

**MANAGEMENT MODELS FOR PUBLIC POLICY  
READJUSTMENT WITHIN THE EU INLAND  
FREIGHT TRANSPORT INDUSTRY**



**AMALIA-ELENA ION**

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FREIGHT TRANSPORT INDUSTRY**



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## FOREWORD

The research presented in this book is related to the public policy perspectives and decision-making processes and mechanisms related to the freight transport sector of the EU economy. The reasoning behind the topic selection stems from personal knowledge and experience of the author, which, in turn, determined the unfolding of the main research direction, namely to present the observed problems and solutions across the legislation regarding the road, rail, and inland waterways subsectors of the freight transport in the EU-27. After the initial assessment of the public policies affecting each subsector through the individual consideration of management, financial, and human capital solutions and gaps proposed or determined by the enforced legislation, the research forwarded a management model for public policy readjustment, by approaching the dilemma from the perspective of business management, general context, and innovation and technology – key dimensions influencing the development and good conduct of the freight transport sector.

Already established, the mechanisms and systems created around the freight transport sector are fundamental in the carry-on of daily economic activities. The freight transport supports and promotes the operations across the supply chain, while the degree of efficiency in the transport mechanisms and systems is directly correlated to economic processes, as transport services are responsible for the supply timeframe, the consistency and frequency of the service, the viability of different management systems, and the connectivity to the consumer market. Within the EU-27, the transport sector (freight and passenger) accounts for 5% of the total labour force in the union. Although the value-added percentage, and the human capital employed might seem ridiculously small compared to other sectors, the freight transport system in the European Union has granted an unparalleled gift to the Member States – the European integration. The latter was achieved through the creation of the common market, where the trade and connectivity has been facilitated and encouraged via the uniformised transport network. Consequently, the pan-EU legislation, namely transport policies and system development, have determined the open, free access across borders, for a more concentrated and efficient trade. The Single European Market represents one of the most important opportunities for

European enterprises and allows for a swift and efficient internationalisation of SMEs. Nevertheless, the regions within the EU that are characterised by limited infrastructure are also those highly affected from an economic and social perspective. The less developed infrastructure is mostly visible in the CEE countries, which, in turn, determines a lower transfer of knowledge and technology, even though the EU transport market liberalisation improved the performance of the TEN-T and, consequently, the functioning of the regional economy.

The current concern related to the European freight transport sector refers to the limited freight data gathered and analysed. Although Eurostat quarterly updates its information and data on all sectors of the economy, there is still missing data for some Member States and/or for some periods of time. In order to not only perform better as an industry, but also to make sure that the legislation is not corroding the entire mechanism, the summaries and analyses on each particular sector are fundamental. In the case of freight transport, there are some aspects of interest, such as the benefits and costs of different projects and programmes, the measurement standards for the performance of the sector specifically based on the movement of freight goods, the shifts in the attributed modes of transport and in time-of-day as a result of policy changes, potential route diversions estimated against policy changes, freight forecasts for different scenarios, and the flow of information between freight facilities, parties involved, intermediaries, etc. The improved productivity of the freight transport sector, for instance through the bettering of the travel time reliability, would determine higher economic contribution from the former, underlining the importance of studies that discuss the impact of and on the freight transport sector. Bringing together and connecting the transport sector with the dimension of active enterprises, the general economy, and the policy makers would become the ultimate concept for a new frontier in freight transport, with the potential to double the value added of the sector, by saving on costs, on travel time, by investing in infrastructure, in innovative means of transport, in business models, in active enterprises, by increasing the productivity, and by creating a regional solution. Consequently, regional competitiveness, associated with cost savings and productivity increases, would experience growth.

Considering all of the above, the main objective of the research is to propose an impact assessment on the public policy influencing the EU-27 inland freight transport sector (namely, its subsectors – road, rail, and inland waterways), by formulating the analysis on the current state of the legislation, the identification of solutions and gaps provided by the enforcement of regulations and directives, and, finally, proposing a



recommended action plan for public policy readjustment in order to avoid key risks in the sector.

