Integrated and Sustainable Transport in Efficient Network - ISTEN

DT1.1.10 – Local Context Analysis for Sibenik region (Resp. Port Authority of Šibenik-Knin County)

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Document information

Abstract

The Local Context Analysis aimed at identifying the impact and bottlenecks of port operational performance to hinterland transport.

This analysis is primarily focused on Šibenik-Knin County, as it creates one administrative and geographical completely suitable for analysis.

This analysis summarizes the process and results of interviews with local stakeholders for the preparation of the LCA in Šibenik-Knin County (hereafter referred to as "ŠKŽ") area. This is the first outreach activity undertaken for the planning process to drawing up the Local Action Plan in order to produce one Strategic Action Plan in the ADRION Region.

The Stakeholder Interview process represents a series of conversations held with individuals and small groups of individuals. The purpose of the interviews was to provide an opportunity for stakeholders to identify major issues, ideas, concerns in order to identify the characteristics and requirements of local Port community and their main relations, information flows and responsibilities in the local intermodal chain facing in Šibenik-Knin County.

Interviews were conducted in May, 2018 in person. Sixteen participants were interviewed using one-on-one structured interviews. Transcribed data were coded and analysed to generate available information from the local level data.

The dynamics of cargo and bulk inside the port Šibenik is the analysis of statistical reports presented by the Croatian Bureau of Statistics whereas the infrastructure and ongoing construction and expansion plans are being investigated based on one-on-one interviews with stakeholders, available data of Port Authority Šibenik and the Port Šibenik Ltd. and including some experts in this field.

Keywords

Local context analysis, port-hinterland, bottlenecks, scenarios

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CBS	Croatian Bureau of Statistics
GDP	Gross Domestic Product
HŽ Cargo	Croatian Company for Cargo Transport
HŽPP	HŽ Passenger Transport's
LCA	Local Context Analysis
LUSKŽ	Port Authority of Šibenik-Knin County
SWOT	Strengths-Weaknesses-Opportunities-Threats
ŠKŽ	Šibenik-Knin County
TEN-T	Trans-European Network for Transport

1 INTRODUCTION

The aim of this deliverable is to provide an in-depth analysis of the Port Authority of Šibenik-Knin County, including an overview of its local port community and relations among its actors and stakeholders.

The fundamental purpose of this local context analysis is to show the ways in which Port Authority ŠKŽ present the current situation to identify main bottlenecks and how the hinterland connections can be influenced to improve supply chain performance, both in terms of specific port-hinterland links and between ports and inland areas in Šibenik-Knin County and region as a whole.

The present LCA includes not only an analysis on the port's infrastructure, but also on the main hinterland logistics infrastructure, connections (national and international) and services provided.

In chapter 3, the identification of existing bottlenecks is recorded, and their impacts on the market, infrastructure, operations, institutional framework and innovative services. Finally, in chapter 4, possible medium-term scenarios are identified and explored in view of the constantly increasing port-hinterland chain efficiency and sustainability, which solidifies the role of the port as intermodal hub.

During the process, LUŠKŽ was regularly in contact with identified stakeholders and as part of an "ISTEN coalition" provided inputs, comments and questions on the different scenarios, port development report and facts highlighted in the LCA. A structured questionnaire prepared by CERTH, as WPT1 coordinator, was use as a basis in order to gather the stakeholder's views. Their inputs has been assessed and discussed within the ISTEN project team. One-to-one methodology with representatives from each of the above organizations are used and meetings with all relevant stakeholders were arrange. Regarding the Re-Assessing Port-Hinterland Relationships in ŠKŽ, all stakeholders recognized the importance of assessment of the main driving forces impacting on port-hinterland connections and how they are coping with the substantial changes brought by the setting of global commodity chains. Doing so requires a reconsideration of the concept of hinterland itself as a dynamic space where macro-economic, physical and logistical factors are at play. These processes are not without tensions between the major actors involved, such as port authorities, maritime shippers, logistics service providers and inland transport operators. The current economic situation provides a platform for a new approach to dealing with hinterland connections that both encourages greater operational efficiency and leads to lower environmental impacts.

The analysis is explorative and aims to provide a basis for further discussion.

2 CHARACTERISTICS OF THE LOCAL ENVIRONMENT

2.1 Port-hinterland chain overview

- Geography

The Šibenik-Knin region itself is renowned for nature and culture – two of eight of Croatian national parks are located in this area: "Krka" and "Kornati". The very center of city of Šibenik boasts two UNESCO World Heritage Sites – Cathedral of St. Jacob and St. Nicholas Fortress.
ŠKŽ is located in southern Croatia, in the north-central part of Dalmatia bordering Bosnia and Herzegovina on the north. It has a sea border with Italy on south, while on east and west Split-Dalmatia County and Zadar County complete the limits of ŠKŽ. The biggest city in the county is Šibenik, which also serves as county seat.
Port of Šibenik is linked to the hinterland by the railway but does not have direct access to the highway.
The Port of Šibenik is linked to the mainland by the 22-kilometer Šibenik-Perković railway through City of Knin as the most significant railway intersection, and onwards to Zagreb via "Lika" and "Una" railway directions.

Croatian seaports have a huge economic potential based on favourable geographic position. The main comparative advantage of Croatian seaports in relation to the other ports of the European Union reflects in the deep penetration of the Adriatic Sea into the continent, which allows the shortest and most affordable traffic connections between the Croatian hinterland and the eastern Mediterranean and through the Suez Canal, between the countries of Asia and the East Africa.

In this sense, multimodal TEN-T corridors extending across the Croatian territory confirm the fact that the territorial position of the Republic of Croatia is not only its advantage but also the obligation towards the European Union. The Mediterranean corridor, the Baltic - Adriatic corridor, the Rhine – Danube corridor like the future Adriatic - Ionian route undoubtedly integrate the Republic of Croatia into the European transport and economic system of the European Union.[1]

Territorial division (towns/municipalities, settlements, micro-regions) of the Šibenik-Knin County:[2]

ŠKŽ is a coastal county in Croatia covering 2,984 km2, equal to 5.27% of the country's land territory. It includes 242 islands[3] that make up 19.2% of all Croatian islands. The island area with the sea extends to 2.676km2, or 8.6% of the territory of the Croatian seaside. According to the 2011 census, ŠKŽ has a population of 109,375[4]. Most important coastal towns are Šibenik (as the regional centre at coast),

[1] Source: Munitić, N. Jugović, A. 2017. Redesign of seaports management model for their transformation into profitable centers, Hrčak ID: 187432.
[2] *Source: Made on administrative and territorial constitution of the Croatian Bureau of Statistics 2011*
[3] *Source: Šibenik Tourist Board*
[4] Source: Croatian Bureau of Statistics, Statistical Information 2017
https://www.dzs.hr/Hrv_Eng/StatInfo/pdf/StatInfo2017.pdf

Knin (regional centre at hinterland), Vodice, Skradin, Pirovac, Tisno, Drniš etc. Zlarin, Kaprije, Murter represent some of the localities found on inhabited islands.

