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ANALYSIS OF LOGISTICS PERFORMANCE INDEX AS A BENCHMARKING TOOL TO HELP THE TRACECA COUNTRIES IDENTIFY THE CHALLENGES AND OPPORTUNITIES

Recent researches show that TRACECA countries have improved their logistics capacities during past decades, following independence. The level of improvements have been very different and this has affected the overall development of the TRACECA corridor [1].

Within the Framework of European Commission technical assistance to the TRACECA countries, different analysis have been made, that showed that border crossings poses the main bottlenecks for smoother flow of freight across the countries along the corridor.

Border crossings need not to be reviewed in isolated manner but in broader context of further indicators that affects the logistics performance on the national level.

The Logistics Performance Index (LPI) and its indicators provide the first in-depth cross-country assessment of the logistics rank among countries. Drawing on the first-hand knowledge of logistics professionals worldwide, it provides a comprehensive picture of supply chain performance—from customs procedures, logistics costs, and infrastructure quality to the ability to track and trace shipments, timeliness in reaching destination, and the competence of the domestic logistics industry.

The LPI and its indicators point to significant differences in logistics performance across countries and regions. It reflects not only expected disparities between developed and developing countries, but more important, significant differences among developing countries at similar levels of development [2].

The LPI rankings and indicators provide robust benchmarks that may help build the case for reform. By shining a light on the costs of poor logistics performance, the LPI and its indicators can help countries break out of the vicious circle of logistics unfriendliness to effectively access global markets.

TRACECA countries including Ukraine have done a great deal in improvement of logistic, though they are still having bottlenecks to improve. This publication attempts to identify improvement potential of the logistic sector for the transport route.

Keywords: logistics performance index, LPI rankings, LPI indicators, TRACECA (TRANsport Corridor Europe Caucasus Asia), Logistics Reform Matrix.

Scope of Analysis and scientific relevance.

The efficiency of logistics service depends on the quality of the national infrastructure as well as the effectiveness of applied policies and institutions running the services. Technological development and market deregulations have extended new opportunities for economic growth. Nevertheless, expanded supply chains and global production networks put a new premium on moving goods in a reliable / predictable, timely, and cost-effective manner.

TRACECA corridor is no exception. The countries are involved in gradual development trends of trade and economic development. Major traffic flows passing through the corridor is formed on the one hand, in Western and Central Europe, and on the other - in Central and South-East Asia.

The attractiveness of TRACECA corridor for freight is defined to greatest extent, by national willingness to extend their regional cooperation and services development.

At present the TRACECA countries have been gradually implementing the IGC TRACECA Strategy for development of the international transport Europe-Caucasus-Asia corridor for the period up to 2015, aimed at creation of a sustainable infrastructure chain ensuring multi-modal transport with stepwise alignment of the corridor as continuation of the Trans-European Transport Networks (TENs) [5].

The outcomes of those improvements have to contribute to the development of TRACECA competitiveness and attractiveness of the corridor to facilitate further trade liberalization and reduction of barriers in the path of goods along the whole corridor. The LPI review shows the development of the national logistic sector progress in the TRACECA countries as a benchmark for national efforts and to highlight the areas that requires further development.

Objectives of the article are to shed light on how TRACECA countries are doing in the area of trade logistics, and what they can do to improve their performance.

Evaluation approach of the LPI results as a benchmark for TRACECA route

The Logistics Performance Index is an interactive benchmarking tool created to help countries identify the challenges and opportunities they face in their performance on trade logistics and what they can do to improve their performance. The LPI 2014 allows for comparisons across 160 countries. The LPI is based on a worldwide survey of operators on the ground (global freight forwarders and express carriers), providing feedback on the logistics “friendliness” of the countries in which they operate and those with which they trade. They combine in-depth knowledge of the countries in which they operate with informed qualitative assessments of other countries where they trade and experience of global logistics environment. Feedback from operators is supplemented with quantitative data on the performance of key components of the logistics chain in the country of work.

The LPI consists therefore of both qualitative and quantitative measures that help building profiles of logistics friendliness for these countries. It measures performance for the logistics supply chain within a country and offers two different perspectives, namely the international and domestic one.

