

PÉTER LAKATOS¹Logistics Performance of Hungary I.²

Magyarország logisztikai teljesítménye I.

Abstract

In this article I outline the valid and agreed logistic strategy of Hungary. I primarily examine Hungary's performance based on the statistics data and the logistics performance index (LPI). The main parts of the article are the following: first I show the short history and some definitions of logistics and then I examine the existing mid-term logistic strategy of the Hungary. Based on the logistics performance index I am doing a benchmark of the neighbouring countries. After this I analyse the Hungarian logistic performance based on the data of 2014-15.

At the end of the article I point out, based on a summarising conclusion, how the level of the economic development and the logistics performance index are related to each other.

Keywords: Logistics, logistics performance index, logistics strategy, logistic service

Absztrakt

Ebben a cikkben először a logisztika rövid történetét és definícióját ismertetem majd a középtávú logisztikai stratégiát ezt követően pedig egy összehasonlítást a környező országokkal a logisztikai teljesítménye index segítségével. Végül pedig Magyarország logisztikai teljesítménye kerül részletesen bemutatva 2014-15-ös adatokon alapulva. A cikk befejezéseként pedig egy összegzett következtetést adok a gazdasági fejlettség és a logisztikai teljesítmény közötti összefüggésről.

Kulcsszavak: logisztika, logisztikai teljesítmény, logisztikai stratégia, logisztikai szolgáltatás

¹ Nemzeti Közszolgálati Egyetem, Hadtudományi és Honvédtisztképző Kar, egyetemi docens - National University of Public Service, Faculty of Military Science and Officer Training, associate professor, E-mail: lakatos.peter@uni-nke.hu, ORCID: 0000-0003-1658-308X

² „The work was created in commission of the National University of Public Service under the priority project KÖFOP-2.1.2-VEKOP-15-2016-00001 titled „Public Service Development Establishing Good Governance” in the Miklós Zrínyi Habilitation Program.”

1. SHORT HISTORY OF LOGISTICS, DEFINITION, AIMS

“The logistics word of Greek origin (logo = to think, logos = mind, logistikos = to think logically). [...] The earliest references may have derived from BC 1st century, when an educator, Marcus Terentius Varro, who living in the Roman Empire, dealt with 3 – 6 year old children, bringing up, with expression from that time ‘care’. In his work, Logisticon, he analysed the children’s full-scale care, board, namely, feeding, clothing, toys, claim to rest and sleep. Later, in the roman army the ‘logistas’ took charge of the legionary’s accommodation and food supply.” After, the next important step was around 1830. The Swiss Baron de Jomini, the general of the French army, denominated logistics as “those organizational measures which the general staff fulfil the concept of strategy and tactic.” After the turn of the century the methods and principles of Jomini are started to be used by the American and European army. (Prezenszki, 2006, p. 11)

“Logistics has become strategically important for companies from the 1950s in the developed market economies. The starting point of its adoption was the United States of America, and then was “discovered” by Western-Europe, Eastern-Asia and after the change of the Regime in the countries of Central and Eastern-Europe, such as Hungary.” (Szegedi & Prezenszki, 2008, p. 23)

Over the years, the definitions have changed a lot. There are numerous definitions of logistics, being an emerging, interdisciplinary science. According to the Council of Supply Chain Management Professionals, “logistics management activities typically include:

- inbound and outbound transportation management,
- fleet management,
- warehousing,
- materials handling,
- order fulfilment,
- logistics network design,
- inventory management,
- supply/demand planning,
- and management of third party logistics services providers.

To varying degrees, the logistics function also includes

- sourcing and procurement,
- production planning and scheduling,
- packaging and assembly,
- and customer service.

It is involved in all levels of planning and execution-strategy, operations and tactical decisions. Logistics management has an integrating function, coordinates and optimizes all logistics activities.” (Council of Supply Chain Management Professionals, 2011)

The aim of the logistics has changed also. “In the 1950s the emphasis was on cost reduction, from the 1970s on sales support. In the middle of the 1980s a new aim appeared: customer service. By that time more and more people discovered that only those firms can

HADTUDOMÁNYI SZEMLE

2017. X. évfolyam 4. szám

stay on their feet in the fierce competition, which fit customers' needs in the best possible way. This is unimaginable without the improvement of material-, good-, and information flow, i.e. without increase of logistics service level. Logistics of nowadays concentrate on the individual needs as well as supply network." (Szegedi & Prezenszki, 2008, p. 24)

Change of the aims of logistics by the passage of time

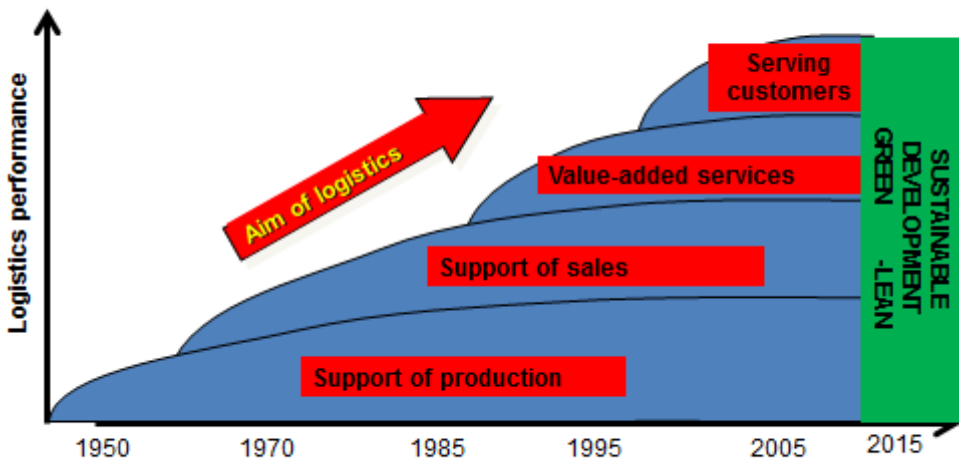


Chart 1: Change of the aims of logistics

Source: Szegedi-Prezenszki Logistics management 2008

As it is a complex pattern of economics "many companies are still in the process of defining specific scopes of responsibility of the logistics function and gearing their service networks towards the customer needs" (Dr. Antoni, 2012) Hence in the case of small size companies usually there is not enough emphasis on logistics.