Table 1.Counties, surface area, population, towns, municipalities (territorial constitution with situation as on 31 December 2016

County of	Surface area km2*	Population in 2011**	Population Density (persons /km)	Number of Towns/ cities	Number of municipalities
Zadar	3 646	170 017	46,6	6	28
Šibenik-Knin	**2 984**	**109 375**	**36,7**	**5**	**15**
Split-Dalmatia	4 540	454 798	100,2	16	39
Primorje-Gorski kotar	3 588	296 195	82,6	14	22
Dubrovnik-Neretva	1 781	122 568	68,8	5	17

***The Census of Population, Households and Dwellings, 2011*

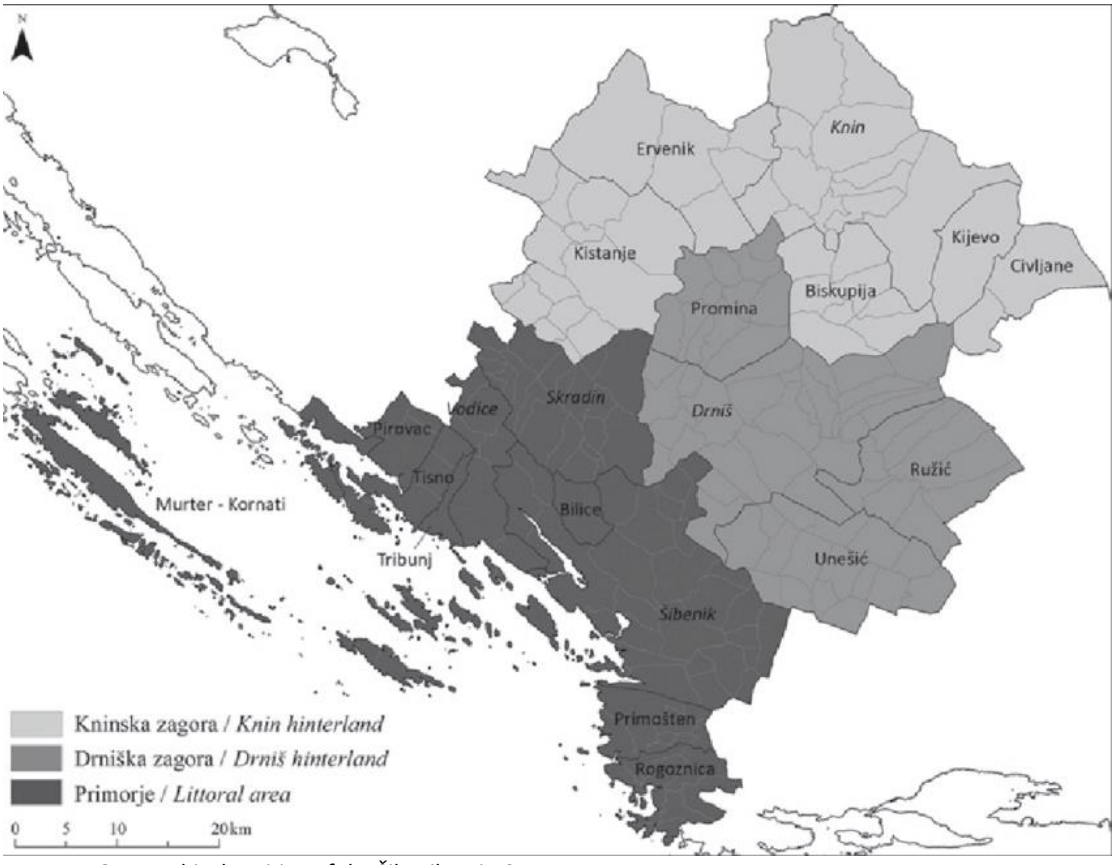

Image 1: Geographical position of the Šibenik-Knin County
**Data of the Surveying and Mapping Authority of the Republic of Croatia (calculated from the graphical database of the official records of territorial units), situation as on 31 December 2002, refer to the land area.*

The total GDP of ŠKŽ in 2015 was 6.582 billion HRK or about 865 million Euros, which is about two percent of total national GDP.[5]

Master plan of ŠKŽ tourism development and Spatial plan of ŠKŽ states that Šibenik-Knin County is situated in a relatively favourable geographic position, in the middle of Dalmatia, positioned on the Adriatic Sea, making it in a global-tourism view in the center of the emitting tourist market as a valuable receptive space. The exceptionally attractive coastline of 242 islands is a basic prerequisite for the development of tourist activity. However, it is also necessary to take into account geographical

[5] *Source: CNB, Bulletin, Statistical Survey, No 239 – January 2018.*

disadvantages compared to the competitive regional destinations in the northern Adriatic, where emitting centres are much closer to the spatial and traffic areas and are therefore more suitable for organizing tourist offers off-season, weekend offers, etc. Furthermore, the position between the two important Adriatic regional destinations - Zadar and Splitsko-Dalmatinska County has a twofold effect: on the one hand, it has an impact on the increased traffic of tourists in transit, but on the other hand, the stay of those tourists is shorter, and the consumption is consequently smaller. The base characteristic of SKC area is karst relief with a developed surface hydrography, and, even more so, a developed underground hydrography. In the landscape, the valley of the river Krka stands out the most, as it is the largest and most important river in the county. At the far end of the northeast, there is a dinaric massif with the highest peak of Croatia, while the North-Dalmatian karst flask extends southwest to the north surrounded by Bukovica and Velebit, and in the south Kozjak, Svilaj and Mosose. The eastern edge of the karst plateau is marked by fertile fields in the karst (Knin, Kosovo and Petrovs fields). In the center of the county, the river Krka has shaped deep canyons, and at the place where the river Guduča flows into the Krka Canyon, the Prokljansko lake with the characteristics of the ria is formed. The downstream part of the river Krka Valley is submerged today and it is made of the Kanal Sv. Ante and Šibenik Bay. The coastal county line is exceptionally indented with numerous islands (242) that are mostly karst and bare.[6]

Beside the touristic potential held in both islands and river Krka, ŠKŽ also has resources of bauxite suitable for exploitation.

Largest and most important port in the analysed area is Port Šibenik. Port Šibenik has good natural suitability that offers it good protection. On the other hand, “due to the fact that its pulled inland and access to it is through a narrow passage, it has a limiting port factor and the inability to access the largest commercial and passenger ships that would increase the traffic and rating of the port itself. Sea tides are not large, and climate conditions are favourable for most of the year, except in the winter when strong wind (“bura”) can delay or stop traffic. The biggest problem is the space of the land port and the depth of the sea. All of the ports in ŠKŽ are old, so is Port Šibenik. The principles of their construction today pose a problem because they are located near the canter of the city and with a relatively small depth if you look at the depth of demand of the largest merchant ships today”.

LUSKŽ is the main authority on governing the ports of the county. With 25 ports Port Authority of ŠKŽ, manages a considerable amount of influence in island-coast connection. This is also a characteristic of the area, multiple inhabited islands with their own port, so efficient transport is a necessity to keep the county a good place to live.

LUŠKŽ was established for the purpose of better management and improvement of harbours and maritime activities as well as management, maintenance and utilization of local and county ports in the ŠKŽ.

Activities of the LUŠKŽ are the following: it cares for construction, maintenance, managing, protection and improvement of maritime domain represented by the area of the port, it constructs and maintains port sub-construction, financed from the budget of the founder of the Port Authority, it performs skilled surveillance over the construction, maintenance, managing and protection of the port area (port constructions and sub-constructions), it ensures permanent and smooth-running maritime traffic, technical and technological unity and safe navigation, it provides services of general interest or services for which there is no economic interest for other firms, it coordinates and supervises concessionaires performing their activities inside the port area, it performs other affairs defined by the Law.

[6] *Source: Master plan of Sibenik-Knin County tourism development.*
http://www.rra-sibenik.hr/upload/clanci/2017/06/2017-06-29/551/masterplanturizmaibenskokninskeupanije.pdf

- Main markets served

According to data from released by HGK (Croatian Chamber of Economy 2017) ŠKŽ had 25,7% of its income coming from manufacturing, followed by wholesale and retail trade (24,7%) followed by accommodation and food preparation with 15,3%, while transport and storage give 5,3% of total income.

Image 2: The structure of the economy of Šibenik-Knin County in 2016 according to the realized income
Source: Financial Agency (Fina), processing by HGK (The County's economy is focused on manufacturing industry – especially aluminum industry shipbuilding and construction material industry; trade, tourism and construction).

However, ŠKŽ is still undefined in its opportunities and direction. Following the war in 90's, majority of Šibenik area industrial capacities were destroyed and have not been regenerated since then. As the Strategy for development states: "At the beginning of the 90's, Šibenik region was exposed to war aggression, which has destroyed aluminium electrolysis in Ražine, so TLM[7] has remained without production capacity for primary aluminium, but continued production of aluminium profiles, sheets and foil. During 2007 TLM was privatized. By entering the transition process, the economy has experienced dramatic changes. Larger companies are closed down, and at the same time a large number of smaller companies and trades are opened". CBS shows that only 2.2 % of the total number of business entities was located in the county.