The International Index provides qualitative evaluations of a country in six areas by its trading partners—logistics professionals working outside the country.

The Domestic LPI provides both qualitative and quantitative assessments of a country by logistics professionals working locally. It includes detailed information on the logistics environment, core logistics processes, institutions, and performance time and cost data.

The international LPI analyzes countries in six components [2]:

1. The efficiency of customs and border clearance (“Customs”).
2. The quality of trade and transport infrastructure (“Infrastructure”).
3. The ease of arranging competitively priced shipments (“Ease of arranging shipments”).
4. The competence and quality of logistics services—trucking, forwarding, and customs brokerage (“Quality of logistics services”).
5. The ability to track and trace consignments (“Tracking and tracing”).
6. The frequency with which shipments reach consignees within scheduled or expected delivery times (“Timeliness”).

The interrelationship of Regulation and Performance shown on Figure 1.

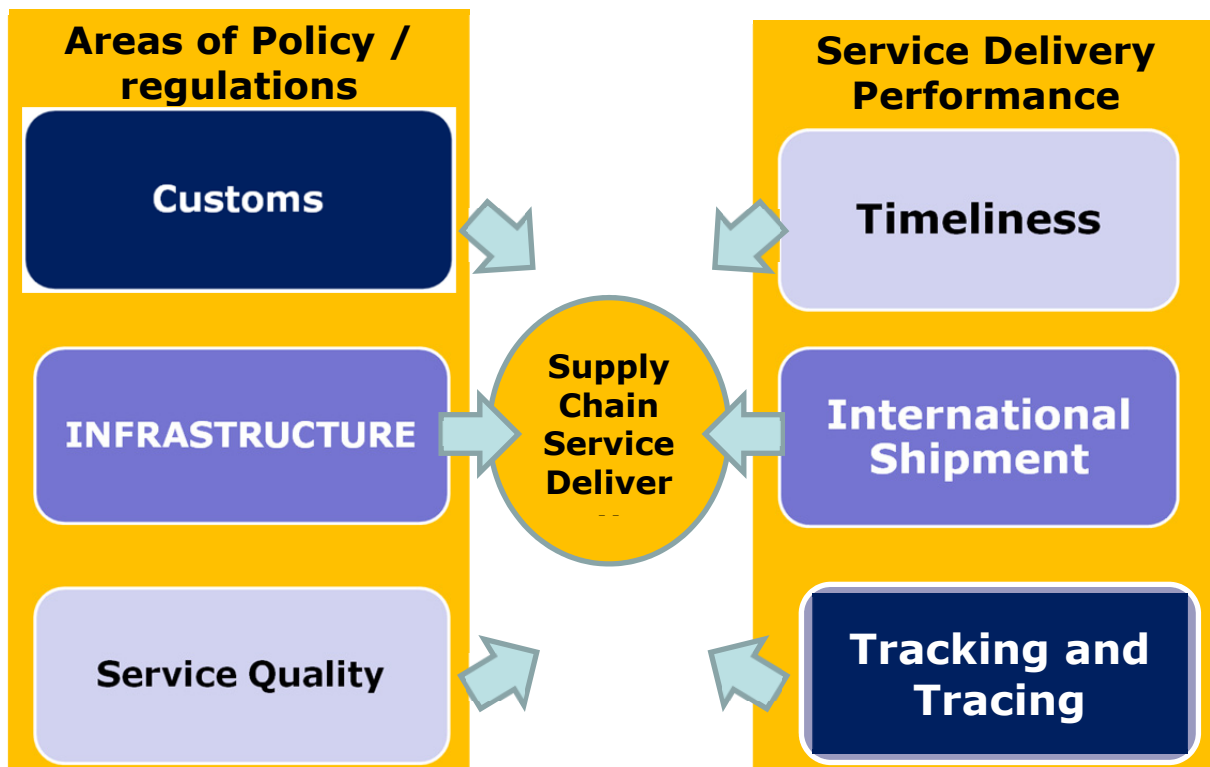


Figure 1. Input and outcome LPI indicators. Source [2].