HADTUDOMÁNYI SZEMLE

2017. X. évfolyam 4. szám

Means of achieving the aims of logistics in the individual periods

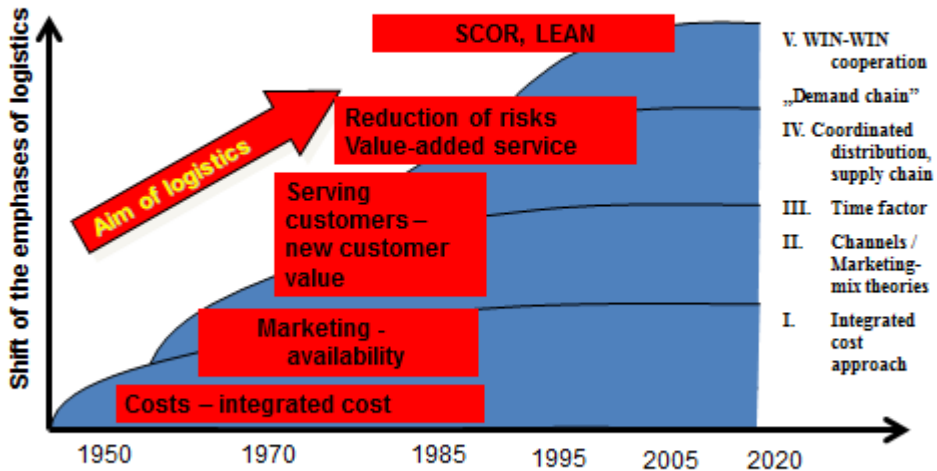


Chart 2: Means of achieving the aims of logistics in the individual periods

Source: Szegedi-Prezenszki Logistics management 2008

1.1. LOGISTICS SECTOR POLICY STRATEGY (2014-20)

This chapter was made by IFKA original document (<https://ifka.hu/logisztika/projekt/kozep-tavu-logisztikai-strategia>)

Logistics play an important role in the business lives of all countries: they ensure proper planning, the flow of goods, services and information, stocking, warehousing, packaging, waste management and utilisation in the supply process in order to satisfy consumer demands as efficiently as possible.

Logistics represent a key factor in improving Hungary's competitiveness, and one of the most promising breakout points. The quality standard and availability of the services offered by the sector have decisive importance for the purposes of the goods, services and investments flowing into or, just the opposite, avoiding -Hungary, dynamising the economy and increasing employment opportunities.

In respect of economic growth, logistic activities have both direct and indirect impacts.

HADTUDOMÁNYI SZEMLE

2017. X. évfolyam 4. szám

Direct impacts: improving the performance of logistic businesses serves the goal of dynamising the economy primarily by increasing investments, net exports and equalising the regional imbalances in consumption.

Indirect impacts: optimisation of logistic activities contributes to improving the cost efficiency of the entire corporate sector, thereby increasing the funds available for investment.

The primary goal of preparing the Logistics Sector Policy Strategy (2014-20) (hereinafter: Strategy) is to come up with a strategic plan accepted by both the Government and the trade and harmonised with the related strategies (National Transport Strategy, National Development 2020, New Széchenyi Plan) as well as international expectations, treating logistics properly for its economic weight, which, if implemented, may make a substantial contribution to increasing employment and capital expenditure as well as improving Hungary's competitiveness.

The decision to draft the Strategy was made in Government Resolution no. 1157/2013 and the Government adopted the Strategy. The direct preface to drafting the strategy was the need of the Ministry for National Economy for the compilation of sectoral strategies.

In addition to their own active professional participation, IFKA Iparfejlesztési Közhasznú Nonprofit Kft (IFKA Industrial Public Benefit Not-for-profit Ltd.)

(IFKA) and Logisztikai Egyeztető Fórum (Logistics Consultation Forum) (LEF) made it possible to mobilise and involve professional organisations.

Pillar Structure of the Strategy

Logistics Resources	Logistics Expertise	Logistics Infrastructure	Logistics Relations	Logistics R&D&I
	Human Resources	Hub Infrastructure	International Relations	Government
	Key Logistics Operators	IT Infrastructure	Network & Cooperation	Business
	Transport Network Infrastructure			
	Road	Railway	Air	Water
Communications Network Infrastructure				

Chart 3.-The pillar structure of the Hungarian Logistics

Source: IFKA

HADTUDOMÁNYI SZEMLE

2017. X. évfolyam 4. szám

The strategic pillars demonstrate the most important production factors in the logistics sector: expertise, infrastructure, network of connections and R&D&I. This is supplemented by two areas as horizontal factors (pillars): transport and telecommunication network infrastructure. The reason for this is that although the availability of both transport and broadband communications networks at an appropriate quality and scope is crucial for the success of the logistic strategy, for the purposes of the logistics sector, both of them are considered external factors determined by other policies taking into account aspects other than the interests of the logistics sector as well.

The pillar structure plays a particularly important role in ensuring the strategy's internal coherence and harmonising major components. The pillar structure determines the internal logics and structure of the analysis of the situation, the SWOT analysis and the system of objectives, and allows for clearly displaying the connecting points between the set of objectives and instruments

The SWOT analysis of the logistics sector was prepared by involving professional and market operators, the main findings of which are as follows, in line with the pillar structure: Logistics expertise Human resources

Human resources have outstanding importance among logistics resources, considering the crucial nature of having qualified and experienced professionals open to logistical innovations for the proper operation of logistics.

The underlying prerequisites for this are that, on the one hand, the education system should put ample emphasis on providing a logistical approach and knowledge, while, on the other hand, businesses performing logistic activities should pay particular attention to hands-on training activities harmonised with corporate needs, at an appropriate quality.

Key players in logistics

On the scale of outsourcing logistical functions, businesses where all logistics tasks are performed in-house using the company's own assets represent one end (1PL). In contrast, companies at the other extreme of the scale involve an external service provider that manages and controls processes in the chain of supply comprehensively, as the integrator of the chain of supply (4PL).

Accordingly, operators who giving their own example and given their client position play a dominant catalyst role in rendering internal corporate processes more efficient, and who are indispensable in providing the supply of high added-value logistical services are considered key logistics companies.

Logistical infrastructure – Hub infrastructure

The most important infrastructure items for logistic services are transport networks and components of the hub infrastructure.

Given that the available documents of the National Transport Strategy (NTS) represent the governing documents provided by the government, this strategy treats the network

infrastructure as a horizontal factor, and the expectations that are relevant for the purposes of the logistics vision and objectives proposed in this strategy are set out.

IT infrastructure

The IT background for logistic services and internal corporate processes may be investigated from a number of perspectives. One possible approach is considering the extent to which IT systems support the value -added services that contribute to developing and/or strengthening Hungary's role as a logistics centre while increasing the competitiveness of Hungarian businesses. In another approach, the functionalities of IT systems that provide the most efficient support to market operators in performing their logistic tasks should be investigated.

Network of logistics connections-International relations

The dominant part of logistics traffic crosses the borders, and market operators decide where to use them primarily based on market considerations.

Which is why business diplomacy may exert a significant (positive or negative) influence on the logistic performance of any given country in addition to the business environment.

Improving and coordinating Hungary's logistical business diplomacy is particularly important because the strategic developments required for Hungary to emerge as a logistics service centre may be implemented only embedded in the international environment.

