OPPORTUNITIES
AND CHALLENGES
OF LARGE INVESTMENT
PROJECTS
IN THE NEW ECONOMY:
THE PORT OF UST-LUGA

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The aim of this study is to search for a mechanism for implementing large investment projects of crucial economic importance in the modern economic conditions characterized by the sanction policy of foreign states, limited public investment, and a mass exodus of foreign investors.

An example of a large-scale investment project is the construction of a multipurpose multimodal complex — the commercial seaport of Ust-Luga. This is one of the most recent large projects in seaport infrastructure development.

This article estimates the project's significance for the development of the Baltic region and presents a competitive analysis of the seaport position in comparison to the largest European ports.

The authors analyze the strengths of the seaport construction project, namely, the favorable natural environment and climate, advantageous geographical position, strong political will demonstrated by the federal and regional authorities. The article also considers the challenges the project faces — unfortunate geopolitical situation, growing competition from other seaports, and lack of investment.

Based on the analysis of challenges, it is concluded that there are significant risks associated predominantly with lack of investment

In these conditions, a large investment project requires the enhancement of publicprivate partnership, which will ensure the timely implementation of such projects.

Key words: large-scale investment project, commercial seaport, Ust-Luga, risks, investment, public-private partnership, public private partnership

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Introduction

In the face of geopolitical risks, an increase in the competitiveness of Russian economy requires accelerated modernisation and further development of seaport infrastructure as an important element of the transport system.

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Seaports are a key element of the national transport system. They ensure connections between different modes of transport. Seaports account for over 80% of Russia's international trade, and support the country's economic ties with approximately 100 countries of the world [2]. However, the current level of seaport infrastructure does not meet the national cargo traffic needs. This is evidenced by the fact that, in 1990-2013, total international trade increased 8.8-fold, whereas maritime traffic reduced 6.6-fold. As a result, the proportion of ship transport in the national cargo traffic decreased threefold (table 1).

Table 1

Changes in Russia's international trade and marine transportation in 1990—2013

Parameter	1990	2000	2005	2010	2013
Total international trade, USD billion	95.6	149.9	368.9	648.9	844.0
Maritime cargo traffic, million tons	112	35	26	37	17
Proportion of ship transport in the total cargo traffic, %	0.6	0.4	0.3	0.5	0.2

One of the promising areas for maritime trade development is the Baltic region — the national cargo traffic leader [14]. As of 2013, it accounted for 36% of the total cargo traffic handled by the country's seaports [5].

To secure leadership in increasing competition from both European ports and the Baltics, it is important to develop the commercial seaport of Ust-Luga as a multifunctional facility using advanced innovative technologies. The region's existing seaports have almost exhausted their capacity to develop. Moreover, all of them (excluding the seaport of Kaliningrad) are 'freezing' shallow-water ports, which imposes limitations on their operation [11].

This study aims to assess possibilities of and obstacles to the implementation of the Ust-Luga project as well as to identify a relevant implementation mechanism in the new economic conditions, which can be considered as threats.

The port of Ust-Luga, now at the construction stage, will include 20 handling terminals with a maximum capacity of 180 million tons per year [1]. This will result in the creation of a large industrial and logistics cluster, i. e. the port will operate as a multimodal facility.

Despite the continuing construction, the port can handle any high-capacity tankers and ocean vessels of any types.

1. Assessment of the international competitive environment of the seaport of Ust-Luga

The international competitive environment of the port of Ust-Luga project is affected by the following factors [9; 15]:

- 1) increasing globalisation of economic ties between countries and expansion of international connections;
- 2) a high development level of European economies and their broad economic ties supported by maritime cargo and passenger traffic;
- 3) an intersection between the trade routes of Russia, the Baltics and Western Europe, a comparable level of services;
- 4) promotion of international trade between European countries and Asia-Pacific, the Middle East, and Japan;
- 5) a high level of sea infrastructure development in the Baltics and Europe ensured by hi-tech equipment, qualified staff, and favourable environmental conditions (ice-free and deep-water ports);
- 6) increasing competition in cargo and passenger traffic between the Baltic and North Sea ports.

The development of the commercial seaport of Ust-Luga is challenged by larges ports of Europe and the Baltics [12].

Major competitors are the seaports of Rotterdam, Antwerp, and Hamburg, whose key competitive advantages are as follows:

- advantageous geographical location;
- favourable topography and climate;
- centuries of experience;
- modern cargo handling technology;
- high capacities and a developed infrastructure;
- high quality of services;
- cargo handling specialisation;
- status of world leaders in cargo transportation;
- commitment to an increase in cargo traffic.