The figure categorizes the six LPI indicators into two main groups. One that includes policy and

regulations with inputs to the supply chain (customs, infrastructure, and quality of logistics services) and a second that includes the service delivery performance outcomes (timeliness, international shipments, and tracking and tracing).

Following the development of the LPI ranking along a time series between 2007 and 2014 reveals the development each country has achieved. The LPI ranking for TRACECA countries shown on Figure 2. It also features Germany and Russia as reference benchmark.

Страна / Country	2007	2010	2012	2014	2007-2014
Germany DEU	3	1	4	1	↑
Турция TUR	34	39	27	30	↑
Румыния ROM	51	59	54	40	↑
Болгария BGR	55	63	36	47	↑
Грузия GEO		93	77	116	↓
Украина UKR	73	102	66	61	↑
Russian RUS	99	94	95	90	↑
Кыргызская Р KGZ	103	91	130	149	↓
Молдова MDA	106	104	132	94	↑
Азербайджан AZE	111	89	116	125	↓
Узбекистан UZB	129	68	117	129	↔
Армения ARM	131	111	100	92	↑
Казахстан KAZ	133	62	86	88	↑
Таджикистан TJK	146	131	136	114	↑

Figure 2. LPI ranking / change of TRACECA countries. Source: Authors analysis.

Figure 2 particularly shows TRACECA Countries where LPI ranking from 2007 is decreased are: Georgia, Kyrgyzstan and Azerbaijan. In Uzbekistan the LPI remained within the same rank as in 2007. The rest TRACECA countries improve their LPI ranking from 2007.

Figure 3 reflects the LPI development for TPACECA countries.

Страна	2007	2010	2012	2014
Турция TUR	3,15	3,22	3,51	3,50
Румыния ROM	2,91	2,84	3,00	3,26
Болгария BGR	2,87	2,83	3,21	3,16
Грузия GEO		2,61	2,77	2,51
Украина UKR	2,55	2,57	2,85	2,98
Кыргызская Р. KGZ	2,35	2,62	2,35	2,21
Молдова MDA	2,31	2,57	2,33	2,65
Азербайджан AZE	2,29	2,64	2,48	2,45
Узбекистан UZB	2,16	2,79	2,46	2,39
Армения ARM	2,14	2,52	2,56	2,67
Казахстан KAZ	2,12	2,83	2,69	2,70
Таджикистан TJK	1,93	2,35	2,28	2,53

Figure 3. LPI development for TPACECA countries. Source: Authors analysis.

The absolute values shown on Figure 3 illustrates that the LPI score was decreased in 2010 – in 2 TRACECEA countries (Romania and Bulgaria); in 2012 6 countries (Kyrgyz Republic, Moldova, Azerbaijan, Uzbekistan, Kazakhstan, Tajikistan) and in 2014 – in 6 TRACECEA countries (Turkey, Bulgaria, Georgia, Kyrgyzstan, Uzbekistan, Azerbaijan).

The position of the TRACECEA countries in the LPI quintile categories is shown in Figure 4.

