments planned for development programs in Croatian seaports are as follows:

- Rijeka - EUR 190 million,
- Zadar - EUR 236 million,
- Šibenik - EUR 25 million,
- Split - HRK 28 million,
- Ploče - EUR 91 million, and
- Dubrovnik - EUR 26.2 million.

All the investments will be financed by the government budget and loans from the World Bank, the European Investment Bank (EIB), the European Bank for Reconstruction and Development (EBRD) and the German Development Bank (KFW), and this is for the Republic of Croatia the worst governance model for a large number of ports of national importance and a big financial burden for the public budget.

It is, therefore, necessary to look for other financing modalities and other ways of promoting sustainable development of Croatian ports. Under the concession agreement, an additional EUR 54.5 million will be invested to the container terminal Brajdica (Luka Rijeka d.d., 2009). This investment is the most important example of a development program of the port of Rijeka known as the Rijeka Gateway Project which will be carried out through the public-private partnership.

4.2. Development program of the port of Rijeka

The Port of Rijeka is Croatia's largest commercial seaport. It is the main driving force for the development of regional and national economy. Due to its favorable geographical position it also has a promising transit role for Central Europe. All this makes it the main national port of special international significance. This requires that Croatia continues investing in development

programs so that the harbor business can continuously adapt to changing market needs. The implementation process is a developmental program known as the Rijeka Gateway Program or the Project Rijeka Gateway.

It includes port-alignment of operational requirements with an urban part of the metropolitan area and the development of transport links of the port area to the international road and rail corridors. Its full implementation will improve the competitiveness of Rijeka as a port city, located at the beginning of the Corridor Vb, one of the major Pan-European transport routes, it will modernize strategic port facilities, increase private sector involvement in port activities, improve the financial performance of the Port of Rijeka, improve the quality of the port city of Rijeka and better integrate it into international supply chains.

The total value of planned investments in the development programs of the port of Rijeka is EUR 190 million of which, EUR 158 million are a planned loan from the World Bank for Reconstruction and Development, and a EUR 32 million are domestic share from the budget of the Republic of Croatia (Ministry of Maritime Affairs, Transport and Infrastructure of the Republic of Croatia, 2012). The planned amount of investment projects includes:

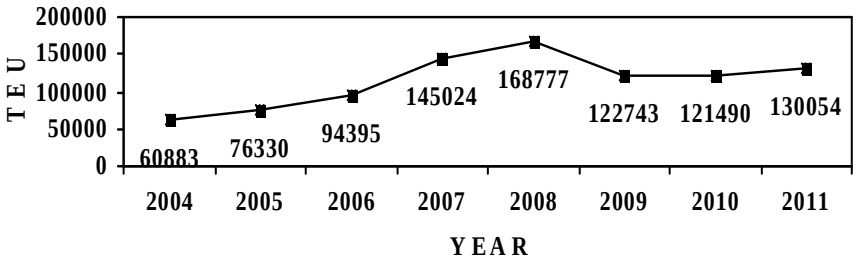
- the construction of a new passenger terminal worth EUR 13 million (completed in 2009),
- the expansion and modernization of the Brajdica container terminal worth EUR 28 million (completion expected in 2015),
- the construction of a new container terminal at Zagreb pier worth EUR 70.5 million (completion deadline in 2017) and
- the renovation of the Delta area and the Port of Baross with the construction of commercial facilities (a hotel, offices and residential areas, a nautical center - planned start of construction in 2013).

In addition to the port area modernization, the development program also includes the construction of roads to the port of Rijeka and the procurement of new port equipment.

4.2.1. The implementation of the public-private partnership model of governance to the container terminal in Rijeka

The continuous container traffic growth, at its peak in 2008 (Figure 1), directly influenced the development of Rijeka container terminal and made the Croatian government form a new master development plan for the port of Rijeka with the help of the Port of Rijeka Authority and the Rotterdam Maritime Group consultant company.

According to the master development plan, it is expected that the potential container traffic in 2015 will amount to 335,000 TEU, and by 2020 to reach 640,000 TEU (the Port of Rijeka Authority, 2008). The current capacity of 250,000 TEU (Jadranska vrata d.d., 2012) and its utilization is evident from Figure 1.



Source: "Jadranska vrata" d.d. (Adriatic Gate j.s.c.) and the Port of Rijeka Authority

Figure 1. Traffic of Rijeka container terminal from 2004 to 2011

It was also found that the traffic of Rijeka container terminal participates with a very small share in the total traffic of the Northern Adriatic container ports (Table 2).