The first phase of the research is represented by the contextual analysis of public policy and its general purpose, alongside the identification of the major constructs regarding the EU-27 freight transport sector.

The next phase of the research comprises of the synthesis analysis of the public policy for each subsector of the EU-27 inland freight transportation, by summarizing the state of the knowledge relevant to the formulated research question.

Finally, the study forwards an impact assessment of the public policies, and, consequently, translates the recommended action plan into a management model for public policy readjustment.

The research is meant to underline the solutions and gaps within the public policy' formulation and enforcement, to propose a management model for the decision-making process concerning the legislation adoption, to uncover the current status of the public policy in the EU inland freight transport sector, and to formulate valid strategic directions for the bettering of the processes and mechanisms of public policy management.



# 1. INTRODUCTION

## *1.1 Problem statement*

The research presented in this book is related to the public policy perspectives and decision-making processes and mechanisms related to the freight transport sector of the EU economy. The reasoning behind the topic selection stems from personal knowledge and experience acquired in the field, which, in turn, determined the unfolding of several research questions – How can one understand and decide what is the right policy direction, without first having a global perspective? What does it happen when the policies are more restrictive and protectionist than facilitating and regulatory? What is an economy without a solid backbone – its infrastructure and freight transport? How do goods circulate and arrive to the European consumer? Why are there differences between transport SMEs from Western versus Eastern European countries?

From that point on, the main research direction was already selected, and the study was to present the observed problems across the legislation regarding the road, rail, and inland waterways subsectors of the freight transport in the EU-27. After the initial assessment of the public policies affecting each subsector through the individual consideration of management, financial, and human capital solutions and gaps proposed or determined by the enforced legislation, the research forwarded a management model for public policy readjustment, by approaching the dilemma from the perspective of business management, general context, and innovation and technology – key dimensions influencing the development and good conduct of the freight transport sector.

## *1.2 Theoretical background*

### **1.2.1 The management challenges of the freight transport in the European business sector**

Already established, the mechanisms and systems created around the freight transport sector are fundamental in the carry-on of daily economic activities. This is the case not only at EU level, but globally. The freight transport supports and promotes the operations across the supply chain, while burdening the entire system with its costs – a double bladed sword. A

significant number of enterprises are trying hard to control their transportation costs, in order to remain competitive, but also to survive. For low value-added, high volume freight goods, the transport and its related costs are covering a significant share of the total costs of an enterprise. In this category it can be discussed the case of construction materials, liquid products, etc. Roughly 10% of the total revenue within the EU economy is created by the logistics and transportation services, and those also include the warehousing, inventories, storage, and administration of goods. The degree of efficiency in the transport mechanisms and systems is directly correlated to economic processes, as transport services are responsible for the supply timeframe, the consistency and frequency of the service, the viability of different management systems, and the connectivity to the consumer market. Depending on the type of freight goods, the consumer market requires different approaches. For instance, the perishable goods demand timely and technological transports to ensure their usability and availability on the market. From this perspective, the freight transport sector is determinant in the allocation of costs, with the goal of increasing and guiding the competitiveness in the industry, and of purposefully triggering economic growth. Within the EU-27, the transport sector (freight and passenger) accounts for 5% of the total labour force in the union. Although the value-added percentage, and the human capital employed might seem ridiculously small compared to other sectors, the freight transport system in the European Union has granted an unparalleled gift to the Member States – the European integration. The latter was achieved through the creation of the common market, where the trade and connectivity has been facilitated and encouraged via the uniformised transport network. Consequently, the pan-EU legislation, namely transport policies and system development, have determined the open, free access across borders, for a more concentrated and efficient trade. The Single European Market represents one of the most important opportunities for European enterprises and allows for a swift and efficient internationalisation of SMEs. Nevertheless, the regions within the EU that are characterised by limited infrastructure are also those highly affected from an economic and social perspective. The less developed infrastructure is mostly visible in the CEE countries, which, in turn, determines a lower transfer of knowledge and technology, even though the EU transport market liberalisation improved the performance of the TEN-T and, consequently, the functioning of the regional economy.

