

TRANSPORT LOGISTICS AS A SOURCE OF IMPROVING QUALITY OF LIFE IN A REGIONAL CONTEXT

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Abstract

The article deals with transport logistics as one of the factors for improving the quality of life both in general and in the regional context. The analysis in this case is based on the fact that transport logistics can be seen to have an obvious role here — both directly through investment in transport infrastructure, vehicles, and logistics systems, increasing physical capital; and indirectly through the impact that more efficient transport can have by inducing greater efficiency in the way that other sectors use their own inputs. Beyond the initial effects of transport investment on journey times and costs, labour market, agglomeration and transport network effects also influence the long-term impacts of transport investment on economic growth and urban/regional development. Each of these wider economic impacts has a spatial dimension through their influence on the location and geography of economic and social activity. Objectives, methods, and the particular results of investigations resulted in the definition and characteristics of the transport logistics in terms of the European Union with reference to their application and impact on quality of life in a regional context. The region is perceived as a territorial unit between the state and municipalities, resulting in the need for a specific approach to address the problem, which can then be developed.

Key words: transport logistics, logistics system, investments, quality of life, region

1. INTRODUCTION

Ensuring the desired quality of life for the population, which is in the interest of each country, is influenced by many factors. The aim of this article is to contribute to

the broader discussion of this topic in terms of the impact of the transport logistics factor with a regional context. The starting point of our efforts is the fact that the issue is not yet discussed in detail. In our opinion, however, it deserves much more attention.

Regional development is a broad term but can be seen as a general effort to reduce regional disparities by supporting (employment and wealth-generating) economic activities in regions. In the past, regional development policy tended to try to achieve these objectives by means of large-scale infrastructure development and by attracting inward investment.

Logistics, assisting flow of goods, services, and values within the chain from the production spot to the consumption spot and oppositely, from the consumption spot to the production spot; signifies an important point in terms of development of economies. Share of logistics within GDP in most developing countries cannot be denied. Today, when separation of production from consumption, and execution of both activities within limits are in question; logistics management has gained importance and has become one of the important factors determining development levels of various regions within countries. The concept of regional development has been identified, and importance and objectives of regional development have been defined in this time (Cempirek, 2010).

Transport logistics can be seen as one of the key activities of the logistics process, which in financial terms often represents the largest cost item in relation to other logistics activities such as storage, material handling, procurement, inventory management, information systems, customer service etc. The role of transport logistics is to provide the transport process so that the desired benefits are created: the benefit of the site - to move any item where required and the benefit of time - to move the item when it is required. In this way, transport logistics is becoming an important pillar of a logistics system that can be defined as a purpose-built physical and management structure that enables the activation, assurance, evaluation and improvement of the flow of logistics networks (Lambert et al., 2000). In the context of European Union policy, the European Commission in “Freight Transport Logistics in Europe - the key to the development of sustainable mobility”, presents the view that optimization of the European transport system would be possible through the use of a logistics concept.

Quality of life (QOL) is the general well-being of individuals and societies, outlining negative and positive features of life. It observes life satisfaction, including everything from physical health, family, education, employment, wealth, safety, security, freedom, religious beliefs, finance and the environment (Mirică, 2018). As a contributor to economic development, transport infrastructure by its very nature has important spatial impacts, for example on intra-regional and inter-regional transport time and costs, and thus potentially on the location of households and businesses. Transport services are produced and consumed jointly with transport infrastructure, a major component of the fixed capital of the transport sector. A distinguishing feature of the transport sector is that its function is primarily as an input into many other activities. Firms transport products to distribution centres and retail outlets; businesses send their employees to meet with customers, suppliers, regulators and co-workers; people travel to work and for leisure pursuits (Valaskova et al., 2018).

2. RESEARCH METHODOLOGY

The review of literary sources shows relatively limited knowledge about the link of transport logistics as a factor that can increase the quality of life. An exception in this respect is the research of the Tourism Centre of the Department of Forest Resources, University of Minnesota, which in its study examines the impact of transport on quality of life within defined areas (Schneider, 2013). From the research approach point of view, other possibilities of economic benefit of transport based on relevant transport demand and optimal setting of the transport system supply side will be examined in the analysis. Specific attention in the analysis and synthesis of knowledge is devoted to the state and direction of transport development in Slovakia in relation to sustainable development, transport infrastructure with acceptance and utilization of the logistics concept, to which the relevant European Commission documents bind us. The research methodology includes the historical method, desk review, system analyses and field research.