However, even if the design capacity of the seaport of Ust-Luga is achieved, it will not be able to compete with the largest European seaports, whose competitive advantages stem from environmental and climatic factors, such as advantageous location, ice-free waters, and established traditions. Moreover, largest European seaports have a developed infrastructure and considerable cargo handling capacities, which make it possible to create a system of seaport hubs. European seaports are complex infrastructure objects, whose key elements are ship, rail, and motor transport, developed logistics, and diversified production.

A different situation is observed in the Baltics — Estonia, Latvia, and Lithuania. The seaports of these former Soviet republics were developed as the Baltic 'sea gate' of the USSR. After the demise of the USSR, the following Baltic seaports became major competitors to Russian ports as well as the commercial seaports of the Baltic region) [23]:

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- 1. the port of Klaipeda (Lithuania).
- 2. the port Ventspils (Latvia).
- 3. the port of Riga (Latvia).
- 4. the port of Tallinn (Estonia).

In 2000-2013, the total cargo traffic of these ports grew from 97 to 132 million tons — a 2.7-fold increase was observed in Riga and a 1.9-fold increase in Klaipeda. The cargo traffic in the Tallinn seaport did not change significantly and that in Ventspils dropped by 18%. The Baltic leaders in cargo traffic changed over this period. In 2000, the top ports were those of Tallinn and Ventspils, whereas in 2013, they were replaced by Klaipeda µ Riga. Despite the leading position in cargo traffic, the Riga port is used to only 77% of its capacity and the Klaipeda port to 78% [5; 18].

To accelerate the development of large seaports, some of them were assigned the status of 'a free economic zone' (FAZ), for instance, the Latvian ports of Ventspils and Riga.

The FAZ status suggests that companies are not taxed on the port territory. Investors operating from a 'free port' are granted the status of a licenced company associated with direct and indirect tax privileges. This relates to income tax (an 80-100% concession), real estate tax, VAT, excise tax, and customs duties (up to 100% off).

Another promising area of seaport development in the Baltics is creating large logistics centres. The port of Ust-Luga takes into account all factors ensuring its competitiveness with other national and international ports [24]. This relates to both technical equipment and economic incentives. As a result, the port of Ust-Luga already poses serious competition to the Baltic seaports. In the future, this gap will only increase (table 2).

 $\label{eq:Table 2} Table~2$ Correlation of the cargo traffic at the seaport of Ust-Luga

and the largest ports of the Baltics, %			
	Cargo traffic	Cargo traffic	
Seaport	at the port of Ust-Luga	at the port of Ust-Luga	
of the Roltic	to the 2012 serge traffic	to the 2020 serge traffic	

	Cargo traffic	Cargo traffic
Seaport	at the port of Ust-Luga	at the port of Ust-Luga
of the Baltic	to the 2013 cargo traffic,	to the 2030 cargo traffic,
	actual numbers	forecast
Riga	170.0	360.0
Klaipeda	172.5	375.8
Ventspils	208.9	428.5
Tallinn	230.9	529.4

The seaport of Ust-Luga demonstrates serious competitive advantages and has the potential to become the largest port on the Baltic Sea.

2. Opportunities for and obstacles to the development of the commercial seaport of Ust-Luga

The seaport of Ust-Luga has a number of clear competitive advantages. First, it is conveniently located in the Gulf of Finland close to the EU-Russia border and at a significant distance from Saint Petersburg with its heavy traffic. This port ensures direct access to European consumers, which has a beneficial effect on the development of the regional and national economy [21]. It is important to note its vicinity to the country's major industrially developed regions and centres of imported cargo consumption. These factors reduce transportation costs. Another competitive advantage of the port of Ust-Luga is its favourable navigational conditions. The port located in the Gulf of Finland, which does not freeze even at the lowest temperatures, can be exploited throughout the year. The ice flood period is approximately 40 days. Icebreakers are used only at the lowest temperatures. Usually, navigation in the canal is maintained by an icebreaking tugboat.