The current direction of the European freight transport sector relies heavily on the decisions being made in regard to the general energy consumption, as well as the measures to protect the environment. The influence of legislation on the freight transport is determined, to some

extent, by the European Agenda for greening the industry. Lately, it has even been the case of underlining the apparent impact the freight transport sector might have on the health of the environment and of the society. The policy decision-makers must abide to such concerns and attend the potential consequences of the situation, through the drafting and implementation of directives. Nevertheless, the freight transport is of paramount importance for the entire economy, meaning that the legislative decisions must follow the path of innovation and high technology implementation. The means by which the greening of the sector can be made is through creative solution, specific to the potential of each Member State, of each region within the EU. Though the Treaty of Maastricht, the European Union proposed the social and economic cohesion policies, after recognising that the key to development and economic growth relies in a high-tech, innovative transportation system. Furthermore, the EU transport policy considered the potential of the Single European Market, and the relations and communication that could be established with international parties.

### **1.2.2 Public policy status within the EU-27 inland freight transport sector**

The freight transport sector is a secondary demand service market, which, apart from the environmental and health and safety concerns that were brought up by the policy as of lately, did not necessarily grab the attention of scholars, scientists, or policy makers. This fact has one consequence – the limited freight data gathered and analysed. Although Eurostat quarterly updates its information and data on all sectors of the economy, there is still missing data for some Member States and/or for some periods of time. In order to not only perform better as an industry, but also to make sure that the legislation is not corroding the entire mechanism, the summaries and analyses on each particular sector are fundamental. In the case of freight transport, there are some aspects of interest, such as the benefits and costs of different projects and programmes, the measurement standards for the performance of the sector specifically based on the movement of freight goods, the shifts in the attributed modes of transport and in time-of-day as a result of policy changes, potential route diversions estimated against policy changes, freight forecasts for different scenarios, and the flow of information between freight facilities, parties involved, intermediaries, etc.

During the development of the EU, the transport policy transformed, and updated according to the recognised facilitator of business growth. All the inclusions and transformation of the policies have been released under the form of White Papers, where the focus has been that of adjusting the transport system to an efficient level. The main public policy governing the

freight transport operations and business is the Common Transport Policy (CTP), which, as expected, largely discusses the case of road haulage and the potential of the Trans-European transport network (TEN-T). Although these changes have been made according to the gathered information regarding this market activity, there is little to no information on the inbound/outbound capacity for freight transport and on the impact the freight transport sector has on the economic growth of the EU. The EU freight transport is operating on half the capacity of the US market, although the EU SBA is an improved version of the US SBA, and although the EU is based on the same federal system as the US (Grigorescu, Ion, 2019; Grigorescu, Ion, 2020). The similarities fade when comparing the approaches – the US has low impact policies in effect for the freight transport sector, while researchers and experts are gathering data and working on forecasts for the growth of the latter. While in Europe, it is visible the excessive interest for coercive policies, the decisions that mostly impact the CEE countries in a negative way, and the lack of focus on gathering data and making plausible forecasts for an efficient and performant sector of the economy.

The improved productivity of the freight transport sector, for instance through the bettering of the travel time reliability, would determine higher economic contribution from the former, underlining the importance of studies that discuss the impact of and on the freight transport sector. Momentarily, the focus of research relies on estimating the economic impact of this sector as a result of productivity improvement, although the freight transport could be analysed using a macroeconomic method focusing on the GDP or other governmental contribution to infrastructure investments, to business financing, to inclusion of innovation and technology, and to the transfer of knowledge. The research could also propose means for SMEs to diminish their costs through the knowledge transfer and adoption of technology, and innovative business models. Moreover, it is of interest to also discuss the regional specialisation in rapport with the technological process, to the performance and equilibrium of the market.