3. TRANSPORT LOGISTICS

The operation of transportation determines the efficiency of moving products. The progress in techniques and management principles improves the moving load, delivery speed, service quality, operation costs, the usage of facilities and energy saving. Transportation takes a crucial part in the manipulation of logistics. Reviewing the current condition, a strong system needs a clear frame of logistics and a proper transport implements and techniques to link the producing procedures (Cempirek, 2010).

The principal role of transport is to provide access between spatially separated locations for the business and household sectors, for both commodity (freight) and person movements. For the business sector, this involves connections between businesses and their input sources, between businesses and other businesses, and between businesses and their markets. For the household sector, it provides people with access to workplaces and education facilities, shops, and social, recreational, community and medical facilities. Given the significance of the sector in economic terms, both the level of transport investment together with the amount of expenditure on transport operations can have wider effects on the economy (as is seen when transport fuel prices increase substantially, resulting in reduced household expenditure on other goods and services) (Ignatyev & NurtdinovIlgiz, 2018).

The direct effects of transport investment are to reduce transport time and costs through reducing travel times, decreasing the operating costs of transport and enhancing access to destinations within the network. Transport investment may also mitigate any economic disbenefits, for example where projects reduce congestion or the risk of injury. These incremental benefits of transport investments may be measured through conventional cost-benefit analysis. Other indirect consequences of transport investments should also be considered when evaluating projects. These include effects on productivity and the spatial pattern of economic development. In the long term, transport investments contribute to economic development by

stimulating a variety of inter-connected economy-wide processes, which can yield spatial and regional effects that augment overall productivity (Pernica, 2004).

3.1 Perspectives on the economic contribution of transport

The economic contribution of transport interventions and transport policy can be assessed from various perspectives. These include:

- effects on aggregate economic welfare (that is, the sum of consumer and producer surplus), which is the focus of cost-benefit analysis, as applied to transport policies or projects
- micro-economic, for example, enterprise or household-level productivity effects
- macro-economic, for example, contributions to GDP, investment or employment, and the spatial patterns of economic activity (Ceniga & Šukalová, 2012).

In particular, lower costs and enhanced accessibility, due to better transport links and services, expand markets for individual transport-using businesses and improve their access to supplier inputs. Increased access and connectivity create increased opportunities for trade, competition and specialisation, which can lead to longer-term productivity gains. These changes are analogous to the gains from lowering barriers to trade and the expansion of opportunities that come from doing so. Therefore, knowing the circumstances in which these impacts occur is an important part of understanding the economic benefits that may arise from transport investments (Salaga et al., 2015).

3.2 Demand for transport

The demand for travel by individuals and households is essentially a function of their desire for physical access to workplaces, educational establishments, shops, and social, recreational and community facilities. The extent to which these desires translate into actual travel will be moderated by the time and costs involved in making the desired trip. Travel times and costs will be dependent on:

- the supply of suitable transport services, including speed, quality and convenience factors relating to the services (for example, service frequency, reliability, crowding),
- the financial cost (price) of the services,
- perceptions of any social and environmental costs associated with the trip and the services involved (for example, level of safety and security, adverse environmental effects). Transport demand decisions are complex, as multiple factors are involved, and both longer and shorter term choices need to be addressed. For example, for a company wishing to manufacture and then sell its products in the marketplace, it needs to decide on:
- the sources of its inputs, and how these are to be transported to its manufacturing sites,
- the markets that it is best placed to serve, and how it will transport products to these markets (Kliestik et al., 2015).

This will involve medium-term decisions about whether it provides its own transport (and if so how), or outsources its transport task, and shorter-term choices

such as the transport mode to be used, travel times and service quality features as well as price (National strategy, 2016).

Historically, the „generalised costs“ (including travel time) of transport have tended to fall as a proportion of the total costs of goods and services, as transport technologies and efficiencies have improved. This reduction in transport costs together with growth in household incomes has resulted in transport becoming relatively cheaper for both businesses and households. This has been a major factor in increasing the demand for transport (per capita) over time. In the household sector, much of this increased demand has manifested through people making longer but faster trips, to take advantage of destinations and opportunities that would previously have been too difficult to access (Gourdin, 2006). The evidence indicates that the time that people spend travelling has varied very little in the modern era (averaging typically 60 to 70 minutes per day), but the distances travelled per person have increased substantially. In the business sector, the declining relative costs of transport have resulted in substantial increases in the transport task involved in manufacturing products and getting them to market, as business processes have been rearranged to minimise total production and distribution costs (Lambert et al., 2000).