Networking and co-operation

In Western European countries, smaller countries have realised co-operation in various forms subject to sector. In some sectors, they formed loose clusters; in others, they concluded strategic agreements or gathered in purchasing or sales cooperatives.

There are also some examples for corporate mergers or cross -ownership in order to make production cheaper, sales more efficient or involve external funds (bank loans, venture capital) more easily.

The development of network co-operation has fundamental importance primarily for SMEs, as most of them are unable to step out into the international market, secure sufficient funds for innovation and development and establish a favourable negotiating position vis-a-vis dominant suppliers and distribution operators on their own.

Logistics R&D&I

It is true from both an economic policy and an operations perspective that each HUF spent on research and development and innovation is also invested into the future of the businesses concerned, and, therefore, indirectly into Hungary's future. Ultimately, every instance of competitive advantage is backed by surplus knowledge not available to competitors. In the longer run, only businesses that spend on extra knowledge and increase their own knowledge base will remain competitive. This is clearly true for all components of logistics activities, from transport and forwarding through logistic services to in-house logistics

processes. In an EU comparison, Hungary's innovation performance is in the medium range. Industries involved in global value chains -such as the pharmaceutical, the infocommunications sectors and vehicle manufacturing - and researchers and developers having international connections significantly contribute to the performance of Hungary's innovation system. On the other hand, most of Hungarian companies remain well below companies of more developed EU Member States in the field of R&D and innovation performance.

Vision

Elaboration of a strategic vision means determining a target state that can be described by quality as well as quantity characteristics, and specifies the situation and directions for development in the sector in line with the structure of modern market economy.

The strategic vision has to be valid for each of the following dimensions:

- logistics processes within companies,
- logistics processes outside of companies,
- logistics processes at national economy level.

1.2. LPI-LOGISTIC PERFORMANCE INDEX

Logistics performance index (LPI), which is computed on the basis of weighted average score of each country in '6' key components i.e. "efficiency of the clearance process by border control agencies (including customs), quality of trade and transport related infrastructure, ease of arranging competitively priced shipments, competence and quality of logistics services, ability to track and trace consignments and timeliness of shipments in reaching destination within the scheduled or expected delivery time" In the period of 2007-2014 V4's average rank in LPI list was 34.75 with a score 3.43. In comparison to last years, the V4 LPI stabilized and still grows slightly, mostly because of enhancing tracking and tracing solutions (*Table 1*).

HADTUDOMÁNYI SZEMLE

2017. X. évfolyam 4. szám

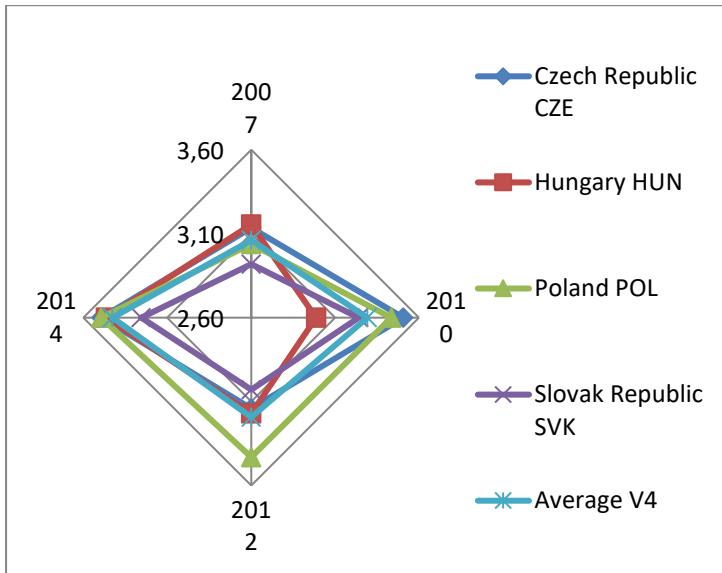


Table 1: V4 LPI-2007-2014 Source: World Bank

The data presented in *Table 1* show that the most significant progress was made by Polish logistic system between 2007 and 2014. We can see the main figures of 2016 included Austria on *Table 2*.

Specification	POLAND	CZECH R	SLOVAKIA	HUNGARY	AUSTRIA
LPI Rank	33	26	41	31	7
LPI Score	3.43	3.67	3.34	3.43	4.10
Customs	33/3.27	19/3.58	32/3.28	49/3.2	15/3.79
Infrastructure	45/3.17	35/3.36	39/3.24	32/3.48	12/4.08
International shipments	33/3.44	18/3.65	36/3.41	34/3.44	9/3.85
Logistics competence	31/3.39	26/3.65	51/3.12	34/3.35	4/4.18
Tracking & tracing	37/3.46	21/3.84	55/3.12	41/3.40	2/4.36
Timeliness	37/3.80	28/3.94	36/3.81	33/3.88	7/4.37

Table 2: V4+AUSTRIA LPI-2016 (Source: World Bank)

HADTUDOMÁNYI SZEMLE

2017. X. évfolyam 4. szám

2. OVERVIEW OF THE SITUATION OF GOODS TRANSPORT IN HUNGARY (2014-2015)

In the 2nd quarter of 2015 the volume of goods transport increased by 8.1%, while the performance measured in ton-kilometres decreased by 0.6% compared to the 2nd quarter of 2014. The passenger-kilometre performance of regional passenger transport grew by 1.3%, while that of local passenger transport increased by 3.0% compared to the previous year. In the subject period 70,500 vehicles were registered in Hungary for the first time, this figure being 18% more than that of the 2nd quarter of 2014. The number of road accidents with personal injury grew by 0.4% on domestic roads.

2.1. SALES REVENUE AND HEADCOUNT DATA OF THE TRANSPORTATION/LOGISTICS SECTOR

In the 2nd quarter of 2015 the **current-price sales revenue** of operating businesses rated to belong to the national economic sectors of transportation and warehousing (H) and employing at least 5 persons was HUF 1,085.1 billion, this being a slight increase compared to the base period. Within this national economic sector the revenue of businesses having a weight of 47% and belonging to the land and pipeline transportation sector was HUF 512.6 billion, this amount exceeding that of the 2nd quarter of 2014 by 7.1%. Within this, HUF 12 billion more, i.e. HUF 122.4 billion calculated at current price, was produced in the land passenger transport sector "other", while businesses engaged in goods transportation and moving produced sales revenue of HUF 306.4 billion, which was 7.5% more than the performance of the base period. In the period from April to June 2015 the revenue of water transportation, the national economic sector having the smallest weight, grew the most dynamically, by 20% to HUF 6.2 billion, while the revenue of businesses performing activities supplementing warehousing and transportation increased to the greatest extent, by 11.3% to HUF 383.9 billion (the proportion of the latter is 35% within the national economic sector H).

According to the institutional labour statistical data¹ of the end of the 2nd quarter of 2015 the **headcount of full-time employees** of businesses employing at least 5 persons was 184,600 persons in the national economic sector of transportation and warehousing, exceeding the figure of the 2nd quarter of 2014 by 2.7%.