Regarding the trade market ŠKŽ has strong further growth potential in the aluminium Industry, especially due to bauxite resources nearby. In recent years, tourism has shown a strong capacity that offers immediate results. Šibenik has recently started a transition from the industrial town into the attractive tourist destination. According to the Ministry of Tourism and Croatian Tourist Board, ŠKŽ had a record year in 2017 with 7.1 million overnight stays. With 242 islands and many gorgeous small places, ŠKŽ is the leading nautical destination on the Adriatic, with 12 marinas and in total 4 800 berths, of which 3480 in the sea, and 1320 dry berths. As part of the business support infrastructure, a Business zone called "Podi" is located 3.5 km east from city of Šibenik (12 companies with more than 500 employees; investors from Croatia, Slovenia, Germany, Austria, Italy and the Netherlands). There is also a business incubator in Šibenik (which, same as the "Podi" zone benefited from the CARDS programme (2002).

The Port of Sibenik Authority plans to build the Maritime Passenger Terminal building in the next two years. Third phase of the Maritime Passenger Terminal Project is the construction of a new two-storey passenger terminal which should start in January/2019. and be finished by May/2020. Total value of the MPT building is estimated at 4,3 mil. EUR and will be financed partly via commercial loan and partly via EU funds; that will serve Schengen Agreement controls exclusively for cruise ships.

[7] *TLM/Light Metal Factory Šibenik*

This new passenger terminal will completely change the vision of this part of Sibenik. Vrulje Quay is reconstructed and renovated from the EBRD loan in the amount of about 8,2 million EUR. It accommodates vessels of international and domestic passenger transport and cruise ships of up to 240 meters.

Generally speaking; it is not surprising that majority of port transport consists of passenger transport. Without manufacturing–remanufacturing–transport–initiatives dependence on tourism and seasonality of work processes will increase.

- Main actors involved (private and public)

The starting point to understand division of port administration can be found in the Maritime Development and Integrated Maritime Policy Strategy [8], which states "The Republic of Croatia has 409 ports open to public traffic out of which 95 ports with at least one shipping line. Six major ports (Rijeka, Zadar, Šibenik, Split, Ploče and Dubrovnik) are located along the land coasts, all of which are designated ports of special (international) economic interest to the Republic of Croatia". Ports Pula, Zadar, Šibenik, Split, Dubrovnik and Ploce are classified as comprehensive ports on the TEN-T Network. On the other hand, the applicable laws gave the counties possibilities to operate on their own territory by establishing port authorities for the purpose of managing and constructing ports open to public traffic, which are of county and local importance. This situation resulted in the presence of 22 county administrations in the area of 7 counties, which is hardly justifiable. ŠKŽ has both county port authority and a state administrated "major port" Šibenik. This is important to notice in order to understand governing processes in the port-hinterland chain process.

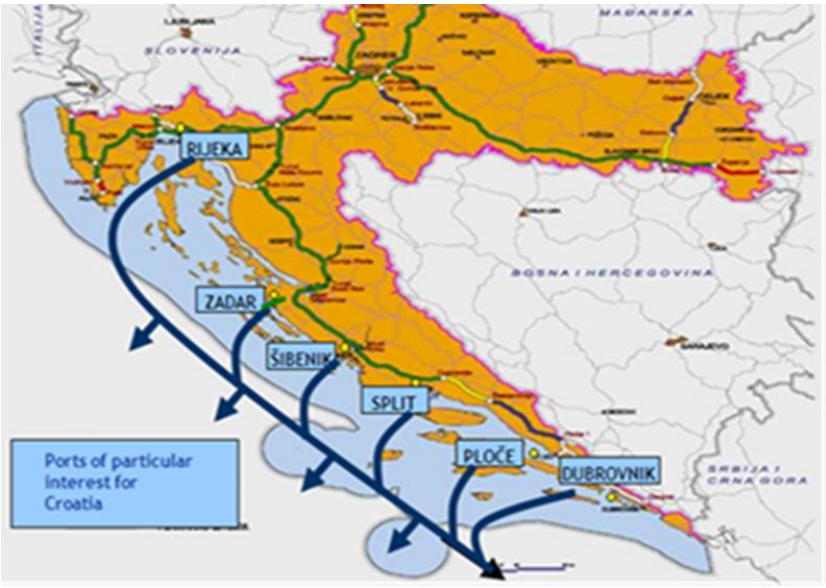

Image 3: Ports of particular interest for Republic of Croatia

The quality of the hinterland access depends among others on the behaviour of a large variety of actors, such as shipping lines, terminal operators, forwarders, the port authority and the national/regional government.

Involved actors:

[8] *Maritime Development and Integrated Maritime Policy Strategy of the Republic of Croatia for the period from 2014 to 2020*
[ONLINE]
http://www.csamarenostrum.hr/userfiles/files/Nacion%20zakon%20engl/MDIMPSRC.pdf

- Terminal operator,
- National, Regional and Local Authorities,
- Port Authorities,
- National domestic companies,
- Scientific Institution,
- Government,
- Development Agencies,
- Chamber of Economy

Port of Šibenik Ltd. - owns and operates a port. Its facilities include incoming and outgoing scattered cargo terminals, passenger ferry and wood terminals, inner and outer anchorage, external and internal piloting stations, and towboat repair services. Port of Šibenik Ltd. operates as a subsidiary of national company PETROKEMIJA d.d. The company produces mineral fertilizers using natural mineral raw materials, natural gas, atmospheric nitrogen and oxygen.

Port Authority of Šibenik **-** is founded to govern, construct and use the Port of Šibenik, opened for international public transport, and proclaimed for its size and importance the port of special international and economic interest for the Republic of Croatia. It was founded by the Croatian Government Resolution on 2nd December, 2004.

Department of Maritime Affairs and Transport of Šibenik-Knin County **-** Supervises the planning for Commercial activities of Maritime Transport Companies, follows up on the Ministry's policy on the Maritime Transport activities related to public, joint and private sectors' units and coordinates between them, prepares and plans for providing efficient maritime labour facing the increasing need for this labour locally and Internationally by preparing draft Ministerial laws and resolutions which agree with International laws and systems in this field.

Public Institution Development Agency of the Šibenik-Knin County – Development Agency of Šibenik-Knin County is a public institution founded by the Šibenik-Knin County with the purpose to coordinate activities connected to regional development through support to SME sector and through preparation and implementation of projects that contribute to development of the County. It has extensive experience in preparation of proposals and implementation of projects financed by EU funds and other funds.

City of Šibenik - Department of Economy, Entrepreneurship and Development **-** The Department of Economy, Entrepreneurship and Development is the internal city body in charge of implementing all projects financed from external sources and implements and coordinates SHARE. Currently, the Department has a staff of six, all with experience in different donor programme projects: Croatia IPA programme, IPA Adriatic Programme and South East Programme. Also, when needed (e.g. in public procurement procedures), the Department is backstopped by 4 certified procurement experts from the Department of Finances and also by 14 legal experts of the City should complex legal issues arise.

Šibenik-Knin County Government – ŠKŽ is a regional self-government body that in its scope of activities implements actions of social, economic and cultural development. ŠKŽ was founded in year 1993 as County in Republic of Croatia, located in central of Croatia's coast. County has 20 municipalities and town Šibenik is administrative and cultural centre of ŠKŽ. These include five City local self-government institutions: Skradin, Vodice and Šibenik, as county headquarters (on coastal and offshore areas of the county), while Drniš and Knin are located in the continental area of Zagora.
The remaining fifteen units of local self-government are municipalities:
Murter-Kornati, Tribunj and Bilice (on the coastal area of the county): Pirovac, Tisno, Primošten and Rogoznica (in the coastal area and in the off-shore area county): Promina, Ružić and Unešić (in the area of Drniška zagora): Kistanje, Ervenik, Kijevo, Biskupija and Civljane (in the area of Knin Zagora).

As an administration unit, ŠKŽ has 10 departments and 74 employees.