3.3 Supply of the transport system

The supply side of the transport system can be altered in a number of ways, including decisions relating to the following (Christopher, 2011):

- investment in, additions to, or improvements in, quality of the infrastructure stock (e.g. new roads or railway lines or rail electrification),
- replacement of existing infrastructure assets (for example, resurfacing a road or renewing railway track),
- reductions in road capacity,
- better management of the asset base (clearing breakdowns faster, better management of traffic flows, new services making fuller use of existing infrastructure),
- changes in money costs (for example, tolls, parking charges, fuel prices),
- changes in regulations relating to the delivery of transport services (for example, changes in competition and regulations affecting entry to public transport and taxi markets) (SACTRA, 2000).

3.4 State and direction of transport in relation to environment in Slovakia

The increase in living standards entails high growth in road transport, especially individual traffic, which requires upgrading and expanding the capacity of the road network. Quality transport infrastructure also determines the development of the economy and is one of the basic criteria when deciding to implement a new investment. More favourable economic conditions for business, flexibility and the ability to respond to the demands of the modern economy have made road transport a decisive market share, with a rise in congestion on major road routes and in cities with a negative impact on the environment and public health. In terms of greening transport it is necessary to introduce and develop the use of renewable sources of transport and

to focus on the promotion and development of non-motorized and environmentally friendly modes of transport (Ionescu, 2018):

- There was a decreasing trend in the number of transported passengers and passenger transport performance in addition to individual car traffic, which recorded year-on-year increases in the monitored period of 2000 - 2015. The highest share of passenger transport in passenger transport was represented by individual motoring, followed by public road transport, public transport and rail transport.
- The amount of goods transported by freight had a downward trend with a significant decline after 2008. The freight transport performance in the period 2000 - 2015, despite the volatile nature after 2008, began to grow. The largest share in the amount of goods transported was road freight transport, followed by rail transport and water transport.
- The current state of transport infrastructure is characterized by a dense network of roads, but with a low share of motorways and expressways, also with a relatively dense network of railways, airports of different character, and inland waterways of international importance - the Danube River (Ciszewski & Nowakowski, 2018).
- Only road transport recorded a significant increase in the number of means of transport in the period 2000 - 2015, while in other modes the number of means of transport decreased, with the most significant decrease being recorded in air transport.
- Final energy consumption in the transport sector for the period 2001 - 2015 increased. Road transport accounts for the largest share of fuel consumption and electricity consumption predominates in rail transport.
- Consumption of ecological fuels LPG and CNG recorded an increase in the monitored period 2000 - 2014 despite the fluctuating trend (Koreňová, 2017).

3.5 Transport and Environment Interactions in Slovakia

Currently, there is a tendency in Slovakia to increase road, especially freight and individual car traffic, resulting in a greater burden on the environment, including residential zones, greenhouse gas emissions and basic pollutants, traffic noise, landscape fragmentation and traffic accidents (National strategy, 2016).

Difficulty of transport to resources

- Land use of transport infrastructure represents 0.55% of the total area of the SR. The increase in land area was recorded in road and rail infrastructure. (Land Use Transport Infrastructure Indicator)

Development of transport to the environment

- The development of greenhouse gas emissions is affected by environmentally friendly road transport. In the period 2000 - 2014, CO₂ emissions increased, N₂O emissions fluctuated around the same level and CH₄ emissions decreased.

- Transport is also involved in the production of basic pollutants and heavy metals. Emissions of CO, SO₂ and NM VOC decreased in the period under review, despite the fluctuating character, the emissions of TSL and NO_x increased. Copper, lead and zinc accounted for the largest share of heavy metal emissions in the transport sector.
- Waste production in 2002 - 2015 was fluctuating with year-on-year increases and decreases. The highest number of old vehicles was processed in 2009, with a fluctuating trend after that.
- In 2011, strategic noise maps and action plans were drawn up for road, rail, air and industrial activities of large-scale noise sources, which are updated every 5 years.
- In the period 2000-2008, traffic accidents were of a volatile nature and since 2009 their number has declined due to legislative changes, and the number of people killed and injured has also decreased. The number of rail accidents has increased slightly since 2010 (Koreňová, 2017).