Within this, the headcount was quite diverse in the sectors and subsectors representing the individual modes of transportation. In comparison with the 2nd quarter of 2014 the greatest increase took place in the sector of land and pipeline transportation (3,083 persons) and within this in the road and moving subsector (2,854 persons). In the latter there were 45.800 full-time employees in the examined period.

In the 2nd quarter of 2015 the monthly **average gross salary** was nearly HUF 241,000 in the transportation and warehousing sector, exceeding that of the base period by 3.6%. There was quite a significant standard deviation between the individual transportation subsectors: the monthly average gross salary of the full-time employees of businesses rated to belong to the subsector of goods transportation and moving barely exceeded HUF 162,000, while

HADTUDOMÁNYI SZEMLE

2017. X. évfolyam 4. szám

in the air transportation subsector this amount was 3.7 times the average of the national economic sector (HUF 892,600 compared to HUF 240,800).

2.2. OVERVIEW OF SUBSECTORAL GOODS TRANSPORTATION

In the 2nd quarter of 2015 the **mass of transported goods** (75.8 million tons) exceeded the volume of the 2nd quarter of 2014 by 8.1%. Inland water transportation increased by 52% and road transportation by 12%, while pipeline transportation decreased by 4.4% and transportation by rail dropped by 5.7%. 72% of the mass of goods was carried by road and 16% by rail.

In domestic relations the share of road transportation was even bigger with 87%, while in case of transportation by rail and water the international activity continues to be prevailing.

The **performance** of goods transportation (13.9 billions goods-ton-kilometres) decreased by 0.6% compared to the 2nd quarter of 2014. Inland water transportation grew by 32% and pipeline transportation essentially stagnated, while transportation by road dropped by 1.2% and transportation by rail decreased by 4.5%. Out of the total goods transportation performance transportation by road had a share of 68%, rail 17%, pipeline 11% and inland water 4%.

The following figure shows the half-year comparative evaluation of the transportation performances. Based on the numbers there is no significant change.

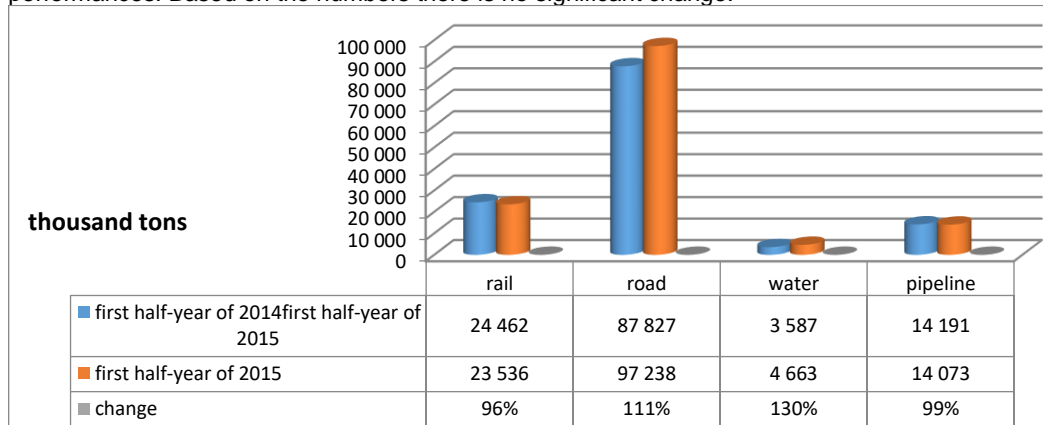


Figure 1.: Change of goods transportation performances (Source: Hungarian Statistical Office (KSH), own edition)

The volume of **international** goods transportation increased by 1.0% and its performance measured in goods-ton-kilometre decreased by 2.9%, while that of domestic transportation grew by 12% and 6.6%, respectively.

HADTUDOMÁNYI SZEMLE

2017. X. évfolyam 4. szám

2.2.1. Goods transport by road

In the subject period the **volume of goods transportation by road** exceeded that of the 2nd quarter of 2014 by 5.9 million tons. In domestic relations the volume of goods moved was 15% bigger, while in international relations the volume stagnated. The increase of the domestic volume was also influenced by the growth of the production of the construction industry, the industry in general and the turnover of the retail trade. In domestic relations the **performance** measured in goods-ton-kilometre increased by nearly 12%, while internationally it decreased by 5.5%. All in all, 12% more goods were transported to a nearly 12% shorter distance. The mileage decreased slightly (by 1.3%) compared to the 2nd quarter of 2014, while the proportion of routes covered unladen is still nearly 20%.

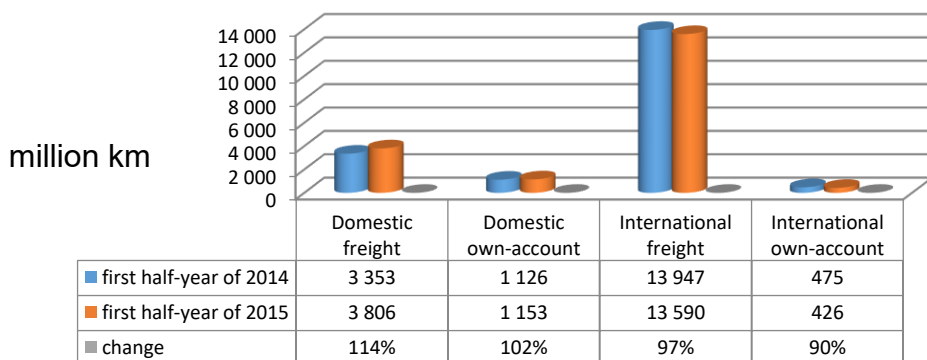


Figure 2.: Change of road goods-ton-kilometre performances (Source: KSH, own edition)

More than three quarter (76%) of the road transportation performance continued to result from the activity of businesses rated to belong to the transportation sectors. In comparison with the 2nd quarter of 2014, businesses performing transportation as a core activity transported goods weighing 7.2% more, while their performance measured in goods-ton-kilometre decreased by 1.8%. Businesses rated to belong to other sectors transported goods weighing 18% more and their performance increased slightly (by 0.7%). The utilisation of vehicles did not change significantly in respect of either group. Businesses rated to belong to other sectors could utilise their vehicles less (the rate of routes covered unladen was 26%) compared to enterprises performing transportation as a core activity (17%). In the 2nd quarter of 2015 the volume of transportation having mainly domestic destinations and performed to own account increased by 0.9%, while its performance decreased by 5.5% and the average transportation distance dropped by 6.4%. The volume of transportation performed against freight grew by 16% compared to the 2nd quarter of 2014, while the performance did barely change. Private entrepreneurs were given transportation tasks for distances being averagely 16% shorter and due to this their performance measured in goods-ton-kilometre decreased

HADTUDOMÁNYI SZEMLE

2017. X. évfolyam 4. szám

by 1.1%, while their performance measured by volume increased by 18%. In the period examined there was a similar process at partnerships; the volume grew by 11% and the average transportation distance dropped by 11%, with the goods-ton-kilometre performance slightly dropping (by 1.2%). The increase of the volume was also influenced by the growth of the material and transportation demanding construction industrial, road construction and railway reconstruction works.