Department for the Environmental Protection and Municipal Affairs of Šibensko-Kninska County -

Harbour-Master's Office Šibenik - The task of harbourmaster office is to control navigation in the internal waters of the Sibenik-Knin County, actions of search and rescue on sea, inspection of navigation safety, inspection of the maritime domain, registration and deletion of vessels as well as organizing a register of vessels. Additional tasks include establishing a vessels' ability to navigate, tonnage measurement of ships, handing out of documents necessary for navigation, establishing the level of proficiency in case of professionals employed in the maritime transport etc.

Ministry of the Sea, Transport and Infrastructure - Sector for railway and intermodal transport –

The Polytechnic of Šibenik - The Polytechnic in Šibenik was established in 2006 and have been educating students in the fields of social and technical sciences of tourism, organization, transport and informatics. The aim of the institution is to provide programs of high quality that will enable responsible young experts to become the carriers of future development of the local, national and international community.

Croatian Chamber of Economy - Šibenik Chamber - The Croatian Chamber of Economy is an independent professional and business organisation of all legal entities engaging in business. Assistance linking potential investors with project holders, facilitating communication with the institutions on national and local level, support to the investors in dealing with administrative procedures on all levels, providing suppliers' database and facilitating contact with potential business partners, organising individual, tailor-made visits of potential investors to Croatia.

2.2 Port-hinterland chain operations

The port of Šibenik is well connected with the hinterland by the railway lines of Šibenik- Knin, Oštarije-Zagreb and Šibenik - Knin - Bosanski Novi – Zagreb railways, as well as by the motorway Šibenik-Benkovac - Obrovac -Karlovac – Zagreb.

The port of Šibenik's good railway connections were recognized as one of its strengths in a SWOT analysis in the Regional Development Agency (RDA 2011), but it did not analyse evidence on how railroad transport changed. The rail infrastructure in ŠKŽ is old and the average age of the tracks in ŠKŽ is around 40 years. Croatia's Strategy for Transportation Development for 2014-2030[9] highlighted the importance of the port of Šibenik as an area of special (international) economic importance for the country. The state, who is the owner of the tracks, is not investing in new ones, which consequently means they should be investing larger amounts into the maintenance of the tracks in comparison with countries that have newer infrastructure, but this is not happening yet.

The port specializes in bulk, timber, and mineral traffic notably phosphates transhipment. The statistical data shows that total cargo traffic in the Port of Šibenik between 2009 and 2013 decreased by 14.6% and between 2010 and 2012 it decreased by 36.4%. In period between 2012 and 2013 total cargo throughput increased by 22.8%. Highest throughput was in 2010 with 650 thousand tons of cargo.

In the same strategy, and in Croatia's Strategy for Maritime Development and Integrated Maritime Policy for 2014–2020,[10] the future development of the port of Šibenik is aimed at a specialization in passenger traffic, the construction of a new RO-RO terminal, [11] the completion of the new passenger

[9] *Available in English at: http://www.kormany.hu/download/9/9f/11000/00_HR_kozlekedesfejlesztesi_strategia_EN.pdf*

[10] *Available in English at: http://www.csamarenostrum.hr/userfiles/files/Nacion%20zakon%20engl/MDIMPSRC.pdf*

[11] *Port Authority of Šibenik (http://www.portauthority-sibenik.hr/en/)*

terminal and the modernisation of equipment and storage facilities at the bulk, general cargo, and timber terminals.

- Existing infrastructure (relevant for port-hinterland connections)

The overall condition of national rail operator's rolling stock is not adequate to modern transport needs including both passenger and Cargo rolling stock.[12]

As previously mentioned, railway infrastructure in ŠKŽ is outdated, network links are abandoned and it is limited in capacity as it is used by freight and passenger transport at the same time. In past decade small Investments in railway infrastructure in ŠKŽ are not accompanied by a modernization of rolling stock. Average age of HŽPP and HŽ Cargo rolling stock is more than 30 years. The characteristics of the old rolling stock are such that they cannot meet the requirements of modern rail freight traffic. Main problems are lack of compatibility between port and rail infrastructure. To increase the competitiveness of rail freight transport in comparison with other transport modes it is necessary to modernize the rolling stock in coordination to the foreseen improvements on the infrastructure in ŠKŽ.

- Cargo served (types, shares, trends) in ŠKŽ

Image 4: Port of Šibenik

There are several terminals in the port of Šibenik: one for bulk and general cargo (Rogač), one for the transhipment of phosphates (Dobrika), a terminal for wood, and a passenger terminal (Vrulje).
Bulk cargo: UREA, CAN, NPK, phosphate, potassium chloride, MAP, DAP, stone, AN etc
Fluid cargo: Edible oils

[12] *Source: National Traffic Model for the Republic of Croatia (NTM); HŽ Cargo and HŽ PP programme for modernization of transport capacities*

General cargo: Ingots and aluminium billets, lime big bags, goods on pallets, steel coils and bars, aluminium blocks etc.
Wood: Sawn timber

- Services provided (by each of the main actors involved in relation to port-hinterland connections)

  City area dedicated to passenger traffic (ferries and cruises) in the historic port area

BULK TERMINALS - Šibenik Port

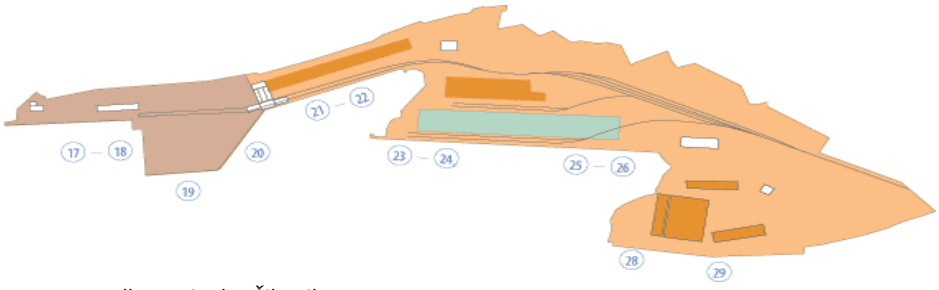

Image 5: Bulk terminals - Šibenik Port

Terminal for exporting bulk cargo:
Annual capacity: 400 000 T
Name of Quay: Rogač I
Length: 250 m
Maximum LOA: 220,00
Maximum draft: 10 m
Maximum beam: 25 m
DWT: 30 000 T
Loading capacity: 150 T/h

Unloading of wagons:
Loading platform for special wagons with side openings.
Capacity: 150 T/h

Railway gauges:
Gauge R4 is used for terminal necessities (gauge length 300 m)

Most of these good are transport by trucks. In the port of Šibenik mostly bulk cargo is being delivered from inlands of Croatia and Hungary. Large shipments of phosphates for Hungary and Petrokemija in Kutina were also recorded in the recent years. Phosphates are practically 100% delivered by rail.

Key findings from the interviews:
There is no terminals or location for liquid bulk in port of Šibenik, although there is a tank capacity of 2.250 cbm which is unused since the traffic capacity is not flexible to demand for such a cargo type and its construction and development require substantial financial resources. The total amount of existing tanks for the current load is approximately 20,000 to 25,000 cbm.
There is no container traffic in the Šibenik port area because port of Šibenik is not a container port. However, the containers are filled with trimmed plaster that is transported by road (with heavy-duty trucks and other vehicles) to other Croatian sea ports (port of Rijeka) to finally finish overseas in other EU countries (Hungary, Austria etc.).

To transport their goods chemical industry "Petrokemija" (which is majority owner of the Port of Šibenik Ltd) uses both modes of transport (railway and highway) on the route between Šibenik and Kutina. Commodity exchange between these two modes of transport is carried out at the ports of Šibenik. For this purpose, a leading carrier performs railway cargo service in the Republic of Croatia, HT Cargo.
However, the competitive ability of a seaport depends not only on its geographical position but also primarily on the cargo handling rate inside a port system. The issues of progress in the modernization of port services and construction of the road network are crucial for linking the port terminals to the main rail and road routes towards ADRION Network. In this connection, there is no doubt that the rail traffic is irreplaceable and of top-priority.
More interest in rail container/trailer flatcar shuttles between docks and inland trainload facilities. This is needed in Šibenik, because the tracks are already there, and are underutilized.
Modernization of the existing rail network in ŠKŽ meets primarily with demand for local passenger and cargo transport.