4. QUALITY OF LIFE

Transportation has emerged as an important, yet still not entirely understood element to Quality of life. Further, rather than a holistic approach to transportation, select transportation areas are typically studied such as public transit and parking, accessibility and mobility, or transportation systems efficiency.

According to Quality of life research within and beyond transportation conducted by the Tourism Centre & Department of Forest Resources University of Minnesota we can describe transportation across several major areas (in alphabetical order): access, design, environmental issues, maintenance, mobility, safety and transparency (Schneider, 2013).

- Accessibility refers to access to destinations or people's ability to reach the destinations they must visit to meet their needs and desire to visit to satisfy their wants.
- Design describes the physical layout of the transportation system and includes the multiple components that make up the system (e.g. roads, signs, and lights).
- Environmental issues include air, water, and light.
- Maintenance is a broad category that describes road surfaces, paint indicators, general repair, and seasonal upkeep.
- Mobility is defined as the movement of people from one place to another in the course of everyday life.
- Safety emerged as a primary category in discussing transportation related QOL indicators. Multiple safety elements exist: physical conditions, human behaviour, and the interaction among these factors.
- Transparency included subthemes of communication, finances and planning.

Results of the survey have been specified and defined in the following areas (Schneider, 2013):

- **Access:** Accessibility refers to access to destinations or people's ability to reach the destinations they must visit in order to meet their needs and desire to visit to satisfy their wants. Much of the existing research measured access in terms of people's ability to reach a destination in a personal automobile. This auto-based conceptualization is limited and measures of access are expanding to reflect the variety of access opportunities people may reach their destinations. As such, subthemes of this category include: public transportation, service transportation, air travel, nonnotarized transportation, trains, and light rail transit.
- **Design:** The concept of transportation system design is particularly related to access and mobility. Design describes the physical layout of the transportation system and includes the multiple components that make up the system (e.g. roads, signs, and lights). Local neighbourhood streets, regional roads, and interstate connections are all dynamic; as such, design improvement emerged as a subtheme in this category. However, these changes require funding and subsequently, costs emerged as another subtheme. In some cases the physical layout of the transportation system was easy to use and expedited travel, in other cases the layout was poor and confusing to use. Related to this, quality and efficiency were additional subthemes of design.
- **Environment:** Several characteristics of the environment are shaped and influenced by the transportation system. Respondents noted carbon emissions and air pollution as subthemes for this category. Beyond atmospheric emissions, the transportation system is also responsible for adding considerable sound and light to the environment, and, as such, noise and light pollution are additional subthemes of this category.
- **Maintenance:** Maintenance is a broad category that describes road surfaces, paint indicators, general repair, and seasonal upkeep. Potholes and other poor road surfaces can negatively influence pavement ride quality and reduce customer satisfaction with state highway maintenance.
- **Mobility:** Mobility describes movement, the actual process or experience involved with moving from one point or another. Mobility is defined as the movement of people from one place to another in the course of everyday life. While access is required for people to reach desired destinations, mobility refers to the physical movement to get there. This concept of mobility describes movement, such as congestion or free-flowing traffic, travel time, and total hours of delay. Subthemes of this include: traffic flow, commute time, construction, congestion, and travel time within and between communities.
- **Safety:** Safety emerged as a primary category in discussing transportation related QOL indicators. Multiple safety elements exist: physical conditions, human behaviour, and the interaction among these factors were frequently described as safety concerns. Driver behaviour emerged as an important subtheme related to safety: distracted drivers as well as speeding drivers were mentioned most frequently. Other safety subthemes included troubled intersections or poorly marked streets, railroad crossings, and interactions between vehicles and bikers or pedestrians.
- **Transparency:** Several subthemes emerged in the focus groups adding depth and breadth to the concept of transparency. Communication in its various forms

appears to be most associated with transparency; specific subthemes include communication about finances and planning (SACTRA, 2000).

4.1 Economic growth

Generally countries can enhance their capabilities and outputs in three main ways, that is, by investment in:

- physical capital
- human capital (through education)
- new knowledge creation and application.

