

## CONTENT

PREFACE.....	5
1. THE ROLE OF INTERNATIONAL TRANSPORTATION IN THE WORLD TRADE DEVELOPMENT.....	7
1.1. Transport and International Trade: Historical Aspect.....	7
1.2. International Trade, Transportation Chains and Logistics.....	12
1.3. Importance of Intermodal Transportation Modes and Terminals for International Trade.....	21
2. GLOBAL TRANSPORT AND LOGISTICS SYSTEMS.....	29
2.1. Disconnection of Global Production and Distribution.....	29
2.2. Global Production Systems and Value Chains.....	34
2.3. Logistics Strategy and Logistics Management Systems.....	41
3. TRENDS, STRATEGIES AND BEST PRACTICES IN INTERNATIONAL ROAD TRANSPORT.....	48
3.1. Trends in International Road Transport.....	48
3.2. Strategies in International Road Transport.....	53
3.3. Best Practices in International Road Transport.....	58
4. INTERNATIONAL MARITIME SHIPPING AND PORT TRAFFIC.....	69
4.1. Maritime Shipping as a Driver of Globalization.....	69
4.2. International Trade and Maritime Shipping Services.....	75
4.3. Maritime Logistics.....	78
4.4. International Port Traffic and Maritime Supply Chains.....	81
5. INTERNATIONAL CONTAINER SHIPPING.....	92
5.1. Trends in International Container Shipping.....	92
5.2. Container Shipping Management.....	97
5.3. Container Services and Networks.....	104
6. INTERNATIONAL RAIL TRANSPORT.....	113
6.1. Trends in International Rail Transport.....	113

6.2. Rail Freight Logistics Services.....	119
6.3. Intermodal Transportation by Rail.....	125
7. INTERNATIONAL TRANSPORT: EVALUATION OF ECONOMIC AND ORGANIZATIONAL DEVELOPMENT.....	133
7.1. Economic Importance and Opportunities of Transport.....	133
7.2. Economic Returns of Transport Investments.....	139
7.3. Transportation Impacts and Economic Factor.....	145
8. AVIATION LOGISTICS IN THE POST-CRISIS WORLD: AIRPORTS AND AIRLINES.....	155
8.1. Trends of Air Logistics.....	155
8.2. Aviation Value Chains and Logistics.....	162
8.3. Aviation Marketing.....	168
9. TECHNOLOGY AND INNOVATION IN TRANSPORT.....	177
9.1. Trends of Technology and Innovation.....	177
9.2. Distribution Centers and Clusters.....	185
9.3. Information Technologies.....	190
10. FEATURES OF LOGISTICS SERVICES FOR INTERNATIONAL TRANSPORTATION.....	198
10.1. International Logistics Future: Components, Process, Channels and Examples.....	198
10.2. Global Financial Centers and International Transportation.....	204
10.3. New Operational Realities of International Freight Distribution.....	211
11. THE COLD CHAIN AND THE GLOBAL FOOD SYSTEMS LOGISTICS.....	220
11.1. The Cold Chain Logistics.....	220
11.2. The Global Food Systems Logistics.....	230
12. TRANSPORTATION IN TOURISM INDUSTRY.....	241
12.1. The Emergence of the Tourism Industry.....	241
12.2. Means and Transport Modes in Tourism Industry.....	244
12.3. Mass Tourism and Mass Transportation.....	248
12.4. Global Trends and Forecast in Tourism Industry.....	253
REFERENCES.....	261

## PREFACE

The textbook “International Transportation” is offered for students studying in the in the fields of knowledge 05 “Social and Behavioral Sciences”, 07 “Management and Administration”, 27 “Transport”, 28 “Public Management and Administration”, 29 “International Relations”.

The purpose of studying the subject “International Transportation” is forming a system of scientific knowledge and practical skills in the international transportation organization and management.

The authors of the textbook aimed at systematizing the presentation of a knowledge complex on trends, international practices and main features in international transportation to operate in international environment in the context of deepening globalization and integration processes, as well as increasing the scale and expanding the geography of international trade operations.

It is important to be familiar with the organizational schemes and economic aspects of international transportation organization, the peculiarities of the international transportation organization by different modes of transport, international regulation of international transportation by various transport modes, to learn the basics of organizing transit transportation and transportation of various goods in international traffic, features of the global transport and logistics systems, main features of logistics services for international transportation, as well as technologies and innovations in transport.

With the rapid expansion of economic relations between the economies of different countries and their intensification, the role of transportation in the mechanism of international transfer of products and movement of production factors is growing significantly.

International transportation refers to the transportation of passengers and goods by various modes of transport across state borders. It involves customs procedures and has certain peculiarities. Transport provision for foreign economic activity requires the ability to navigate in the transport environment, which requires professional knowledge of

the legislation of particular countries, international agreements, key trends, strategies and best practices in international transportation, technical and operational characteristics of vehicles, reloading and transshipment points, their operating conditions, the market for intermediary services, and more.

Additional attention was paid to the consideration of specific relevant problems of international transportation, such as issues of aviation logistics in the post-crisis world in terms of airports and airlines, the cold chain and the global food systems logistics and transportation in tourism industry.