In the 2nd quarter of the year the mass of goods carried by trucks and towing vehicles with load carrying capacities of 5.0 to 9.99 tons and over 10 tons increased (by 10%, 14% and 13%, respectively), while in respect of trucks with load carrying capacities of 3.5 to 4.99 tons this index dropped by 15%.

2.2.2. Goods transport by rail

In the 2nd quarter of 2015 the **mass of goods transported by rail** (11.9 million tons) diminished by 5.7% compared to the 2nd quarter of 2014. Domestic transportation grew by 2.6% and the total volume of international transportation representing the bigger proportion (68%) decreased by 9.1% and within this export dropped by 17% and import diminished by 7.1%, while the volume of the transit transport increased by 0.8%. The **performance** (2.4 billion goods-ton-kilometres) was 4.5% less than that of the 2nd quarter of 2014. The performance of domestic goods transportation grew by 4.2% but that of international transportation diminished by 6.8%. In the international transport the performance of the export dropped by 14% and that of the import by 10%, while the performance of transit transportation grew by 4.4%. In the subject period the average distance covered in international transport was 198 kilometres in export and 209 kilometres in import relations. In respect of transit transportation the average distance covered in the territory of the country was 288 kilometres.

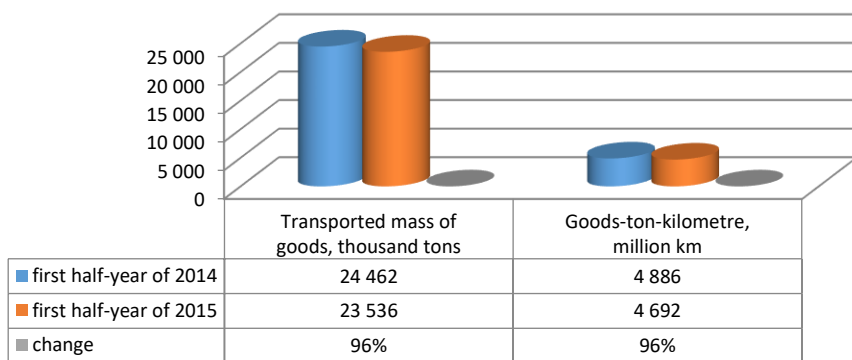


Figure 3.: Change of rail goods transportation performances (Source: KSH, own edition)

HADTUDOMÁNYI SZEMLE

2017. X. évfolyam 4. szám

2.2.3. Goods transport on inland waters

In April to June 2015 the volume of **goods transport on inland waters** increased by 52% and its performance by 32% in comparison with the 2nd quarter of 2014. The volume of loading grew by 96% and its performance expressed in goods-ton-kilometres increased by 63%, while in respect of unloading the same indexes are 55% and 48% and in case of transit goods transport both indexes increased by 14%. Only the quantity and performance of goods transported on a domestic basis decreased (by 40% and 4%, respectively), but within the transport on inland waters the domestic traffic has such a small share that it did not influence the development of the total performance significantly.

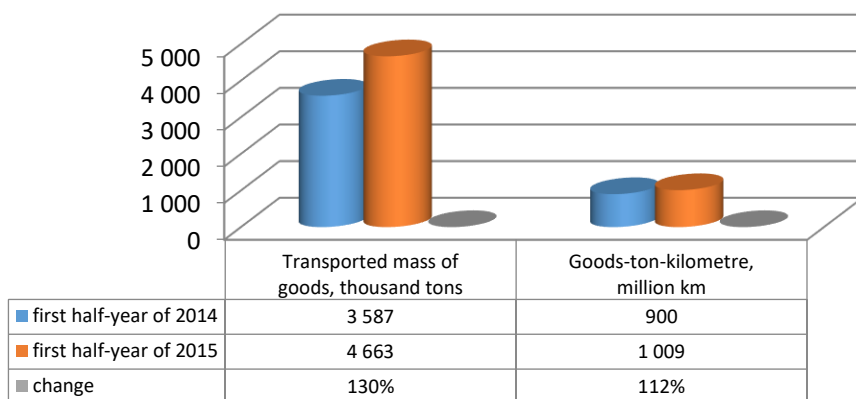


Figure 4.: Change of the performances of goods transport by water (Source: KSH, own edition)

In domestic goods transport by water the share of watercraft sailing under Hungarian flag was 11% of the total mass of goods transported and 12% of the total performance expressed in goods-ton-kilometres. The total mass of goods loaded and unloaded in the 2nd quarter of 2015 in Hungarian **inland ports**² exceeded 1.9 million tons, this being an increase of 69% compared to the 2nd quarter of 2014. 73% (1.4 million tons) of the total **mass of goods** moved was represented by the goods loaded. The total mass loaded originated from the turnover of products belonging to the following product groups: agricultural and forestry products and fish and other fishery products: 53%, coke and refined natural oil products: 16%, "coal, lignite, raw natural oil and natural gas": 11%. In domestic ports 95% of all the goods loaded and unloaded were bulk.

2.2.4. Goods transport by air

In goods transport by air the goods turnover of the **Budapest Liszt Ferenc International Airport** was 16.900 tons, this being an increase of 5.3% compared to the 2nd quarter of 2014.

HADTUDOMÁNYI SZEMLE

2017. X. évfolyam 4. szám

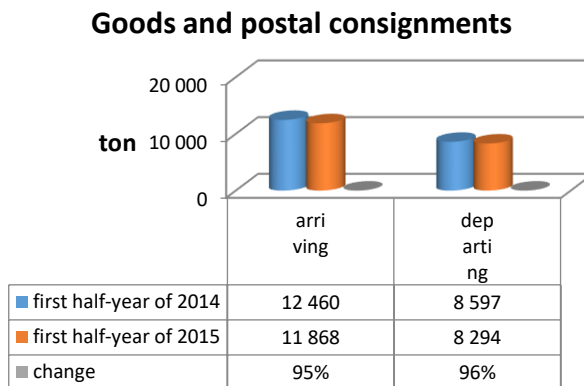
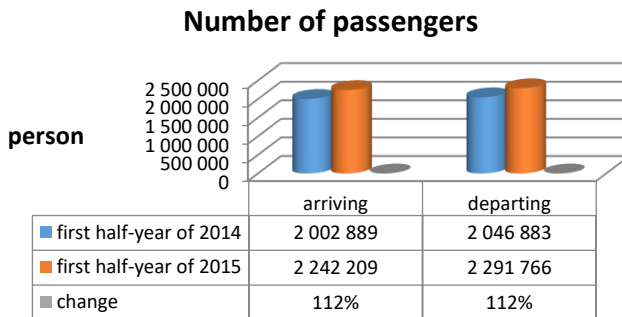
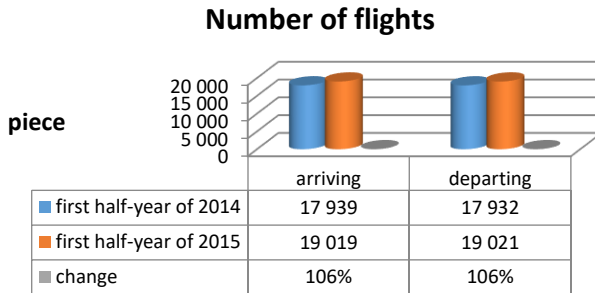