Economic output is a function of the capital and labour inputs used in the economy together with the efficiency with which these inputs are applied. Economic growth therefore depends on increases in these inputs and in total factor productivity (TFP) (BTRE, 2001).

Transport can be seen to have an obvious role here — both directly through investment in transport infrastructure, vehicles, and logistics systems, increasing physical capital; and indirectly through the impact that more efficient transport can have by inducing greater efficiency in the way that other sectors use their own inputs. For the transport sector, the key question is whether improvements in transport provision are likely to encourage greater TFP growth by improving incentives for innovative activity. The mainsprings of long-run economic growth are investment and productivity growth. If transport provision is to have an impact it must work through these channels, either directly or indirectly, as a result of its effects on the decisions made by households and firms. One of the main historical impacts of improvements in transport infrastructure has been to make possible and to reduce the costs of long-distance trade and so make markets more integrated. This is perhaps the aspect that makes transport infrastructure special; it may be achieved through better transport networks rather than individual transport schemes. In the presence of imperfect competition in transport-using sectors, it may also lead to important economic effects that are not captured in conventional cost-benefit analysis. Transport and the economy are often said to have a two-way relationship; changes in the supply of transport may affect the level of economic activity and, conversely, the level of economic activity can affect the demand for transport (Olah et al., 2018).

4.2 Transport infrastructure investment

Summary of conditions complementing transport infrastructure investment to contribute to economic growth.

Economic conditions:

- The presence of positive economic externalities (for example, labour market, network or agglomeration economies).
- The potential for economies of scale.
- The potential for specialisation of markets to occur.
- The availability of a good quality, skilled labour force.
- The availability of resources that —represent entrepreneurial effort that would not have occurred without the infrastructure being in place

- The presence of inefficiencies in spatial structure.
- A generally buoyant economy.

Investment conditions:

- The transport mode being invested in.
- The availability of investment funds.
- Network effects (for example, is it a new link in an existing network, a new link connecting two disjointed networks or expansion of a link in an existing network?)
- Scale, timing and location of investment.
- Efficiency in implementation.

Political and institutional conditions – related to the broader policy environment (the „noneconomic” factors) in which the investment takes place:

- Sources and method of finance.
- Presence of complementary or facilitative policies/action (for example, training programmes, structure of tax system, facilitating the entry of competitive and/or innovative firms).
- The organisational and managerial framework of the infrastructure facilities.
- The —political involvement of the political organs (Gourdin, 2006)

5. TRANSPORT SYSTEM AND REGIONAL DEVELOPMENT

There is used an economic geography perspective to explore the relationships between the transport system and regional development. Its key findings on these relationships included the following (Pernica, 2004):

- The new economic geography and the theory of agglomeration economics emphasises the additional productivity gains made possible through agglomeration in large urban areas.
- Its literature shows that by reducing the cost of transporting goods between locations — which decreases the effective „distance“ between two points transport improvements can promote trade, increase competition and variety, and facilitate specialisation in economic activities.
- Infrastructure has an important influence on the location of economic activity and population centres. Infrastructure investment is by its nature spatial, since it involves rival choices about the location of services (including infrastructure) that will serve specific areas. Straub also noted that the new economic geography models help substantiate the claim that infrastructure policy is a form of industrial policy. Indeed, different types of investment have effects on economic activity that work primarily through their impact on business and industrial location and specialisation.
- Infrastructure services are an input to both households and firms consumption and investment decisions. Changes in the availability and quality of infrastructure will crucially influence location decisions, for example migration of households and firms, establishment of new firms and fixed capital investment in different locations.

- Economic geography models consider location patterns to be the result of the interplay between agglomeration and dispersion forces:
 - Agglomeration forces arise as the result of increasing returns that may be either internal or external to firms. Increasing internal returns push firms to locate their activities in regions with bigger markets to be able to serve more consumers or where, through concentration of suppliers, the firm's input costs are lower than otherwise. Agglomeration may also arise for reasons external to the firm, such as knowledge spill overs or access to a more highly trained workforce.
 - Acting against these agglomeration forces are dispersion forces affecting both the supply and demand side of relevant markets. For example, agglomeration brings with it increasing costs of land and labour, as well as congestion. And locating in urban concentrations may mean neglecting distant markets.
 - Transport costs are important in determining the balance between agglomeration and dispersion forces, as both forces diminish as transport and trade costs decline.
- One policy trade-off arising from a geography and growth model is a spatial equity versus efficiency trade-off. This trade-off has two main consequences:
 - First, infrastructure policies that facilitate transport between regions, for example building or improvement of major road corridors will tend to increase both regional inequality and national growth.
 - On the other hand, infrastructure policies that facilitate transport within poor regions will have the opposite effect of decreasing regional inequality, but also constraining national growth (Komobile, 2013).