Other important features are the port's deep waters (17.5 m) and a short approach canal (3.7 km), which makes Ust-Luga the only Russian port on the Baltic Sea that can accommodate ships of up to 160,000-ton deadweight. The other approach canal ensures roundabout traffic, reducing waiting time at anchorage. A strong competitive advantage of the seaport of Ust-Luga is its multifunctionality. Eighteen terminals are operating at the port, including several reshipping terminals, storage facilities, a rail and motor ferry communication, and a container terminal. The port's terminals provide reshipping and processing services for over 20 cargo categories. The ports modern technological equipment makes it possible to hand different categories of cargo and meet competitive deadlines. Moreover, it is planned to construct at least five more terminals. In 2018, when all designed terminals are put into operation, the port's capacity will reach 180 million tons — the level of top three European ports.

Another competitive advantage is the port's own vessels granting additional functional opportunities and ensuring autonomous operation. The port boasts tugboats including ocean-class tugs. It is also planned to purchase and build specialised port vessels. An important advantage of the port of Ust-Luga is cargo traffic bypassing the overloaded Saint Petersburg transport node. Construction works are accompanied by infrastructure development. The Ministry of Transport and Russian Railways support the reconstruction of external approaches, motorways, and railways connecting the port of Ust-Luga with major transport routes.

However, despite the advantages bringing the port of Ust-Luga closer to the status of the largest port on the Baltic Sea, special attention should be paid to weaknesses and obstacles to development [8].

Major factor hampering the port's development and reducing its competitive advantages are as follows:

- 1) the inability of the motorway infrastructure to accommodate the increasing cargo traffic. Despite the reconstruction of the existing roads and construction of new owns, the motorways remain overloaded. Poor transport infrastructure poses an obstacle to the launch of new terminals and an increase in cargo traffic at the existing one;
- 2) distortion of the ecosystem and environmental pollution in the seaport area. The Baltic Sea's marine ecosystem is very sensitive. Over the past decades, marine pollution has become an increasingly serious problem, one of the reasons behind it being the Ust-Luga construction. The most dangerous environmental threats posed by the seaport operations include:
 - eutrophication caused by the excess of nutrients nitrogen and phosphorus at the sea floor;
 - pollution by hazardous substances, including pesticides, heavy metals, industrial substances, chlorinated paraffins, and random side products such as dioxides;
 - destruction of the habitats of marine flora and fauna;
 - oil spills.
- 3) substandard accommodation for the port employees and construction workers. The first new residential districts of the new town of Ust-Luga are under construction. However, the problem of accommodating employees and construction workers remains rather acute. The proportion of comfortable accommodation in the village of Ust-Luga is rather low.
- 4) a rigid tariff policy. As experts stress, the success of the seaport of Ust-Luga rests on the fact that investors in the port terminals are also cargo shippers. Therefore, they will be interested in shipping cargoes from their facilities. The other cargo traffic will not abandon its regular routes if the Ust-Luga investors do not offer lower prices;
- 5) a high probability of deviations from the balanced and rational use of funds allocated for the port infrastructure development. The Ust-Luga construction and development project is based on the private-public partnership principles. Coordinating the efforts of numerous project participants which often have different interests is a rather challenging management problem.

Alongside internal limitations, there are also external factors and threats that can have an adverse effect on the development and competitiveness of the port of Ust-Luga.

First, it is the deteriorating external and internal economic situation, which can slow down the rate of increase in cargo traffic. A critical factor for the development of Russian seaports is world energy price and the price of non-ferrous metals, since non-ferrous metals account for the major part of Russian cargo traffic in the region.

Moreover, the current economic crisis can have an adverse effect on the seaport development rates — investment in the infrastructure decreases, the deadlines for new port facilities are not met, and it becomes increasingly difficult to attract foreign investors.

To a great degree, these obstacles determine the risks associated with the Ust-Luga construction project.

3. Risks associated with the construction of the seaport of Ust-Luga

High risks associated with the Ust-Luga construction project are accounted for by many factors, namely, the project's complexity, high project costs (approximately 700 billion roubles as estimated by VEB [20]), a large number of partners, unpredictable geopolitical situation, etc.

When analysing the risks, it is important to identify the external and internal risks associated with the construction of the seaport of Ust-Luga as a multimodal facility.

According to the Strategy for the Development of Seaport Infrastructure in Russia until 2030, external risks relate to environmental conditions, macroeconomic situation, and foreign policies of states (including new rules of international law) and thus cannot be influenced by the Russian Federation [1].

Internal risks relate to production, investment, and commercial activities and emerge in the course of the company's operation [19].

The internal and external risk parameters are presented in table 3.