Bringing together and connecting the transport sector with the dimension of active enterprises, the general economy, and the policy makers would become the ultimate concept for a new frontier in freight transport, with the potential to double the value added of the sector, by saving on costs, on travel time, by investing in infrastructure, in innovative means of transport, in business models, in active enterprises, by increasing the productivity, and by creating a regional solution. Consequently, regional competitiveness, associated with cost savings and productivity increases, would experience growth. The decrease of shipping time determined by

better access and infrastructure upgrades would lower the cost support level, generating more profits for enterprises, lower price caps on final products, and would also contribute to the governmental revenue. The connectivity between the economic growth and the freight transport sector can be observed through the different economic activities – shipping, travelling, service delivery, all having an impact on the costs of production and distribution. The playground of all those activities is the infrastructure of blockchain technologies, that offer movement, accessibility, traceability, transparency, connectivity, innovation, digitalisation (Nowiński, Kozma, 2017).

### ***1.3 Objectives and phases of the research***

The main objective of the research is to propose an impact assessment on the public policy influencing the EU-27 inland freight transport sector (namely, its subsectors – road, rail, and inland waterways), by formulating the analysis on the current state of the legislation, the identification of solutions and gaps provided by the enforcement of regulations and directives, and, finally, proposing a recommended action plan for public policy readjustment in order to avoid key risks in the sector.

The first phase of the research is represented by the contextual analysis of public policy and its general purpose, alongside the identification of the major constructs regarding the EU-27 freight transport sector.

The next phase of the research comprises of the synthesis analysis of the public policy for each subsector of the EU-27 inland freight transportation, by summarizing the state of the knowledge relevant to the formulated research question.

Finally, the study forwards an impact assessment of the public policies, and, consequently, translates the recommended action plan into a management model for public policy readjustment.

The research is meant to underline the solutions and gaps within the public policy' formulation and enforcement, and to propose a management model for the decision-making process concerning the legislation adoption. The study is meant to uncover the current status of the public policy in the EU inland freight transport sector, and to formulate valid strategic directions for the bettering of the processes and mechanisms of public policy management.

## **2. GENERAL CONSTRUCTS OF THE EU INLAND FREIGHT TRANSPORT PUBLIC POLICY**

### ***2.1. Public policy, the knowledge economy and the EU freight transport***

Public policy is one of the means that governments and public authorities have at disposal for triggering a response from the general population, and to tackle real-world problems. The finality of public policies can be either restrictive, facilitating, or regulatory, and the overall purpose of any public policy is that of staying on top of the priorities (Sapru, 2004). Lately, there has been a battle between catching up and falling behind the evolution process, although it can be mentioned that, at EU level, there have been particularly important steps taken in order to introduce the strategic directives toward digital transformation. In such a context, public policies have the ingrate role of neutralising and/or correcting the constraints that might endanger the proper functioning of the national system.

At the same time, as part of the knowledge economy, public policies must also focus on promoting innovation and technology transfer. Moreover, the trend is not intrinsically characteristic to the innovation policy, as broader policies must also abide to this new movement, including education policy, regional development policy, etc. Therefore, here is the reasoning behind testing the freight transport market output against regressors such as teachers per 1000 people, tertiary graduates per 1000 people, urban population, higher education attendance alongside R&D and innovation related indicators. The testing would enforce the correlations between the transformation of the freight transport into KIBS, and the overall inclusion into the knowledge economy. Based on that assumption, an advanced economy, with the highest form of production being knowledge, presents connections and establishes relationships between the higher education and consistent focus on R&D and innovation (elements extensively discussed and regulated by public policy), and any sector of the given economy, including the chain that interlinks all the activities performed on the market, namely the freight transport sector. The Triple Helix model introduces the high performance of the interconnectivity established between academia, business, and government, for the



proliferation of knowledge transfers, and for the sharp uptrend of innovation research and technology allocation to everyday activity (Etzkowitz & Zhou, 2017). The creation of these trilateral connections, networks and partnerships represents the first step in the push towards new organisational mechanisms that would act as incubators for science and technology. Some examples of such hubs of technology are visible within the group of high-tech companies and venture capital enterprises, that managed to become the main generators of innovation, economic growth, and community building.