Table 2. Traffic of the Northern Adriatic container ports

PORT	TRAFFIC 2004 / TEU	TRAFFIC 2005 / TEU	TRAFFIC 2006 / TEU	TRAFFIC 2007 / TEU	TRAFFIC 2008 / TEU	TRAFFIC 2009 / TEU	TRAFFIC 2010 / TEU
RIJEKA	60883	76330	94395	145024	168777	122743	121490
KOPER	153347	179745	218970	305648	353880	343165	476731
TRIESTE	174729	198319	220310	265863	335943	276957	281629
RAVENNA	169467	168588	162052	206580	214324	185022	183041
VENICE	290898	289860	316641	329512	379072	369474	393913
TOTAL TRAFFIC / TEU	849324	912842	1012368	1252627	1451996	1297361	1456804
RIJEKA SHARE IN TOTAL TRAFFIC	7.17 %	8.36 %	9.32 %	11.58 %	11.62 %	9.46 %	8.34 %

Source: Statistical data of the Northern Adriatic port authorities

In order to strengthen its strategic position and increase the total traffic of Rijeka container terminal, it is necessary to urgently increase the utilization of the current capacities and to start both construction and modernization. The fundamental reason for involvement of private sector to port activities have been the financial resources, needed to finalize the planned investments into the Rijeka container terminal, as the required amount of money could not be provided by the public sector. In the international public tender, the International Container Terminal Services Inc. (ICTSI), headquartered in Manila, Philippines was chosen.

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On March 5th 2011, "Luka Rijeka" d.d (the Port of Rijeka, Inc) or, to be more precise, its subsidiary "Jadranska vrata" d.d. (Adriatic Gate j.s.c., holder of the container terminal concession until 2041), signed an agreement with ICTSI on the public-private partnership (Jadranska vrata d.d., 2011). Through the indicated status of the public-private partnership a new company was founded - "Adriatic Gate Container Terminal" d.d. (j.s.c.) The International Container Terminal Services Inc. acquired 51% and the "Jadranska vrata" d.d. 49% of the shares, which was directly influenced by the change from the existing Service Port management model into the new terminal Landlord Port model.

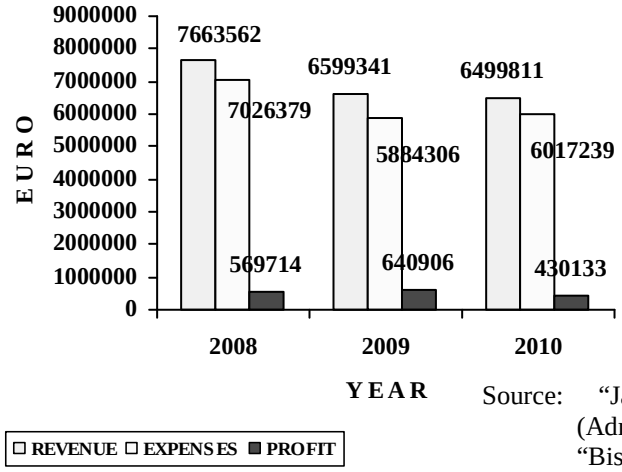
Assuming management rights over the Adriatic Gate, the private partner also assumed the obligation, signed by the Adriatic Gate and the Port of Rijeka Authority in the concession contract on the container terminal, to invest EUR 54 million by 2015 (Luka Rijeka d.d., 2009). The amount should be invested in the reconstruction of the terminal operational areas and rail infrastructure, the procurement of new cargo handling machinery (coastal container bridges, mobile container cranes, tractors, trailers, auto cranes) and the automation and computerization of port activities.

4.2.2. The success of the public private partnership at the container terminal in Rijeka

The success of each investment project is exposed to various forms of risk. In reducing their impact it is very important to analyze performance indicators influencing the decision to start investing which is why operational data from 2008 to 2010, prior to the introduction of public-private partnership, will be analyzed for Rijeka container terminal.

The annual financial reports of Rijeka container terminal (Figure 2) indicate an average profit after tax of EUR 546,918.00 per year, in the given

period. Actual business results constitute the core data in determining the boundaries of project investment opportunities.