In assessing the likely regional impacts (in terms of under what conditions transport investment will benefit the „target” region and under what conditions an outward flow of investment and jobs would occur), suggested the following key issues that would be relevant:

- scale economies (for example, where these dominate, lower transport costs through improved accessibility may encourage an increased concentration of firms in core regions, until the point that diseconomies sets in)
- size of the local market
- local land and labour conditions
- the nature of backward and forward linkages in the local economy
- the nature and scale of transport improvements

However, also noted that the interplay of these factors is indeterminate — that is, it is impossible to predict outcomes using theory alone. It concluded that the impact of improved transport links on regional economies is context-specific and must be assessed on a case-by-case basis (SACTRA, 2000).

Beyond the initial effects of transport investment on journey times and costs, labour market, agglomeration and transport network effects also influence the long-term impacts of transport investment on economic growth and urban/regional development. Each of these wider economic impacts has a spatial dimension through their influence on the location and geography of economic and social activity. These spatial impacts have a number of different dimensions.

The first dimension is that the economic impacts may not be evenly spread. This means transport investment has the potential to cause redistribution of economic impacts between (and within) regions. Analysts should use caution when measuring benefits, such as new jobs created in one region, to ensure they are not miscounting redistribution as a benefit. The potential for redistribution is particularly relevant with inter-regional transport links. A second dimension is that, in an urban setting, local transport investment plays an important role in shaping the aesthetics and amenity of a community. Transport infrastructure and services can have a significant impact on urban form by enhancing or detracting from it, leading to an impact on the attractiveness of a city as place to live, work and visit. This will in turn affect the economic dynamism and culture associated with the city. Therefore, transport investment can have long-term impacts on economic growth and development, which go well beyond the initial benefits of travel time savings and lower vehicle operating costs (Ignatyev & NurtdinovIlgiz, 2018).

6. CONCLUSION

The role that transportation plays in logistics system is more complex than carrying the goods. The integration and promotion of business activities have to involve transportation systems at different stages. The integration of various applications brings the convenience through promoting the system of information flow and business operations. Transportation complexity can take effect only through highly quality management. By means of well-handled transport system, goods could be sent to the right place at right time in order to satisfy customers' demands. Transportation is the most important sub-function of logistics that creates time and place utility in goods. Reviewing the current condition, a strong system needs a clear frame of logistics and a proper transport implements and techniques to link the producing procedures.

Transport investment has a significant impact on where economic activity occurs. Over time, changes in access and mobility can lead to changes in the economic and social landscape of countries. It can influence the geography of agricultural production, manufacturing and the knowledge-based service sector through its impact on how easy and cost effective it is to move around. Transport costs and accessibility also influence where people choose to reside in relation to their place of employment and lifestyle preferences. The quality of transport infrastructure, in terms of amenity and aesthetics, plays a role in the overall live ability and attractiveness of cities. Modern thinking in economic geography describes cities as competing with each other (within and between countries) to attract highly-skilled people who can choose where they decide to live and work. One response to this competition is the investment that goes into major transport hubs around the world, which go beyond their utilitarian purpose and are designed to make a statement about the cities they service.

Policy makers and researchers are increasingly recognizing the connections between public health and transportation, but health improvements are typically framed from a physical health perspective rather than considering broader quality of life impacts. The analysed framework identified six transportation-related QOL

dimensions: access, design, environmental issues, maintenance, mobility, safety and transparency. As this is an extensive topic, this paper concentrates on a limited range of specific questions that are seen here and in other developed countries as core to transport policy and which connect to other components of this research (Orazulike, 2018).

Therefore, it would be advisable to continue with further research on the subject, as the subject under examination has a broad context and the requirement to ensure an adequate quality of life for the population is crucial for every society. Open questions for further research in this area are:

- Creation of an economic model for assessing the impact of transport logistics on the quality of life for a selected region.
- Proposal of corporate measures and tools to eliminate negative impacts of transport logistics on the quality of life in the region.
- Extending the logistics manager's competence model with aspects of perception, assessment and influencing the impact of transport logistics in the context of quality of life.