Figure 5-6.: Change of air transportation performances (Source: KSH, own edition)

HADTUDOMÁNYI SZEMLE

2017. X. évfolyam 4. szám

2.2.5. Intermodal turnover of goods

In 2014 nearly 18 percent of the goods were transported by rail. According to the own researches of MLSZKSZ, the share of the Hungarian intermodal turnover (together with Ro-La up to the end of 2012) within the rail transportation sector reached 14.6 percent. In the past years this was a growing tendency meaning a growth of 1 percent each year, but this value is still far away from the 20 to 25 percent ratio of the West European countries.

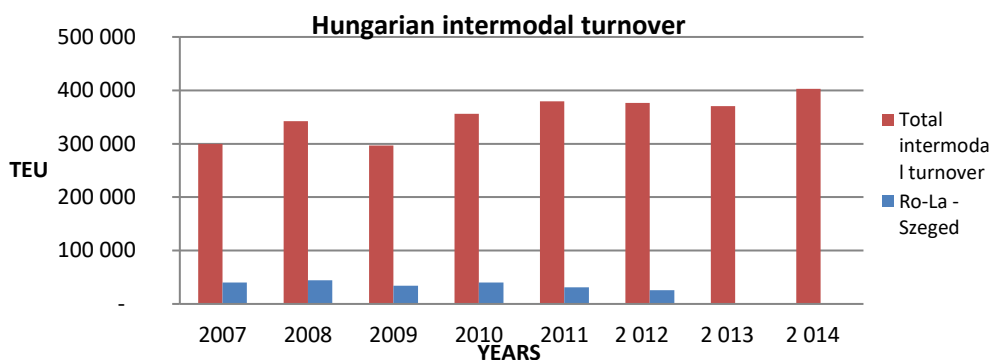


Figure 7.: Development of the combined Hungarian turnover (Source: own)

84 percent of the Hungarian intermodal turnover comes to the country through three terminals (BILK Kombiterminál, Mahart Container Centre and Törökbálint Kombiterminál) located in Budapest. In 2014 the turnover of the terminals in Budapest increased by an average of 16 percent, while in respect of the terminals in the countryside the tendency was a decrease. There was a growth of 5 percent only at the terminal of TVK in Tiszaújváros (operated by Trans-Sped Kft.), showing the further loss of ground by the terminals in the countryside. Despite the decrease of the turnovers in the countryside, the intermodal turnover was able to show a growth of 8 percent at national level. This value did not result from the rearrangement of road transport to railways/waterways but from the natural increase originating from the growth of the general economic situation.

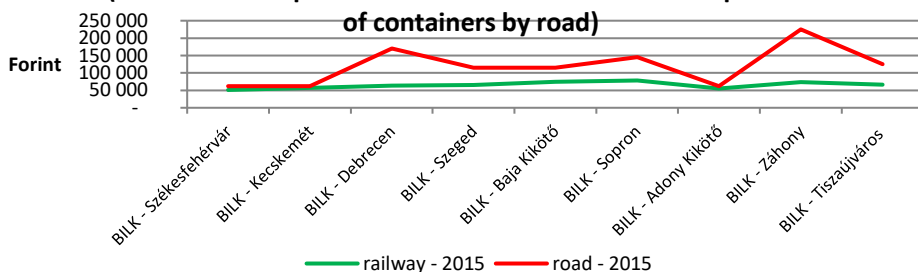
The volume of the turnover of goods transported in Hungary in international relations was 35.5 million tons in 2014 (data of KSH). In most cases this turnover is implemented by road vehicle combinations with a maximum gross weight of 40 tons, this meaning some 2.2 million camions on the roads. If and to the extent 10 percent of this traffic could be directed to railways in such a manner that the semi-trailers participating in road carriages and being unable to be lifted by crane could be put on trains, annually this could mean a new direct rail turnover of up to 7,400 units (30 semi-trailers per train) for the railways. Based on preliminary analyses, the revenues of railway track operators may increase by up to 5 to 20%, this extent being by which the toll revenues would decrease. The extent of this depends on the number

HADTUDOMÁNYI SZEMLE

2017. X. évfolyam 4. szám

of vehicle combinations changing the mode of running. The real result of the redirection can be reached in the reduction of the road maintenance costs to be borne by the state and that of transportation by road and in the field of environmental protection and the diminishing risk of accidents.

Comparative evaluation of railway and road freights- 2015
(direct rail transportation of containers and the transportation of containers by road)



Comparative evaluation of railway and road freights- 2014
(direct rail transportation of containers and the transportation of containers by road)

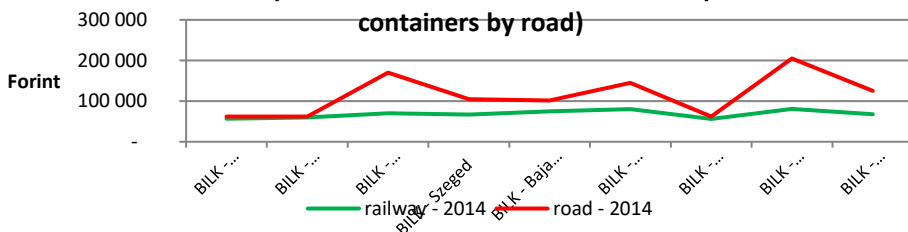


Figure 8.: Comparison of road and railway freights in 2014 and 2015 (Source: own)

MLSZKSZ has continuously been examining 9 domestic relations in respect of road, direct rail and wagon group turnover in order to compare the competitiveness of the freights.

Based on the freight of 2014 (following the introduction of the use-proportionate toll), the direct rail and wagon group freights projected to one container were lower than the road freights of the same relations. The differences ranged from 4 to 60 percent in favour of the railway. The analysis of the freights shows that in respect of the large goods emission centres located near (70 to 80 km) to Budapest additional elements encouraging switching transportation modes are needed on the part of the transport policy as the 4 to 10 percent price advantage is not sufficiently motivating for forwarders. The desired level would be a fee difference around 20 percent. In case of centres located farther away the commercial demands require regular and predictable intermodal solutions, which, for the time being, are

HADTUDOMÁNYI SZEMLE

2017. X. évfolyam 4. szám

missing. Therefore, although transportation by rail is cheaper than by road, the transport can still not be directed to the railway.