Source: "Jadranska vrata" d.d. (Adriatic Gate j.s.c.) and "Bisnode" d.o.o. (Ltd) (http://www.poslovna.hr)

Figure 2. Financial performance indicators of Rijeka container terminal

The comparison of container terminal operations shows that Rijeka container terminal, as far as total traffic and revenue are concerned, lags approximately three times behind Koper (Table 3).

Table 3. Comparison of performance indicators of Koper and Rijeka container terminals

YEAR	KOPER REVENUE (EUR)	KOPER TRAFFIC (TEU)	KOPER REVENUE / TRAFFIC (EUR/TEU)	RIJEKA REVENUE (EUR)	RIJEKA TRAFFIC (TEU)	RIJEKA REVENUE / TRAFFIC (EUR/TEU)
2008	16,884,097	353.880	47.71	7,663,562	168.777	45.41
2009	17,194,899	343.165	50.11	6,599,341	122.743	53.77
2010	23,975,083	476.731	50.29	6,499,811	121.490	53.50
AVERAGE VALUE	19,351,360	391.259	49.37	6,920,905	137.670	50.89

Source: "Luka Koper" d.d. (the Port of Koper Plc) and "Jadranska vrata" d.d. (Adriatic Gate j.s.c.)

However, the average revenue per TEU loading unit is almost equal for these two ports and differs by 3.08%. The results bring to the conclusion that the revenue side of the terminal in Rijeka will grow only if the total traffic is increased, and not much can be done in order to increase the revenue per TEU loading unit.

The average terminal profit by a realized TEU loading unit (Table 4) shows a very high level of inequality. The difference between the minimum and maximum profit per TEU in the period was 54.44%, while the expenditure side shows the variation of 18.98%. This suggests that the rationalization and reduction of total operating expenses could increase the annual profit at the same level of traffic.

Table 4. Performance indicators of Rijeka container terminal considering the realized traffic, expenses and profit after tax

YEAR	TRAFFIC (TEU)	EXPENSES (EUR)	EXPENSES / TRAFFIC (EUR / TEU)	PROFIT (EUR)	PROFIT / TRAFFIC (EUR / TEU)
2008	168.777	7.026.379	41.63	569,714	3.38
2009	122.743	5.884.306	47.94	640,906	5.22
2010	121.490	6.017.239	49.53	430,133	3.54
AVERAGE VALUE	137.670	6.309.308	46.37	546,918	4.05

Source: ”Jadranska vrata” d.d. and “Bisnode” d.o.o. (http://www.poslovna.hr)

Container terminal investment opportunities generated by the actual average financial and quantitative indicators from 2008 to 2010 justify the investment of up to EUR 16.408 million and the return on investment in a 30-year period (Figure 3). For every major financial investment it is necessary to increase both the annual profit by streamlining expenses per TEU unit and the total container traffic, because otherwise the effectiveness of planned investments will certainly become questionable.

The realization of the model of public-private partnership provides the means necessary for the modernization of the container terminal in Rijeka, but very successful partnership model used will be visible only after a certain lapse of time and business achievements.

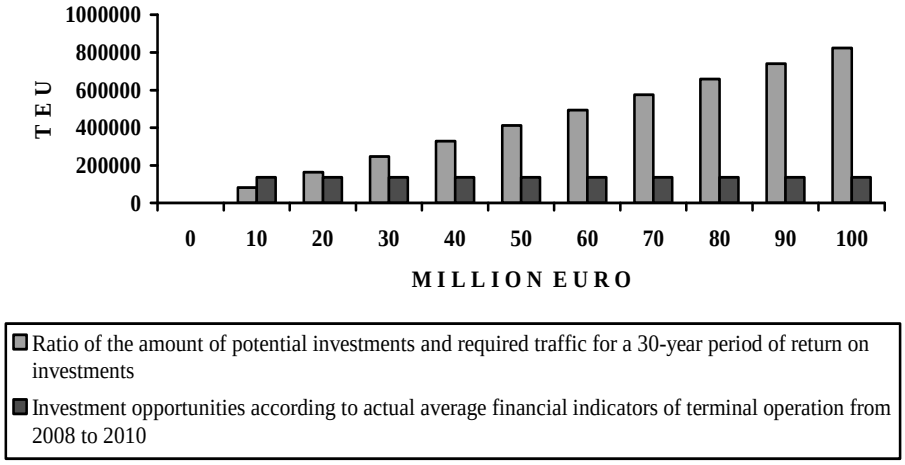


Figure 3. Indicators of investment justification according to the actual average financial and quantitative indicators of terminal operation

5. CONCLUSION

The inability of the public sector to continuously adapt to changing market needs, as well as to ensure sufficient funds from the budgets of public institutions, essential for the sustainable development of ports contributed to the opening to the private sector industry. The result of such a trend is a large number of different public-private partnership agreements signed which introduced new port management models. Today, the biggest and most efficient ports still have the status of public ports, but their funding and management are left to the private sector.