 ${\it Table~3}$ External and internal risks associated with the seaport of Ust-Luga project

External risks	Internal risks
Macroeconomic risks: • deteriorating situation in the sales markets; • sanctions against Russia and reciprocal sanctions against western European countries; • decreasing economic growth rates and a decline in raw materials demand; • emergence of 'hotspots' hindering commercial operations.	Financial risks: • liquidity risk — a company may experience problems with meeting financial liabilities; • credit risk — financial losses relating to the customer's or counteragent's failure to meet contractual obligations; • lack of investment
Industry-related risks:	Market risks: • exchange risks relating to sales, purchases and loans in foreign currency (EUR and USD); • interest risk relating to changes in the Central Bank's key interest rate and more expensive borrowing
Investment risks: • unfavourable investment climate in the country and in the world; • a lack or insufficient number of anchor investors; • reduction in public funding due to deteriorating economic situation	Infrastructure risks: • limitations on port structure development; • insufficient cargo capacities; • a lack of developed infrastructure, poor equipment of cargo checkpoints at the border

The end of the table 3

External risks	Internal risks
Legislative risks: • absence of governmental guarantees to investors; • absence of laws on seaport infrastructure development;	HR risks: • lack of qualified personnel for the port facility construction; • lack of construction workers for building the port's transport and logistics facilities:
 absence of a law on the special economic zone in the port; imperfect tariff policy; ineffective regulation of the legal aspects of private-public partnership in the framework of investment activities 	cilities;using a personnel rotation system to staff the construction works
Environmental risks:	Partner relationship risks: • failure to fulfil obligations; • uncoordinated efforts; • delayed financing; • withdrawal of financing

As table 3 shows, the key risks to the implementation of the strategy for the port of Ust-Luga construction are external. The project's global nature makes it sensitive to numerous factors beyond its scope; there are geopolitical risks, as well as risks relating to the imperfect Russian legislation and investment risks stemming from the unfavourable economic situation in the country and the world in whole.

However, one should not underestimate the effect of the internal risks, namely:

- 1) the risk of insufficient investment (a financial riks)
- 2) infrastructure risks;
- 3) HR risks;
- 4) partnership risks.

Risk factors cause delays in putting infrastructure objects into operation, which complicates the seaport's functioning.

Risks delay the date of reaching the port's full capacity, increase construction costs, diminish project development intensity, reduce the project's scales, and make investors abandon the project.

Since most external risks are beyond the existing management opportunities, it is important to focus on reducing the negative effect of the internal risks.

This requires a classification of the internal risks by the degree of impact. There are risks that have insignificant, significant, and catastrophic effect on the project implementation (table 4).

Today, a developed port infrastructure is the key objective of the port of Ust-Luga project [18]. If this objective is not attained due to either a lack of qualified personal or investment or uncoordinated actions of partners, consequences can be critical.

Table 4

Classification of internal risks to the seaport of Ust-Luga construction project by degree of impact

Insignificant risks	Moderate risks	Critical risks
Liquidity	Credit	HR
Interest rate	Exchange	Partnership relations
Uncoordinated actions of	Infrastructure	Lack of investment
partners		

Critical risks are an immediate warning first to investors and then to customers. Therefore, identifying and minimising such risks is a key managerial objective of the port of Ust-Luga development [10].

To minimise the risks related to the construction and development of the seaport of Ust-Luga, it is important to launch initiatives aimed to prevent possible catastrophic consequences (see table 5).

Table 5

Initiatives aimed to minimise internal risks to the seaport of Ust-Luga construction

Risks	Risk management initiatives
Partners' uncoor-	1. Concluding partnership agreements
dinated actions	2. Risk hedging
Credit	1. Public support for project implementation
	2. Rationing
	3. Attracting new (also private) investors
	4. Concluding agreements of financial liabilities based on PPP
	guarantees
Infrastructure	Diversification in infrastructure project implementation
	2. Risk insurance
Human resources	1. Rapid construction of a town for construction workers and the
	port's personnel
	2. Concluding agreements on personnel training with the major uni-
	versities of Saint Petersburg and the Leningrad region
	3. Gradual abandonment of rotational system
Partner relations	1. Risk insurance
	2. Risk profile
Investment re-	1. Wide application of the PPP mechanism
source	2. Attracting foreign investment
	3. Developing comprehensive programmes for seaport territory
	development

Therefore, initiatives aimed to minimise internal risks to the development of the seaport of Ust-Luga are complex and cost-intensive. These long-term initiatives require coordinated actions of public and private investors. Moreover, risk reduction ensures that the port of Ust-Luga is put into operation within the expected period.