At regional level, the European Union motioned towards the creation and implementation of various indicators and programmes to develop and assess the performance of the domestic enterprises in the direction of innovation and technological adoption. One of the means applied by the EU for this assessment is the European Innovation Scoreboard, which comparatively observes the R&D and innovation performance of the Member States. This is particularly helpful to the policy decision-makers, and functions as a framework for instituting the next order of regulation and directives, by observing the strengths and weaknesses, tracking the progress, and identifying the priorities for each Member State. The innovation performance is calculated through indicators such as R&D expenditure, human resource and employment, and innovation activities within enterprises, and results in four performance groups – innovation leaders, strong innovators, moderate innovators, and modest innovators. The EC has released the documentation on the performance of EU Member States' innovation systems (European Commission Press Corner, 2020). The first category of innovation performance, namely innovation leaders, comprises of countries such as Sweden, Finland, Denmark, the Netherlands, and Luxembourg, the second group is represented by Belgium, Germany, Austria, Ireland, France, and Estonia as strong innovators, while most of the other EU countries were classified as moderate innovators, with only Romania and Bulgaria as the only two modest innovators. Some of the main elements that were observed as applied by those high-ranked countries are represented by developed research systems, with intracommunity partnerships and networks, innovation hubs for SMEs (with Portugal being the leader in this initiative), public-private cooperation and funding programmes, as well as development of intellectual assets and human capital. The major movements/changes in terms of innovation directives and programmes from 2012 to 2019 can be observed in Lithuania, Malta, Latvia, Portugal, Greece, and Finland.

Furthermore, the national and supranational public policy in the EU Member States has been focused on keeping up with the wave of

innovation, as the EU was listed in 2019 as the fifth innovator across the current global performance, just below South Korea, Canada, Australia, and Japan, and followed just below by the US and China. The innovation performance is measured with the use of some indicators that are combined under four categories – framework conditions (main drivers of innovation performance: human capital, research systems, innovation-friendly environment), investments (public and private investments in R&D), innovation activities (at enterprise level: innovators, linkages, and intellectual assets), and impact (of innovation under the form of benefits for the overall society and economy: employment, sales, etc.) (Birchall et al., 2004). Therefore, some of the variables that can be tested to understand the possible correlations the attainment of a KIBS level in this particular sector might enquire are tertiary education graduates, population having completed tertiary education, publications, higher education students, public R&D, venture capital % of GDP, business R&D expenditures, innovation expenditures, SMEs innovating, SME collaborations, public-private publications, patents, trademarks, employment in knowledge-intensive activities, medium and high-technology products, knowledge-intensive services exports, etc.

Considering the context of public policy, the major organisations at European level have actively engaged in advocating the government policy in favour of the knowledge economy, and of the contribution that governments can bring to the economic growth. See for instance the impact of the government decisions during the pandemic crisis that have displaced the entire economic and societal activities, but, at the same time, have had a significant contribution to the drop in pollutant emissions, in the rise of high-tech enterprises, in the introduction of innovation as the major formulator of future perspectives for the global market.