The textbook contains tests, case studies and discussion questions, which should facilitate the practical mastering of the material and the ability to solve particular practical problems.

Contribution of the authors is as follows: T. Voichenko personally developed section 5; S. Lytvynenko personally developed preface, sections 8 and 11; M. Buhaiova personally developed sections 1 and 9; I. Medvediev personally developed section 3; N. Remzina personally developed sections 10 and 12; Y. Popova personally developed section 2; T. Voichenko and I. Medvediev jointly developed section 4; I. Medvediev and Y. Popova jointly developed section 6; T. Voichenko and Y. Popova jointly developed section 7.

The authors express their sincere gratitude for the assistance in preparing the textbook for publication to collectives of the Finance Department Lesya Ukrainka Volyn National University, Management of Organizations Department Lviv Polytechnic National University, Finance and Accounting Department of Mariupol State University, Management of Foreign Economic Activity of Enterprises Department National Aviation University, Department of Business Logistics and Transport Technologies, State University of Infrastructure and Technologies, as well as to professors A. Novikova and V. Yanovska. Authors of the textbook will be grateful for critical comments, recommendations and suggestions.

# **1. THE ROLE OF INTERNATIONAL TRANSPORTATION IN THE WORLD TRADE DEVELOPMENT**

## **1.1. TRANSPORT AND INTERNATIONAL TRADE: HISTORICAL ASPECT**

International trade and the accompanying financial transactions are generally conducted for the purpose of providing a nation with commodities it lacks in exchange for those that it produces in abundance; such transactions, functioning with other economic policies, tend to improve a nation's standard of living. Much of the modern history of international relations concerns efforts to promote freer trade between nations. International trade refers specifically to an exchange between members of different nations, and accounts and explanations of such trade begin only with the rise of the modern nation-state [1].

International economists have active begun to focus on the role played by transportation costs in determining patterns of international specialization and trade. Considered the impact of transportation on economic geography, the expansion strategies of multinational firms, the wisdom of regional versus multilateral trade liberalization, and the distribution of bilateral trade. These questions are fundamentally cross-sectional in nature, asking how variation in costs at a point in time influences specialization and trade [2].

While transportation allowed to trade raw materials and finished goods, it also allowed making better use of the comparative advantages of regions. In the first half of the 20th century, the setting of regional manufacturing clusters specializing in sectors such as transport equipment, textiles, or foodstuff became prevalent. By the second half of the 20th century, trade liberalization and the formation of economic blocs allowed for the fragmentation of production at the global level. A conjunction of trade liberalization, containerization, and technological innovations modified the operational scale of transport systems and their network structure. The setting of gateways and hubs became particularly prevalent, leading to an extended scale for transportation that reflects commercial considerations less subject to political or regulatory constraints. Phases of development of the global economy are shown in Fig. 1.1 [3].

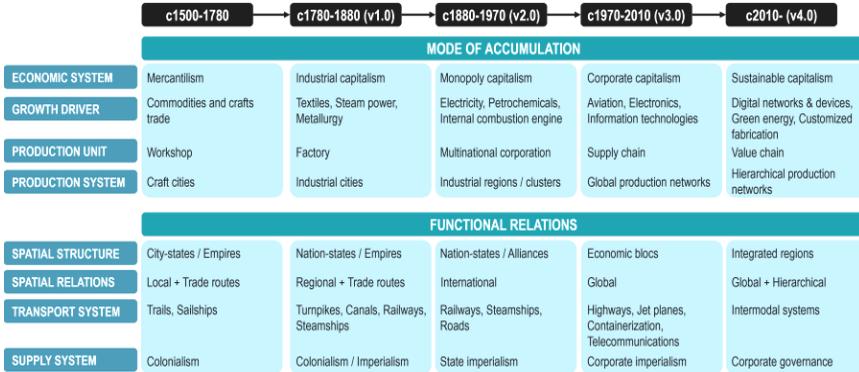


Fig. 1.1. Phases of Development of the Global Economy

Since the 18th century, mechanization allowed each transportation mode to experience an evolution in motive methods and vehicles. New engine technologies offer the ability to be used across several modes with specific adaptations. The first most meaningful innovation was the steam engine that improved the performance of the maritime and railway modes from the end of the 18th century and into the 19th century. The internal combustion engine (ICE) in the late 19th century brought the large-scale mechanization of transportation modes, especially road transport. Innovations in air propulsion lead to jet planes that could quickly transport a large number of passengers over long distances. Then, wide-body jets (such as the B747) enabled to improve further the scale at which air transportation could carry passengers and freight [3].

The technological evolution of maritime transportation impacted more substantially conveyances than their speed, particularly their economies of scale. The introduction of the containership in the 1970s allowed a versatile cargo carrier that continuously benefited from economies of scale and supported the rapid development of the global economy. In the 21st century, the automation of transport systems is unfolding, including its terminals. This improves their reliability and performance while reducing their operating costs. Self-driving vehicles and drones are starting to be introduced. Evolution of transport technology since the 18th century is given in Fig. 1.2 [3].