Research article[1]

Public-Private Partnership and Its Implementation Features: The Case of Logistics Projects

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Abstract

This article examines the general prerequisites for the emergence of public-private partnerships (PPP) and the reasons for their implementation in logistics projects. It identifies the main stages of PPP and highlights the features of its application in logistics. A minimally sufficient set of companies required for logistics project implementation is formed, and proposals are made for decision-making regarding investment logistics projects. The development of logistics infrastructure is a key factor in national economic growth, but construction and modernization require significant investments, often unavailable to private businesses. PPP allows the sharing of financial risks and responsibilities between the public and private sectors, ensuring more efficient use of financial resources and human capital, thereby enhancing the country's economic competitiveness.

Keywords: logistics, government, private partner, infrastructure, project, economy, development

Introduction

Public-private partnership (PPP) represents collaboration between the government and businesses to address socially significant tasks, such as providing goods and services and constructing infrastructure.

Prerequisites for the emergence of PPP (compiled by authors based on [1]):

1. Economic:

- Attraction of investments into the economy.
- Creation of additional jobs.
- Utilization of private sector financial resources for infrastructure and social projects.

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- Involvement of state assets by small private companies.
- Successful execution of large-scale projects through private sector experience and management efficiency.

2. Social:

- Improvement of the quality and accessibility of public services (transport, education, healthcare) as private companies are consumer-oriented.
- Development of infrastructure through joint efforts, improving citizens' living standards.

The development of PPP is primarily driven by national economic growth and meeting population needs. Currently, Russia implements approximately 3,500 PPP and concession projects, with total investments exceeding 5 trillion rubles, around 65% of which comes from private sources [2].

Logistics infrastructure—transport routes, buildings, equipment—is key to socio-economic development. Globalization and digitalization of cargo transportation require flexible, adaptive systems capable of responding quickly to challenges. However, a major constraint remains insufficient funding, leading to reduced service quality, higher accident rates, and limited access to modern technologies. Consequently, alternative financing and management mechanisms, including PPP, become essential.

PPP Implementation in Logistics

PPP in logistics takes various forms, from concession agreements for terminal construction to joint financing of smart logistics startups. Risk distribution is crucial: the government assumes long-term infrastructure obligations, while the private sector focuses on operational efficiency.

Case Study: Northern Sea Route (NSR) Development Project

Private investors implement ice navigation technologies, while the government ensures navigation safety and provides funding (3.8 billion rubles from the federal budget) [4]. The project aims to create a digital ecosystem transforming logistics processes in the Arctic region, including a network of specialized complexes with sensors collecting meteorological, hydrographic, and navigation data. Real-time analysis will optimize ice navigation routes, improve shipping schedules, and integrate collected data into a unified NSR digital services platform accessible to registered stakeholders (shipowners, logistics operators, captains, insurers, environmental organizations). Predictive algorithms are expected to reduce transit time along the NSR by 15–20%, enhancing its competitiveness relative to southern routes.

PPP Structure and Stakeholders

PPP requires a minimally sufficient set of participants: government partner, private partner, investor (at least one funding source), construction company (or private partner's construction function), and logistics operator (or private partner's logistics function) [6].

Project Evaluation:

- Stage 1: Assess financial efficiency and socio-economic impact.
- Stage 2: Determine comparative advantage by analyzing net discounted costs and public partner obligations in case of project risks.

Example: Construction of an ice arena in Perm via a concession agreement with private partner LLC "Krasnaya Mashina" demonstrates cost-sharing, long-term payment mechanisms, employment generation, and social benefits.

Investment Management in Logistics

Efficient management of investment projects in logistics accelerates production cycles, optimizes capital turnover, and supports sustainable economic growth. Investments include:

- **Tangible assets:** transport terminals, warehouses, cargo handling equipment, transportation networks.
- **Intangible assets:** information systems, management technologies, legal frameworks, personnel skill development.

Investment projects in logistics PPP require multi-faceted strategies combining economic, legal, technological, and socio-political aspects. Project selection criteria consider economic efficiency and alignment with national priorities. For instance, integration of remote regions into global logistics networks (e.g., NSR development) often receives priority. Cost-Benefit Analysis (CBA) is commonly used to assess public utility, accounting for direct, indirect, and external effects [9].

Stages of PPP Project Implementation (compiled from [2])

1. **Preparatory Stage:** Marketing, technical-economic justification, risk analysis.
2. **Financial Planning:** Co-financing, investment return mechanisms, government support.
3. **Legal Regulation:** Development of legal acts, transparent competitions, dispute resolution mechanisms.
4. **Infrastructure Planning & Technological Development:** Alignment with transport strategy, digital technology integration, environmental considerations.
5. **Project Management & Monitoring:** Establishing coordination committees, phased reporting, independent audits, use of digital monitoring tools.

Risk allocation is critical: technological risks fall on private partners; political/regulatory risks remain with the government. Hedging and multi-currency financing are recommended for international projects.

Transparent communication with the public enhances project acceptance and smooth implementation. Balancing private profit motives and strategic government goals is key to successful PPP projects.

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