The OECD considers that governments are the greatest enablers for access to new information technology, for higher education attainment, for stimulated research centres and innovation hubs, for the development of national innovation systems, and the transfer of knowledge through networks. These perspectives have prioritised the enhancement of knowledge diffusion, the upgrade in the skills umbrella of the human capital, and in the promotion of innovation and management change within enterprises. Among the suggestions made by the OECD have been compatible with the following suggestions:

- projects in science and technology based on missions and objectives, economic and technological policies for innovation, diffusion-oriented programmes, and frameworks for collaborations between universities-industry-government, that promote the

diffusion of the new technology to the economic sectors and to the active enterprises through the facilitation of information infrastructures development;

- the necessity of policies that promote the broad access to competencies and skills, especially learning capabilities (thus, the education system is to broaden, and encourage enterprises and individuals to continuous training and life-long learning, with the ultimate scope of matching the labour supply with the market demand);
- and the highlighting of technological change which can be updated through enterprises' organisational changes that could pertain to the perspectives of flexible work arrangements, multi-skilled workforce, decentralisation and networking (these perspectives could be achieved by improving the conditions of organisational changes based on financial, competition, information, and policy shifts).

The European Commission demonstrated its involvement in the formulation of strategies and policies for regional development, and focused its attention to the human capital sector, where it emphasised the need for skill retention and update to align with the knowledge economy demands. Moreover, the Commission observed the colossal retention of ICT in the global economy, as well as its impact on the latter. Products and services sector experiences growth, while the human capital moves from geographically bounded jobs to teleworking, and the education system reserves consistent timeframes for the acquiring of skills needed in this new work environment. The recommendations of the European Commission, since 2000, went along the following lines:

- Internet connectivity in all schools across EU,
- teacher attainment of informational and technological skills,
- wide opportunities for human capital to acquire ICT skills,
- creation of circumstances favourable to teleworking,
- entrepreneurship encouragement,
- and promotion of ICT usage by SMEs.

It is quite clear that, 20 years later, most of the Member States still lag in the context of recommendations' completion, although significant achievement has been registered in 2020, with the stimulation from the avalanche created by the health crisis, which, from a positive perspective, has reintroduced, implemented and even stabilised the majority of the terms proposed in 2000 by the EC.

The alignment of the economic sectors to such public policy directives would push the entire system into the broad registration of knowledge economy. Since the major incentive for knowledge economy is

represented by innovation, a new category of services came into existence, namely the knowledge-intensive business services. Basically, this regenerative wave of novelty proposes a constant and undivided attention toward the enterprise behind the service supply, and toward the other party involved in the process – the customer interface. Moreover, the KIBS have an intrinsic feature that creates the premises for the development of new market relationships as a form of innovation, and technology usage. The innovation creation stems today only from the perspective of the actors who design and deliver services, and they are known as knowledge workers. Among the most technical and scientific services there is the challenge of distinguishability based on the output. The complexity of the latter has direct impact on the relationship between innovator and service supplier.

Subsequently, the European Union policy for research and technological development or the RTD is one of the areas of interest within the European legislation. In 2021, the project Horizon Europe was launched, comprising of funding (EUR 95.5 billion available) and partnership programmes that will help achieve the UN Sustainable Development Goals, and supports the economic and social growth and competitiveness within the union. The project is divided in three pillars: pillar I – excellent science (European Research Council, Marie Skłodowska-Curie, Research Infrastructure), pillar II – global challenges and European industrial competitiveness (health, culture, inclusive society, civil security, digital, industry and space, climate, energy and mobility, bioeconomy, natural resources, agriculture, joint research centre), and pillar III – innovative Europe (European Innovation Ecosystems, European Institute of Innovation and Technology). The framework for 2021-2027 is mainly focused on the aspects of science and technology development, through technological excellence, societal problem-solving, through the inclusion of green and digital transition and advancement in the realisation of Sustainable Development Goals, and, of course, the economic challenge of boosting Europe at global level, increase the innovation output, the competitiveness of the region and the job supply. 70% of the budget is directed solely towards SMEs, and their introduction to the possibility of having dedicated R&D departments, as well as for the possibility of radical innovation development and implementation within the sector.

Although the EU works on the transition toward the knowledge economy – with the goals of strengthening employment, economic reform, social cohesion, shift to digital, knowledge-based economy, prompted by new goods and services – as powerful engine for growth, competitiveness, and jobs, capable of improving the quality of citizens' life and of the