2.2.6. Additional information relating to the analysis

Based on the data of 2014 of the Central Statistical Office (KSH), the comparison of the performance of the individual modes of transportation shows that in years 2013 and 2014 the transportation of goods by road increased by 13.88 percent (23,478 thousand tons), the transportation of goods by rail grew by 2.61 percent (1,282 thousand tons) and goods transport on inland waters decreased by 2.64 percent (-207 thousand tons).

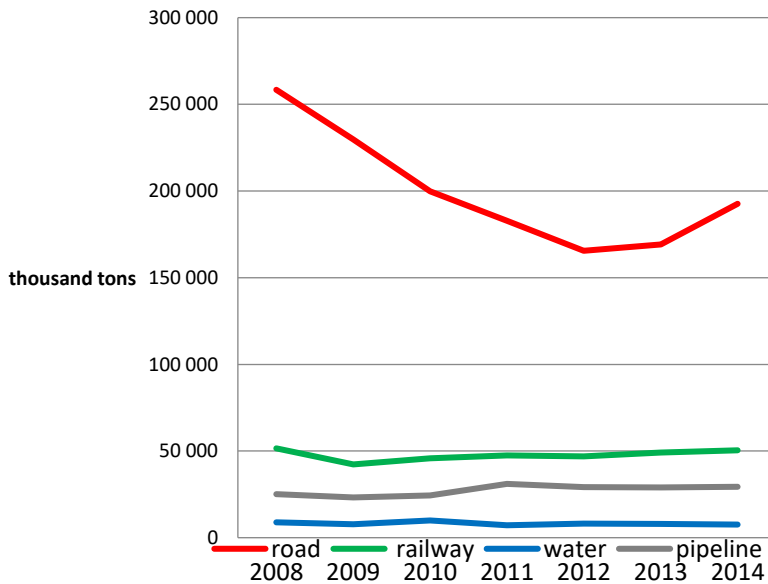


Figure 9.: Change of goods transportation performances in Hungary (Source: KSH, own edition)

The 2014 data of KSH show that more than two third, i.e. 69 percent, of the goods transported by forwarding businesses registered in Hungary were forwarded by road.

This turnover meant the moving of some 15.3 million trucks (153.9 million tons of goods) in Hungary and 2.2 million trucks (35.5 million tons of goods) in international relations.

This increase of road traffic in 2014 meant some 1.47 million movements of vehicles on the roads in comparison with the traffic in 2013.

HADTUDOMÁNYI SZEMLE

2017. X. évfolyam 4. szám

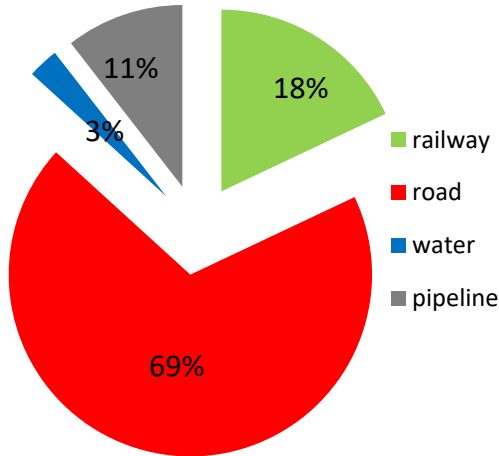


Figure 10.: Cake of goods turnover in 2014, in a breakdown of transport disciplines
(Source: KSH, own edition)

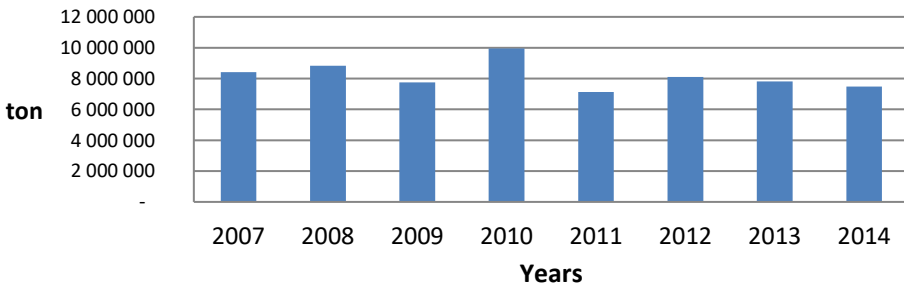


Figure 11 Change of goods transport on inland waters between 2007 and 2014
(Source: KSH, own edition)

In respect of goods transport on inland waters in Hungary a continuous drop of the turnover could be observed in the past years. The effect of the use-proportionate toll to the change of the mode of transport is not reflected in any way by the quantities of goods transported on

HADTUDOMÁNYI SZEMLE

2017. X. évfolyam 4. szám

domestic waterways: the traffic on water has not grown but decreased. The drop of the traffic on water partly results from the loss of the commodity reserves (goods travel to other directions) and partly from a slight redirection to the railway.

The time of forwarding goods is quite long in the domestic transport system. Due to the usually not modernly developed intermodal connection points and the inappropriate modernity of the logistics systems the related waiting and delivery times are long, which results in higher fees. This particularly goes for the railway infrastructure that can be said to have already been outdated today. The situation is further deteriorated by the fact that in respect of the railways the increasing (or not decreasing) goods forwarding and transit times develop along with goods transport performances being significantly lower compared to those of the earlier decades.

As regards goods transport by road the delivery times and the related waiting times show a significantly more favourable picture than in railway traffic. In respect of long-distance international transports it is only the mandatory resting time of at least 8 hours of truck drivers that slows the transit of goods down, because in the case of forwarding by road and the infrastructure systems belonging to it the direct and the background infrastructure of forwarding by road are permanently becoming more and more modern. Taking all the above into account, the increase of the proportion of goods transport by road is continuous in respect of consignments having a great value and requiring the possibility quick delivery. Hungarian goods transport by rail and on inland waters cannot compete in this respect with road transport; its market segment is primarily restricted to goods having large masses and considerable transport requirements. The quantity of these is continuously decreasing.

Furthermore, it is typical of these product groups that in respect of the time in which they get to their destinations they do not set excessive requirements for the transportation companies. In the division of labour between transportation by road and rail the fundamental change would be the significant acceleration of rail transport and also the quickening and modernisation of the service of the infrastructure related to transportation.

In the case of transportation by rail the reliability of the rail transport system has been decreasing due to the continuously deteriorating condition of the infrastructure. As a result of this uncertainties and risks are also growing. The railway tracks are greatly burdened with "slow speed" signs, so the allowed speed often cannot even be approximated.