Through these partnership models, the public authority has the right to retain the ownership of port infrastructure and carry out long-term policy of economic development of port activities, and the private sector can invest in both port superstructure and equipment, and make a profit. Both greater competitiveness of ports and reduced allocations from the government budget have been achieved by meeting the common goals.

Growth and development of Rijeka container terminal has united the investments of both the public and private sector. The public sector implements the infrastructure projects of terminal expansion through the Port of Rijeka Authority, while the private partner invests in port machinery, handling equipment, automation and computerization of port activities. The total amount

of anticipated investments is currently beyond the scope of current possibilities of repaying financial obligations, as demonstrated by the total annual traffic and profit after tax in the past three years.

The current container terminal capacity is 250.000 TEU, and its utilization in 2011 was only 52.02%. The trend of the annual traffic being between 120.000 TEU and 130.000 TEU (this traffic level is characterized by an average drop of 26.08% compared to the maximum terminal traffic in 2008) and a continuous decline in the share that Rijeka terminal has in the total container traffic of the Northern Adriatic ports (NAPA - North Adriatic Ports Association) implies the lack of commitment to attract new cargo and establish new supply chains through the Rijeka traffic route.

As estimated by the Port of Rijeka Master Development Plan, the Rijeka Traffic Route Redevelopment Project is based on the traffic of 335.000 TEU in 2015, which at the current level of traffic represents an increase of approximately 160%. Given the former level of container traffic movement and crises shaking the international markets at present, such an increase in traffic indicates a very high degree of market risk. Moreover, the analysis of financial indicators of terminal operation points to large differences in the realization of profit per TEU loading unit and calls for the prompt business analysis.

The introduction of public-private partnership represents the most significant event in the development of Croatian port system. The main advantages of both the public and private sector were taken and the necessary financial resources ensured to proceed with the realization of planned investment projects, for which there were not any available funds in the government budget for years. This will certainly raise the quality and range of port service, and thus affect the fast-paced development of both local and national economy. However, one should take into account that a detailed analysis of all the risks which may affect the implementation of a project must be done in the future public-private partnership contracts for port services or terminals, and that their impact should be reduced to a minimum by timely including strategic and project processes through strategic and project management.

Since the container terminal in Rijeka is the first example of a public-private partnership concluded in the port sector in the Republic of Croatia, the success of this partnership model will be visible through the operating results in the next few years and the experience gained will be used in making future models of public-private partnership that will be applied in Croatian ports.

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JAVNO PRIVATNO PARTNERSTVO - MODEL UPRAVLJANJA MORSKIM LUKAMA REPUBLIKE HRVATSKE

Sažetak

Predmet ovog znanstvenog rada je analiza mogućih modela korištenja javno privatnog partnerstva u funkciji upravljanja morskim lukama u Republici Hrvatskoj. Javno privatno partnerstvo kao suvremeni oblik suradnje između javnog i privatnog sektora omogućava lučkim sustavima da povećaju svoju učinkovitost te da lučku uslugu temelje na komercijalnoj tržišnoj osnovi unatoč ograničenjima u javnom financiranju. Uvođenjem privatnog sektora u lučko poslovanje direktno se utječe i na modele njihova

upravljanja. Cilj rada je putem prikaza različitih modela upravljanja lukama i mogućih oblika javno privatnog partnerstva ukazati na različitosti u pristupu rješavanja problema modernizacije hrvatskih luka i ostvarivanju ciljeva njihovog održivog razvoja. Rezultati istraživanja ukazuju da se pravovremenom analizom lučkog okruženja i osnovnih pokazatelja lučkog poslovanja stvaraju preduvjeti za strateško planiranje pojedinih sustava hrvatskih luka na regionalnoj i državnoj razini. Na taj način postići će se kvalitetnija implementacija investicijskih projekata koji će doprinijeti daljnjem rastu i razvoju hrvatskog lučkog sustava.