4. Private-public partnership as a mechanism to implement the seaport of Ust-Luga project

Against the background of insufficient investment, the possibility of partners' uncoordinated actions, and the need to meet project deadlines, PPP mechanisms are an effective way to solve these problems [17; 22].

In a broad sense, PPP is an institutional and organisational alliance between the state and private business aimed to implement socially significant projects [6].

In this study, PPP is interpreted as legally formalised, voluntary, public, and mutually beneficial cooperation between the state and private business that is based on combining resources, ascertaining the rights and obligations, distributing earlier identified risk proportions and results aimed at the efficient implementation of projects of considerable socioeconomic significance.

Since PPP means mutually beneficial cooperation between the state and a private investor, participation in the seaport of Ust-Luga project is associated with a number of benefits, namely [10; 15]:

- minimisation of public contribution,
- increase in the project's economic and fiscal efficiency through private participation;
 - accelerated project implementation;
- reduction in public expenditure on infrastructure construction and maintenance;
- cost-effective project management through transferring functions to a private investor;
 - introducing modern technology.

For a private investor, participation in the seaport construction is beneficial due to [3; 4]:

- opportunities to enjoy direct public support;
- risk sharing;
- opportunities for long-term investment against public guarantees;
- minimum income guarantee.

The most effective PPP form for implementing a large infrastructure project is concessions, in the framework of which the private partner (concessioner), participating in creating or modernising an infrastructure object, obtains operating control over the object in order to return investment and generate profit [7]. A concessional agreement is concluded for a long-term period, which makes strategic planning possible for both parties. During the agreement period, the private party enjoys absolute power to make any managerial decisions. The state has all the necessary mechanisms to influence private partners in order to protect public interests.

Depending on the authority delegated to the private partner, investment liabilities of the parties, principles of risk sharing, and responsibility of the parties for different types of works, different concession mechanisms can be used within PPP projects for the seaport of Ust-Luga development [25; 26] (table 6).

Table 6

PPP concession mechanisms for the the seaport of Ust-Luga construction

Mechanism	Description
BOT (build — operate —	The private investor builds and uses a new facility under a
transfer)	long-term concessional agreement at their own expense
	and risk. The investor retains all revenues generated by the
	project and bears investment and operational costs. Upon
	the termination of the agreement, the facility is transferred
	to the public sector.
DBFO (design — build	The private investor assumes the responsibility for de-
— finance — operate)	signing, financing, building, and operating the facility
	under the concessional agreement. Upon its termination,
	the object is transferred to the public sector.
BOOT (build — own —	The private investor builds, operates, and owns the facil-
operate — transfer)	ity during the concession period. Then, the facility is
	transferred to the government.
BOO (build — own —	The private investor builds the facility and retains owner-
operate)	ship of the facility in perpetuity.
BTO (build — transfer —	The private investor builds the facility and transfers it to
operate)	the public sector. The object is operated by the private in-
	vestor to receive return on investment and generate profit
	after the transfer to the government. This mechanism sug-
	gests direct public control over the concession object. The
	state has significant influence on the decisions and actions
	of the concession holder.

Despite the partial employment of this mechanism in the construction of the port of Ust-Luga, it has to be applied more extensively through using such forms of concession as BOT, BOOT, BOO.

Conclusions

The analysis of strengths, weaknesses, and implementation mechanisms of a large-scale project — namely, the seaport of Ust-Luga — in the new economic conditions demonstrates the following:

- 1) the difficult geopolitical situation, internal problems of Russia's economic development, increasing uncertainty, and lack of investment complicate the implementation of large-scale investment projects;
- 2) major risks relate to a lack of investment and the insufficient number of anchor investors. In the case of the Ust-Luga project, this is manifested in expired deadlines for transport infrastructure and insufficient human resources, since the problem of financing the construction of a town for construction specialists and future port employees has not been solved yet;
- 3) against the background of foreign capital exodus, special attention should be paid to private-public partnership. Its most effective form is concession, which suggests considerable interest from private investors;

- 4) when choosing the concession form for the Ust-Luga project, it is important to consider BOT, BOOT, BOO, and other arrangements, which will make it possible to find the most efficient PPP mechanism;
- 5) the implementation of large investment projects using the PPP mechanism requires a number of legal, administrative, financial, and economic initiatives aimed to create favourable investment conditions. Special attention should be paid to the perfection of the existing legislation to make it possible for partners to protect their interests in a dispute. There is also a need to develop tax exemption, credit relaxation, and lease subsidy mechanisms for participants of large-scale investment projects.

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