The risks and uncertainties of road transport have greatly diminished in Hungary due to the fact that the express highway network and the network of the connecting feeder roads have significantly expanded in the past 15 years.

The risks of transportation on waterways primarily manifest themselves in the navigability of the waterways and, consequently, in the inappropriate utilisation of their capacities. Except for the icy winter and flood days the Danube is navigable all through the year, at the best with decreased flotation, so its utilisation is not maximal. Within water transport there has not been any change in the merit in the field of navigability. Currently, the Hungarian section of the Danube does not satisfy the conditions of navigating the river, as a Helsinki corridor, with ships having a flotation of 2.5 m and a dead-weight capacity of 1.300 to 1.600 tons, because

HADTUDOMÁNYI SZEMLE

2017. X. évfolyam 4. szám

the ships can, subject to the hydrological pattern, only navigate with limited flotation in a certain part of the year. Therefore, ensuring the navigability of the Danube, as a Helsinki corridor, according to the principles of sustainable development remains to be one of the important tasks.

Even with its extraordinary quickness, air transport is prevalent in the market segment where reaching the destination in the fastest possible way is a fundamental factor. In the absence of modern facilities and due to the inappropriate marketing activity no new projects are constructed and the existing ones are not utilised.

As a result of the great density of the network and the differentiation of the size of the vehicle fleet the other modes of transportation cannot even come near to the flexibility of goods transportation by road. The density of the network and hubs and the technical features of goods transport by rail, on inland waters and by air delimit their flexibility. In addition, in most cases they are unable to provide services without the feeding and removing functions of roads. As regards the criteria characterising the quality of the service, in goods transport by road the general level of establishing contacts and providing information is acceptable. In this respect the competition having started recently between the different railway companies has improved the quality of railway services.

In respect of combined transportation we can establish that in the past six years the volume of unaccompanied combined turnover of goods transported by rail was between 5.3 million and 7.3 million tons and is continuously growing (in 2012 it was 5.3 million tons in goods transport by rail). The railway container turnover dropped significantly not only after the economic crisis but also in 2012 and 2013 due to the decreases in the consumption of the relevant markets and other individual (business) factors.

The turnover forecasts made based on the tendencies of European development indicated the further increase of the combined turnover for which, however, it is essential to implement the necessary developments because in certain relations and periods already currently a lack of capacity is showing both in terms of means of transportation and terminal infrastructure. Typically, goods transported in a combined manner are semi-finished or finished products; consequently, the development of their turnover is greatly influenced by the change of the internal consumption of the country affected.

The long-distance international road transport could be directed to the railways or waterways if the cost level of these latter modes projected to the entire transportation chain and the reliability, delivery times and flexibility of the service chain came near to those of the road transport. One of such solutions could have been Ro-La transportation (having been ceased to exist in Hungary in 2012). This could have been greatly supported by signing contract prepared to be signed between Ukraine and Hungary for promoting intermodal transport. As, however, it has not been possible to reach any breakthrough in this field for years, no change can be expected in the merits in the forthcoming years, either. Additional questions are the following: what proportion of this form of transport will remain in the member states of the EU; how will the countries react regarding the individual relations and to what extent will this

form of transport remain?³

SUMMARY⁴

Until 2013 there was no official need from any government towards the professional and civil organisations/associations to prepare the logistics strategy of the country. In 2013 the situation has been changed and the government asked the Ministry for National Economy to work out the mid-term logistics strategy of the country. (Government decree 1157/2013). The strategy was approved by the government at the end of September 2013. The timeframe of the strategy is from 2014 till 2020; the targeted budget is 40 million eur/each year of which 75-80% is dedicated for logistics infrastructure development. Therefore the GDP participation of the Hungarian logistics industry could rise from the actual 8-9% to 10-15% at the end of the strategy period.

The strategy has 4 main pillars: logistics know-how, logistics infrastructure (logistics centres, excluding the transport infrastructure), logistics networks (connectivity to the neighbouring countries) and logistics R&D. The aim of the strategy is to increase the contribution of the logistics industry to the country and business sector competitiveness. The strategy will be realized by several ministries, Professional organizations and lead by Ministry for National Economy.

The importance of the logistics sector is very high for the country, based also on the geographical situation. The country itself is very much capital (Budapest) oriented in terms of infrastructure, companies, headquarters etc. During the last 5 years, 15 millions of m² new distribution centres were built in Budapest region.

Seven tools / intervention areas were identified in order to reach the strategic targets. One of the most challenging intervention areas is the recording/monitoring of the logistics inputs/outputs of the country and the set up of a logistics data base creation task. Actually there is no real information in Hungary (only theoretically one on paper) about the goods flows: we don't know the volume, the nature, the timing, the locations, therefore there is no real picture about the movements in the European corridors or at the border crossing points. Also there is lack of knowledge in terms of existing warehouses/distribution centres, where are they and with which capacities. There is no correct information about the origins/destinations of goods coming in and going out of the country or transiting. Therefore it is very difficult to get any fast decision in the logistics national planning.

The other main challenge is the right economical and infrastructure balance within the country, how to better balance Budapest and surrounding countryside. Thus the country and

³ Source: own research + National Transport Infrastructure Development Strategy, 2014, Transport Development Coordination Centre

⁴ „Logistik – Situation und Entwicklung in Mittel –und Osteuropa” Internationales Verkehrswesen (together with Marcin Hajdul Dr, Adriana Palasan, Mirek Rumler) (65) 4/2013 p.p. 29-31

the logistics industry need continuous discussion and a stable and step by step realization of the strategic plan.

BIBLIOGRAPHY

1. Bíró-Lakatos Intelligens közlekedési rendszerek az áru fuvarozásban és Innovatív logisztikai megoldások az intermodális fuvarozásban-Manuscript www.ksh.hu
2. Chikán, A., & Demeter, K. (2006). *Az értékteremtő folyamatok menedzsmentje*. Budapest: Aula Kiadó.
3. Coporate material. (2011).
4. *Council of Supply Chain Management Professionals*. (2011). Retrieved August 8, 2011, from CSCMP Supply Chain Management Definitions: <http://cscmp.org/aboutcscmp/definitions.asp>
5. Dr. Antoni, A. (2012). Future trends/expectations in global value/supply chains . *Magyar Logisztikai Egyesület - Logisztikai évkönyv 2012* .
6. Prezenszki, J. (2006). *Logisztika 1*. Budapest: BME MTI.
7. Szegedi, Z., & Prezenszki, J. (2008). *Logisztika-menedzsment*. Budapest: Kossuth Kiadó.
8. „Logistik – Situation und Entwicklung in Mittel –und Osteuropa” Internationales Verkehrswesen (together with Marcin Hajdul Dr, Adriana Palasan, Mirek Rumler) (65) 4/2013 p.p. 29-31