2.3 Port-hinterland chain governance

The existing connection of the port railway

Based on the decision of the classification of the Railway Lines of the Government of the Republic of Croatia and to the purpose of determining the manner of governing and management of the railway infrastructure and planning its development, the railway in Šibenik are classified as Railway lines for local transport (L) - Ražine-Port of Šibenik.[13]

The bulk cargo terminal capacity totals in export about 400.000 tons a year, while the load capacity amounts about 150 tons per hour. The bulk cargo terminal has a railway track (300 m) and packing. The bulk cargo terminal capacity totals in import 1.000.000 tons a year and unloading capacity amounts 400 tons per hour. The terminal has two railway tracks (2 x 600 m). [14]

The terminal import operation is fully automated, with the control of all transportation systems in the process of unloading a vessel, filling warehouses as well as of direct or indirect railway wagons loading. To protect the environment, it has been invested in complete system closing, so all outpouring places and wagon loading places are covered with pollination system.

Accessibility/location of the Port of Šibenik	
Railroad access	The Port of Šibenik is connected to the hinterland with Lička and Unska 20 Mp railway
Road access	The Port is connected to the rest of Croatia and Europe through Zagreb - Split Highway (A1)
Air Traffic access	Through Split Airport in Kaštela (50 km) and Zadar Airport in Zemunik (80 km)
Ferry connection	Regular daily ferries to neighbouring islands
Distance from City centre	0,5 km

[13] Source: Decision on the classification of railway lines (OG no. 03/14)
[14] Source: 2018 Network Statement, Infrastructure Access. HŽ Infrastruktura, available at: http://www.eng.hzinfra.hr/wp-content/uploads/2018/06/2018-Network-Statement-I.-II.-and-III.-modification.pdf

Distance from Railway station	0,3 km
Distance from Bus station	0,3 km

DATA OF ANNUAL PORT TRAFFIC IN ŠKŽ FOR 2017, BY TYPE OF CARGO

Šibenik-Knin County data 2017/tonnes		*Total*
Year 2017.	**Bulk:**	
	Dry bulk	446 791
	Liquid bulk	0
	Total Bulk	***446 791***
	Other cargo:	
	Containers	0
	RoRo/RoPax	1 258
	General cargo	37 318
	Total other cargo	**38 576**
	Container:	
	Transhipment (TEU)	n/a
	Hinterland/transit (TEU)	n/a
	Total containers	n/a

Table 2: Data of annual port traffic in ŠKŽ for 2017, by type of cargo
Source: Port Authority of Šibenik, http://www.portauthority-sibenik.hr/en/
Source: Port Šibenik Ltd, http://lukasibenik.hr/

- Responsibilities of each port-hinterland actor

Based on the first stakeholder interviews, port hinterland connections are becoming significant concerns within supply chains and for policy makers. Responsibilities of each port-hinterland actor were already mentioned before, but it's important to notice most bottlenecks cannot be resolved by the initiative started by just a single actor, but the responsibility distribution in that regard has to come from common vision.

- Coordination among port-hinterland actors

There is no increased cooperation among port-hinterland actors and between ports which will put the pressure on the use of scarce hinterland infrastructure. Having good coordination between all actors involved in port-related transport, including infrastructural access to the hinterland, is required to be successful in port competition. In hinterland chains, different coordination problems exist for different reasons in which Institutional economics, public administration and markets plays a central role. Coordination among port-hinterland actors shows that different coordination problems exist in transport by road, rail, and waterway. These coordination problems occur due to the lack of willingness to invest and the strategic considerations of the actors involved. Based on interviews, due to a lack of prioritisation and clear criteria EU and national funding for ports has lacked focus and insufficient attention has been given to the coordination with hinterland access infrastructure. The importance of hinterland connections has been recognised as one of the critical issues in port competitiveness and development in Šibenik-Knin County.

3 BOTTLENECKS TOWARDS BECOMING AN INTEGRATED HUB

Following the discussions with several stakeholders in the area and gathered data from relevant documentation, a few most important issues emerge in the spotlight.

The findings from the interviews reveal many managerial implications. First, it is evident the lack of coordination between the actors and logistics flows in the studied port, especially with regards to information flows and associated information systems. This is a key aspect to be considered by the various actors involved in this chain (government, county port authority, terminals, and ship owners).

Another important gap to be considered or to be held, concerns the identification of appropriate performance indicators to measure the efficiency or inefficiency of information flows in the port logistics chain on local level.

Although there are some issues that concern only Port Šibenik, and some concern only the smaller ports of the county, much of the mentioned bottlenecks are interconnected so solutions will have to integrate a number of actions.

All port authorities in ŠKŽ, which are key links in this logistics chain, need to be more efficient and effective in order to respond adequately to their customers' demands. It is necessary to simplify and rationalise port logistics processes and the associated institutional, financial and information flows.
Priorities of railway sector in ŠKŽ refers to modernisation of local and regional lines with the objective of creating preconditions for the development of integrated public transport system.

3.1 Market bottlenecks

3.1.1 Market bottlenecks identified

a) The most obvious one is that Šibenik region in itself is relatively a small market, so to expending it further heavily depends on its transport possibilities. In this point, market bottlenecks and infrastructure affect each other the most. Scale of income for both the ports and the stakeholders are affected by this fact, so investing in larger capacity transport means should come related to opening to larger market. In a way, ports being in "undefined" state concerning the wanted markets reflects both current state and the inability to move forward.
b) Related to that, variability of cargo shipped in main Ports of Šibenik-Knin area is slowly growing and is mostly depends on passenger transport, bauxite and agricultural fertilizers. Moreover, the fact that 80% of Port Šibenik is owned by Petrokemija d.o.o., and that majority of its cargo transport comes from it is a problem in itself. In other words, Port Šibenik is heavily dependent on just one resource to transport, which makes its cargo transport foundations liable.
c) All the ports in Šibenik coastal and island area are mostly oriented on passenger transport. That includes not just local ones, but mostly tourists, which accounts to the problem of seasonality of work. Transport of people, as well as all the other goods needed for touristic

season is largely influenced by tourism. Furthermore, it includes modality of work for many ports. This affects continuity of business and its liquidity.

d) Concession lines of business are not fully explored, not only for tourist needs, but also for cargo related services.

e) Overall, market bottleneck created from the ones stated above is that due to the fact the market area is small, capacities should be increased to attract investments outside County area. In that regard, providing new transport services to attract more possibilities is a huge issue that needs to be dealt with to increase market efficiency. This issue is complex with multiple aspects influencing it, from undefined position of the port institutions on a national level, disjointed acting of institutions with same interest, lack of capacities and infrastructure led to the fact that connectivity towards outside the County is rather ineffective (especially railroad), thus limiting market possibilities.

f) Bottlenecks related to market conditions can be characterised as the influence of competition and market principles on the one hand, and the effects of agglomeration externalities on the other. In the first case, one can point to operational and commercial barriers obstructing access to infrastructure. Another example is the existence of centralized organizational structure in transportation networks.