7. REFERENCES

- Bureau of Transport Economics. (2001). Logistics in Australia: A Preliminary Analysis [available at: https://www.bitre.gov.au/publications/2001/files/wp_049.pdf, access May 10, 2019]
- Cempírek, V. (2010). *Logistická centra*, Pardubice: Institut Jana Pernera, o.p.s.
- Ceniga, P. & Šukalová, V. (2012). *Logistika v manažmente podniku*, Žilina: EDIS
- Christopher, M. (2011). *Logistics & Supply Chain Management*, 4th Edition, Great Britain: Prentice Hall Publishing
- Ciszewski, T. & Nowakowski, W. (2018). Economic analysis of the life-cycle cost structure for railway traffic control systems, *Ekonomicko-manazerske spektrum*, 12(1), p. 30-43.
- Gourdin, K. N. (2006). *Global logistics management*, Oxford: Blackwell Publishing
- Ignatyev, V.G. & NurtdinovIlgiz, I. (2018). The features of regional investment analysis in relation to the corporate sector of economy in conditions of globalization, *Ekonomicko-manazerske spektrum*, 12(1), p. 75-82.
- Ionescu, L. (2018). Does Xi Jinping's Anti-corruption Campaign Really Support Clean and Transparent Government and Market Efficiency?, *Geopolitics, History, and International Relations*, 10(1), p.167–173.
- Kliestik T., Kocisova K. & Misankova, M. (2015). Logit and probit model used for prediction of financial health of company, *2nd Global Conference on Business, Economics, Management and Tourism*, Czech Republic, Praha, 29-31 October 2014, p. 850-855.

Komobile. (2013). Thematic Study Sustainable public transport and logistics in the CENTRAL EUROPE Programme [available at: <https://www.interreg-central.eu/Content.Node/Transport-Study-CENTRAL-EUROPE-Programme.pdf>, access May 10, 2019]

Koreňová, Ľ. (2017). Doprava a životné prostredie v SR [available at: <https://www.enviroportal.sk/spravy/osobitna-kapitola-preview/821>, access May 10, 2019]

Lambert T. D., Stock J. R. & Ellram L. (2000). *Logistika*, Praha: Computer Press

Mirică (Dumitrescu), Cătălina-Oana. (2018). Online Contingent Labor in a Precarious Capitalism: Platform Business Models, Nonstandard Forms of Employment, and Digitally Driven Sharing-Economy Services, *Journal of Self-Governance and Management Economics*, 6(3), p. 129–135.

National strategy of regional development of Slovakia, [available at: <http://eurofondy.webnode.sk/news/mvrr-narodna-strategia-regionalneho-rozvoja-slovenskej-republiky-/>, access May 10, 2019]

Olah, J., Zeman, Z., Balogh, I. & Popp, J. (2018). Future challenges and areas of development for supply chain management, *Logforum*, 14(1), p. 127-138.

Orazulike, U. (2018). Post-Brexit Threats to Work Safety and Health Standards and Good Working Conditions in the UK, *Psychosociological Issues in Human Resource Management*, 6(1), p. 63–95.

Pernica P. (2004). *Logistika (Supply Chain Management) pro 21. století, 1-3 díl*, Praha: RADIX

SACTRA. (2000). Transport and the economy: full report (SACTRA), [available at: https://webarchive.nationalarchives.gov.uk/20050304041634/http://www.dft.gov.uk/stellent/groups/dft_econappr/documents/pdf/dft_econappr_pdf_022512.pdf, access May 10, 2019]

Salaga, J., Bartosova, V. & Kicova, E. (2015). Economic Value Added as a measurement tool of financial performance, *4th World Conference on Business, Economics and Management (WCBEM)*, Turkey, Ephesus, 30 April – 02 May 2015, p. 484-489.

Schneider I. E. (2013). Quality of Life: Assessment for Transportation Performance Measures, [available at: <http://www.dot.state.mn.us/research/TS/2013/201305.pdf>, access May 10, 2019]

Valaskova, K., Kliestikova, J. & Krizanova, A. (2018). Consumer Perception of Private Label Products: An Empirical Research, *Journal of Competitiveness*, 10(3), p. 149-163.