3.1.2 Impacts of market bottlenecks

a) First mentioned issue affects the area in a circular way. On the one hand, capacities are “good enough” for current market needs to the most extent and respond to the needs of County area. This does not however mean anything positive, in fact, it shows that transport capacities are stagnant and rely on old trends and the population that is aging, migrating to other locations or has just gave up on transport services. In other words, this “good enough” symptom states that transport in the region is not a developmental factor and it has to change. On the other hand, to attract influx of larger markets, thus increasing living standard in the county, larger capacitates are needed. Undefined opportunities, along with infrastructural bottlenecks result in inefficient market. Furthermore, passenger transport is expected to decline further without investments in it, due to depopulation processes affecting the islands. Inefficient and costly transport services push people to leave the islands and move something where connectivity is not an issue. In the end, this affects not just passenger transport but transport of cargo as well, as well as will demand for the entire goods further decline.

b) Result on being heavily dependent on just one specific industry, and just a couple of cargo types is that the stability of the Port Šibenik is severely out of control for the Port. This in turn clusters investment potential, which leads to stagnation of the area, and the potentials within it. Specialization for a specific cargo is not a problem in itself, but over-reliance on just one stakeholder could be seen as problematic.

c) Although the season income is stable, result of seasonality of work is that it affects liquidity of the ports in charge. Generating income should be consistent to offer financial stability of ports, which in turn could be focused on investing in capacities. Relying solely on summer season always bears a risk of a bad summer season, which in turn jeopardises the port finances. Passenger transport also depends on the quality of transport itself, not just the need to travel. If transport means are not upgraded soon, or if they prove to be inefficient for nowadays terms, decline in passengers should be expected due to permanent migration process.

d) Due to the fact, a lot of the infrastructure is still underdeveloped, too old or non-existent at all, giving concessions to certain sea goods could be a part of the solution. It would attract financial and infrastructural investments, along with new business possibilities. Concessions might not be the most desired solution, but maintaining status quo would result in continuation of stagnation processes.

e) Relying on mostly local transport services or touristic season results in the stagnation of transport services and their capacities. Efforts towards increasing capacities of the Port Šibenik have been made, but a more systematic and collective effort could yield more positive results.

3.2 Infrastructural bottlenecks

Railway map Croatia

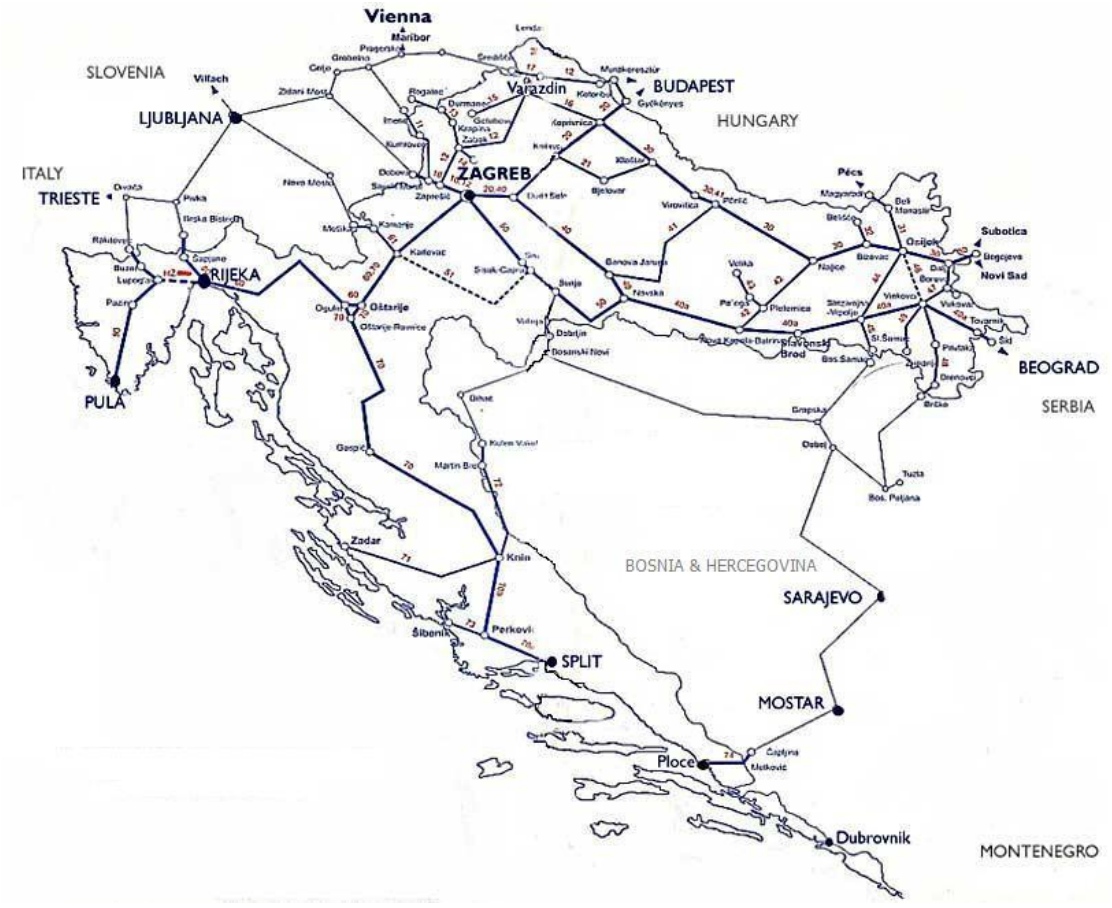

Image 6: Railway Map – Republic of Croatia

3.2.1 Infrastructural bottlenecks identified

a) The largest and the most important infrastructural bottleneck is non-existent railway connection, which is the basis for any port-hinterland connection. This bottleneck is made of several problems correlating each other, but not necessarily caused by each other. First of, Croatian Railways as an institution which presides over railways in Croatia is slow, ineffective

and unorganized, which affects not only for County area, but for the Croatia as a whole. Secondly, much of the infrastructure is in bad condition due to neglect or just from being old. Thirdly, because of depopulation processes nowadays, and especially during the war in the 90's, followed by a lot of industrial capacities being destroyed in it, investing into railway system must come out of planned potential, not out of immediate necessity. In a sentence, industry is on a low level partly due to transport system being bad as well, and transport system is on a low level partly due to the decline of industry. Fourth, many relevant stakeholders emphasized the importance of railway system, especially the "Una railway" system that would most optimally serve needs of ŠKC area. Sadly, Una railway is not yet developed and needs investments, and due to the fact that Una railway is partly in Bosnia and Herzegovina, important parts of it are not in Croatia jurisdiction, which makes it not operable any time soon. Supposedly, investments in Lika railway (which is completely under Croatia jurisdiction) are planned, and it's still unclear will it suit the interests of SKC area (***Lika railway**, officially a part of M604 railway, is a 220km-long single-track, not electrified railroad connecting Zagreb-Rijeka line with Knin railway hub. It mostly runs through Lika region. M604 railway is the only operating railway link between the continental Croatia and Dalmatia, especially its harbors of Split, Zadar, and Šibenik (M607*). *The M604 line itself runs from Oštarije/Ogulin on Zagreb-Rijeka railway past Knin, to Split terminus. Its total length is 320km. Historically, much older Knin-Split section of M604 line used to be known as Dalmatian railway. Total length of the **Una railway** is 177 km. Axle pressure on the railway is 20 Mp. Maximum altitude 674 m.*

The Una railway is completely electrified which gives her bigger capacity and adds to the Port of Šibenik capacity).

b) Infrastructural problems occur in ports too. All the ports are old and near the city centre, which makes them hard to upgrade space-wise. Furthermore, transport possibilities in ports jurisdictions also need investments – roads are neglected on some points, while railway system is, as mentioned above, non-existent. Lastly, a lot of storage capacities, as well as boarding/unloading infrastructure is neglected, not in use or non-existent, partly because there is no demand for it, partly due to undefined priorities and communication among stakeholders.
c) Modern refraction locations need to be constructed, where the transport means of all the transportation systems included in the process of service generation would meet.
d) Since modern infrastructure roads and terminals have not been realised in County up to the present, the container transportation by trains, container ships are symbolic as well.
e) There is no fixed definition of what "infrastructure investment" includes. Generally, however, it includes capital investments in transportation, utilities, and environmental projects. The country also lacks "efficient and cheap trans-shipment facilities between rail hubs and sea ports".
f) Neglect of railway infrastructure in the absence of public investment, could jeopardize rail lines and port area in ŠKŽ.

3.2.2 Impacts of Infrastructural bottlenecks

a) Inefficient to non-existent railroad system affects the County, not just its transport system, in several ways. First of is the capacity transport system can take, especially concerning cargo. Secondly, it puts higher strain on road transport, which is both costly and ecologically worse.

Finally, railroad system in bad shape limits market potential of the region by a lot; it efficiently closes down larger market opportunities located outside the county.

b) Infrastructure in bad shape affects the effectiveness of work, increases cost of services provided and overall is not sustainable. Lack of long term planning resulted in space shortage for upgrades, which will prove to be more and more problematic.

c) Terminals and port terminals are defined in enforceable spatial plans, which should take into account all spatial elements, and, in this case, establishment of traffic communications. Often investment into terminal does not include the construction of roads necessary for operability of the zone, so new solutions must be sought.
d) With negative effects on the competitiveness of our goods for export, foreign exchange balance, etc., new solutions must be sought. This slows down investments and leads to time being lost due to longer administrative procedure and obtaining of permits.
e) Since ports are already suffering from lack of space, which in turn also might influence their connectivity to other modal aspects, investments should be taken into account and necessary studies and solutions developed parallel to the drafting of the spatial plans. This would ensure implementation of investment projects without additional costs.

3.3 Operational bottlenecks

3.3.1 Operational bottlenecks identified

a) One of the problems that port-hinterland system faces is reflected on institutional level and how ports in the area are managed and who is responsible for their work. To be precise, ports in Šibenik area fall under three jurisdictions: State, County, City.
b) Administrative and bureaucratic needs are expansive and slow down the process of submitting and gathering data, as well as collecting and using them. To be precise, operational data as number of ships in the port, cargo capacities, number of available shipping spots, location of ships etc is analysed and used individually by each port institution.
c) Operational bottleneck that affects infrastructural ones as well is unresolved property-legal relations with Bosnia and Herzegovina. Part of the capacities in Croatia are under BH jurisdiction, sometimes *de facto*, sometimes *de jure*, which affects legal issues and possess huge setbacks in enabling those capacities (cargo tanks for example).
d) Of course, regarding the port-hinterland transport the most critical issue to resolve is any operability of railroad system. That alone is a complex issue that mostly goes beyond the project possibilities, but nevertheless most urgent issues regarding it can be resolved.

3.3.2 Impacts of operational bottlenecks

a) This is problematic as all ports share common interests and resources, so communication and planning of investments, as well as business moves and any other related decisions should come through collective effort. To put it simply, having ports in this context on three different levels is inefficient in terms operating them, maintaining their common interests and approaching common vision
b) This problem affects both long-term and short-term planning. Its much harder to establish trends in the long run, while on-the-spot information are sometimes lacking. This leads to

delays in the shipping processes as well as it influences planning for all of the ports and other relevant stakeholders.

c) Unresolved legal issues are problematic because they block investment possibilities in capacities that are functional.

d) Not having operational railroad system results in overreliance on road system to connect ports with hinterland, smaller cargo capacities, more expensive and less efficient transport costs, along with a hard impact on sustainability both green and economical.

3.4 Institutional bottlenecks

3.4.1 Institutional bottlenecks identified

a) As visible above, there is a discrepancy between institutional organisation and real needs of port system. This issue is one of the critical factors that need to be discussed to improve port-hinterland connection. Having different strategies for State, County and City ports is troublesome, especially in terms of stating the developmental needs of ports. Justification for investments must be elaborated really well and based in real state of affair, because strategies might lack convincing and specific data.

b) Furthermore, there are noticeable differences between priorities of Croatian Railways and ports in ŠKC area, so communicating and dialogue should be a priority. To be specific, stakeholders from ŠKŽ emphasize importance of Una railway, while Croatian Railways have not made any initiatives regarding that. Position of Croatian Railways is yet to be defined, as well as their possibilities in revitalizing the railway.

c) Organisational adaptation in operational but also leadership skills proves to be necessary for County and City ports to compete in an international environment. The current situation is that employees of port institutions communicate among each other, but any formal and precise data communication is lacking.

d) One last issue to be addressed is that human capacities are year by year in stagnation. This is partly due to depopulation processes, but those processes themselves are part of a bigger picture. In our scope, lack of communication between institutions of education and any institutions from port system results in human capacities being underdeveloped or uninterested in work opportunities.

3.4.2 Impacts of institutional bottlenecks

a) Fragmented strategic documents make common vision for the whole region undefined, thus slowing down the progress or just not making enough to support it. Especially in terms of managing the capacities and the resources, this sort of disjointment proves problematic.

b) If port-hinterland connection is to succeed, it also needs to be equally supported by efficient railway system. Undefined possibilities and needs, strategic neglect and uninterested to invest make the railway in Croatia as a problem difficult to solve. Impacts are of course numerous: from ineffective transport, more pollution, more restrain on road traffic etc.

c) A common and formal platform of data exchange between relevant stakeholders, or ports at least, would fasten organizing process by a lot.

d) Stagnation of capacities results in stagnation of progress. In that regard, institution focusing only on local affairs impacts the state of transport as a whole. Impact of this bottleneck is hard to elaborate because it has impacts on local society. To be precise, Šibenik and other port towns due to their geographical position and economic structures are focused on maritime activities. Decline in education, as well as decline in interest in maritime jobs results in loss of

local identity or, if we'd emphasize economical aspect of this issue, decline of human capacities needed for traditional efficient maritime work population.

3.5 Innovation bottlenecks

3.5.1 Innovation bottlenecks identified

a) Crucial innovation bottleneck is that there are very little to no innovation initiatives at all. All the investments recently made are upgrades that are a necessity for any sort of functioning, but "innovative" investment is still a luxury.
b) Lack of communications among all the organizations which are somewhat connected to a port's and hinterland which is crucial for effective port administration.
c) Operators that want to maintain a competitive edge must adopt a digital mind-set and implement smart-port technologies to stay productive, customer friendly, efficient, and competitive.
d) The level of technology is low and backward compared to other countries in the region.
e) Lack of the multi-stakeholder platforms in order to create digital-based services that can be used as new revenue sources.
f) A bottleneck most relevant to the smaller ports located on islands and population on those islands is the growing need for more efficient transport ships. Innovations like eco-ships are supported by both Croatia strategic planning as well as the EU ones. The islands in ŠKŽ archipelago have relatively good connections by ferry or boats but with lower frequencies.
g) Lack of the available financial channels for infrastructure to invest and expand smaller ports located on islands and port facilities to increase the attractiveness of ports and population growth.

3.5.2 Impacts of innovation bottlenecks

a) Lack of innovations is more of a result of previously mentioned bottlenecks (in a stagnant state, innovations are not a necessity). Without innovations, capacities for improvement remain on a low level and potential customers and users of transport look for better options.
b) Port environments have become intricate partner networks that include port authorities, terminals, shipping lines, trucking and logistics companies, and off-dock storage providers.
c) Smart-port technologies on digital-based which include systems that support basic infrastructure, as well as, for example, tools for handling cargo, managing traffic, dealing with customs, assuring safety, and monitoring energy use.
d) Lack of innovations of this sort results in being generally unattractive to tourist and other users. Ease of access and a faster ticketing system is just one aspect that would raise visibility and likability of the ports.

4 MEDIUM-TERM SCENARIOS

4.1 Main factors to influence future development

The strategic vision of the LUSKŽ is included into three main documents achieved by the: Transport Development Strategy of Croatia, Development Strategy of Šibenik-Knin County for the period leading up to 2020 and the Šibenik-Knin County Spatial Plan.

Since 2016, the European Structural and Investment Funds published an Invitation for Co-financing the Development of the Regional Traffic Master Plans for the functional regions: Central Dalmatia, Northern Dalmatia, Northern Adriatic and Eastern Croatia from Competitiveness and Cohesion Operational Programme. The Šibenik-Knin County is included within this public invitation but unfortunately public procurement procedures made the situation more difficult to make this regional master plan.

By the end of 2025, the period of the investment cycle in the Port Authority of ŠKŽ will end with the realisation of seven development projects funded by the State and local budget and European Funds in the total value of 30 million EUR. The whole investment cycle will include not only the realisation of European projects, but also the realisation of ongoing capital projects. Firstly, by 2020, the Port Authority of ŠKŽ will complete the construction of the Vrnaža within the PA Project, start the works on the port Kaprije by combining funds from European funds and the state budget.

In this context, the most important infrastructural works to be implemented are:

Competent Authority	Port Authority of Šibenik-Knin County
Ownership structure	Šibenik-Knin County
Capacity description (technical activities)	LUSKŽ is founded to manage, build and use the City port of Sibenik and other county ports open to public traffic. By 2020 several infrastructural investments will be completed: 1. Port Rogoznica – new fishing port 2. Local Public Seaport Vrnaža (Šibenik) - new port open for public traffic of local importance 3. Bilice - construction of the maritime infrastructure in the area of the Bilice Municipality. 4. Prvić Šepurina - construction project for a new breakwater and its port

	5. City of Vodice - construction of a new breakwater 6. Island of Kaprije - construction of a new ferry port 7. Island of Zlarin - construction of a new ferry port

Croatian Railways (HŽ) currently do not have a plan for the reconstruction, improvement or electrification of the Šibenik-Perković-Knin tracks due to financial limits and can barely carry out the minimum necessary maintenance work along these tracks. Croatian Railways do not plan to start working before the long term period (2025) along the tracks other than those that follow the European Vb and X corridor. To revitalize railroad system and thus improve hinterland-port connection justification for infrastructural investments must be made.

Although it probably is not the most critical and most urgent issue to resolve, starting and fostering communication on institutional level among relevant stakeholders in order to agree upon possibilities, opportunities and common vision is the first step towards resolution of previously mentioned bottlenecks. This bottleneck is both institutional and operational, but being a “soft” structural problem makes it a reasonable starting point.

To be precise, the port-related stakeholders agree that lack of common information platform affects their plans, and in some cases might interfere with plans and actions of their respective institution. A mutual flow of information is a necessity for future development of port-hinterland connection. Institutional communication means that related institutions, although under jurisdiction of different governing bodies, must have a common mean of information flow related to ships, cargo, passengers and other operational issues. In this regard a platform on a national level is planned but has yet to be brought in action. To conclude, first factor to be influenced should be mutual communication. With a list of mutual interests, mutual opportunities, mutual problems and mutual assets a number of issues are visible and can be discussed in order to make an overview of the institutional situation and the best possible scenarios for the future development of the region.

Specifically, action plan (already envisioned by the project), or a part of an action plan, that relates to ports of Šibenik-Knin area needs to be developed, along with a list of assets, investment priorities, possibilities and realistic plans of each port. With that information port institutions can discuss what issues are overlapping among them, while combining plans will ease the process of attracting investment and open up the possibility to regulate day-to-day business more efficiently. Although this is just one aspect of communication improvement, with the platform for ship, cargo and other operational data still being developed, it would ease resolving of the others, issues that are more critical.

With common list of assets and common list of realistic potentials, a reach out to external stakeholders can be made. In this regard, ports will contact relevant stakeholders from different sectors in order to develop port-hinterland connection of the region. Common interest in planning opens up more investment possibilities, as the scope of the market expands. Reaching out to the other stakeholders

is thus the next step of improvement. To keep the transport going, different points of interest have to be located, and transport services have to be efficient. Both cargo market and passenger services rely on transport, and making sure there is a common interest between transport providers and market stakeholders will ensure better connection possibilities of the region.

Finally, with established realistic market scenarios plans for investments can be made. By combining market potentials with transport ones, elaborations for investments and innovation can be developed. This especially accounts to contacts with stakeholders outside the County.

4.2 Scenarios' formulation

SCENARIO A

In today's environment, many forces influence demand forecasting. Global economics, demand for natural resources, import trends and many other factors influence expansion and contraction plans. A strong port is a precursor for a strong local economy. Šibenik-Knin County is in the midst of a growth spurt, the problem is her roads, rails, and ports do not automatically grow with her. This is happening where the roads and rails linking port to markets are not as modern as they should be.

It is important to make a better connection of rail and port system in the Šibenik traffic network and to find the best way of including the existing terminals in the rail system. The modernization should particularly involve the constant renewal of the automation of processes and the IT connection of the port and the railway systems. Only the modernization of capacities of a level railway track in city of Šibenik would create significant preconditions for the Port of Šibenik to accommodate future growth of cargo volume. Failing that, port area in ŠKŽ could face a serious risk of losing part of its market which would have crushing consequences for its operations.

LUŠKŽ has no administrative power to develop the planning initiatives for transport improvement and cannot affect to construction of new roads to handle high traffic volumes and heavy loads or railway tracks to the port while regional authorities in the hinterland may not have incentives to take the planning initiative for such facilities, because not local residents but importers, exporters and logistics service providers located outside the region benefit from such facilities.

SCENARIO B

The LUŠKŽ of the future need to adopt strategic planning/master plan and makes projections supported by highly visual documents, looking to 2030 and even beyond, by trying to guess what the world of port authority will look like in the future.

Before the LUSKŽ drafts it's strategic and master plans, it will have spent time to analysing and investigating data from multiple sources (public outreach, stakeholders and agencies and numerous public workshops and board meetings). A successful transportation infrastructure depends on a healthy seaport infrastructure. The right infrastructure requires an accurate forecast of market demand. The LUSKŽ, like many ports across the Croatia, must build infrastructure to meet the demand for transportation services it provides in order to move the economy forward. In order to achieve this, port infrastructure and the supporting supply chain must be modern and capable. Establishing a better railway line capacity passing through the ŠKŽ gives the port area the opportunity to become an

important part of the port hubs in the ADRION region. If this does not happen, the port area in ŠKŽ could face with a serious risk of losing part of its market, which would have a long-lasting effect on its business. These entire investments amount to infrastructure projects directly related to the port's operational strategy for the coming years (Annual program of work and development of the ports in Šibenik-Knin County). These investments cover a wide range of works and a rich spectrum of projects involving a number of organizations, both private and public. Further development plans will also be a real step towards the establishment of the LUŠKŽ as an efficient logistics hub serving not only the domestic commodity market, but also acting as an effective link in terms of transit services for the natural hinterland of the port.

SCENARIO C

Since the TEN-T mainly focuses on the core network, only larger ports in Croatia (Port of Rijeka and Port of Ploče) within it have benefited in these last years from EU financing, From the Competitiveness and Cohesion operational programme, via CEF programme. It is certain that in multi-port gateway counties where major ports still play a leading role, small port like LUŠKŽ will have the hard task of developing long term credible business plans and delivering related investments, whilst, at the same time, protecting and sustaining natural and human resources. The benefit and employment in these ports just keeps local economy turning, creates direct and indirect job opportunities, supply chain connections that no world-sized container terminal can match.

4.3 Expected impacts of alternative scenarios

The assumptions of scenario A would modernization of the traffic management system on railway corridors in the Croatia and their integration into the European traffic network. For port of Šibenik, this poses a fundamental challenge in the long term planning of port strategy and investments. Unfortunately, the poor state of road and rail networks in the area, significantly reduces the hinterland development area.

The expected impact of scenario B is two-fold: on one hand, the LUSKŽ competitiveness is likely to be enhanced by investing in port areas considering that the infrastructural investments necessary to improve its capacity require time and financial resources. Master plans can relies on accurate forecasts of anticipated demand. Forecasting demand is a careful science that challenges port leadership and associates. A task force of analysts and consultants, internally and externally, should be involved and invited to assist. Plans need to be as precise as possible, but flexible enough to allow future changes. With reasonable and accurate forecasts, a solid master plan can be crafted. A solid and executable master plan bolsters a port’s infrastructure – the bedrock of an attractive gateway for shippers to choose the port in their routing.

The first two scenarios represent challenges and new opportunities, while scenario C Interconnection, interoperability of transport networks in general cannot be achieved if ports are not included in the equation as the crucial links to European transport system. A cluster approach can be used in addition to through linkages different partners and schemes to disseminate and capitalise on their best practices and development potential in terms of multimodal connectivity for LUŠKŽ taking into consideration the evolving economic, environmental and transport context.

Within current ongoing projects, LUŠKŽ provides the necessary infrastructure to facilitate trade growth through the traffic planning and development of new investments and the maintenance of existing infrastructure in the port area operated by the LUŠKŽ.

Over the next five years (from 2019/25), LUŠKŽ is planning to invest more than 30 million EUR in infrastructure improvements.