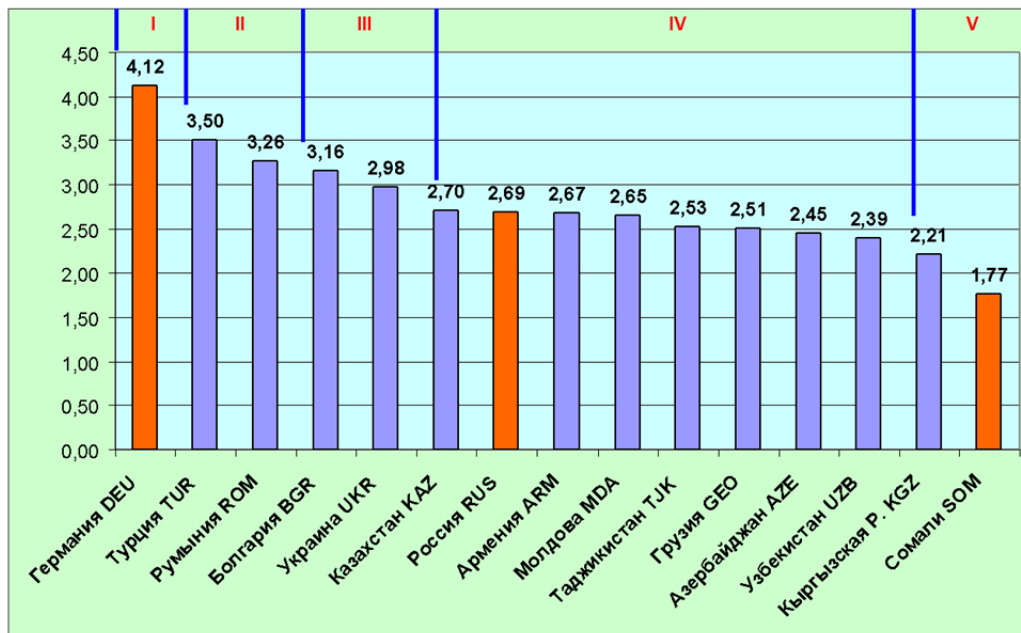


Figure 4. Overall LPI score 2014 for TRACECEA countries. Source: Authors analysis.

The quintile categories shown in Figure 4 play an important role when grouping necessary actions. Countries in top category develop different level of measures to improve the logistic performance than the second and third quintile. Figure 4 shows that none of the TRACECEA countries are in the top quintile group. Merely two countries lie within each of the second and third quintiles. With exception of Kyrgyzstan, all remaining countries lie within the fourth quintile.

It is important to know in which quintile the countries are for creating the Logistics Reform Matrix. This shown at later section of this paper. Turkey for example lies within the second quintile has been developing very well in the period 2007 -2014. It is the one TRACECEA country that has the highest LPI scores in 2014. Turkey LPI development shown on Figure 5. It shows great deal of improvements in almost all indicators.

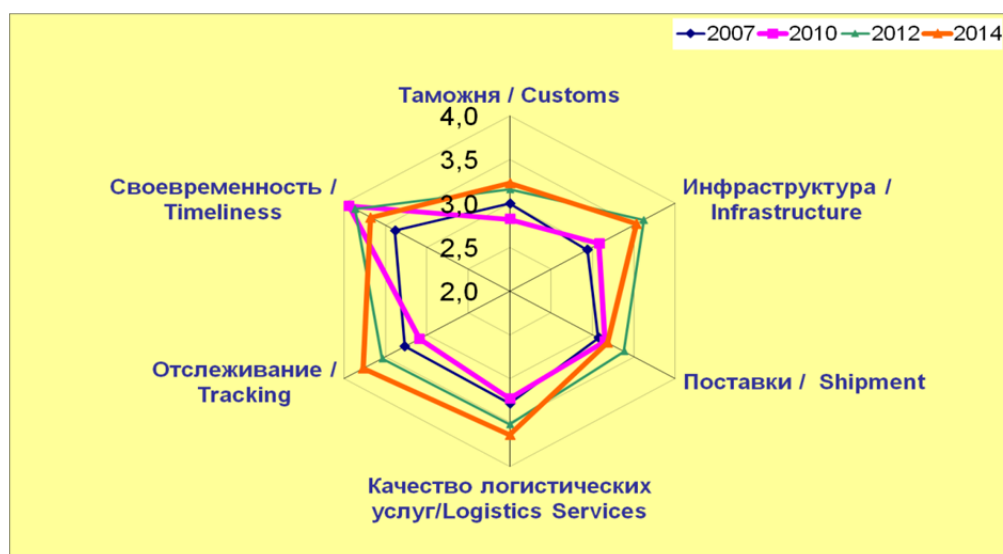


Figure 5. Turkey LPI development on 2007-2014. Source: Authors analysis.

Also Ukraine as the country in the second quintile has performed considerable improvements in the time frame of 2007 – 2014. Ukraine LPI development shown on Figure 6. Ukraine development also shows continuous improvements in almost all indicators.



Figure 6. Ukraine LPI development on 2007-2014. Source: Authors analysis.

On the lowest quintile hosting TRACECA country, the Kyrgyz Republic. Its LPI development over 7 years period 2007 and 2014 is shown LPI. It shows decrease in the timeliness, tracking and slight improvement along the customs indicator.

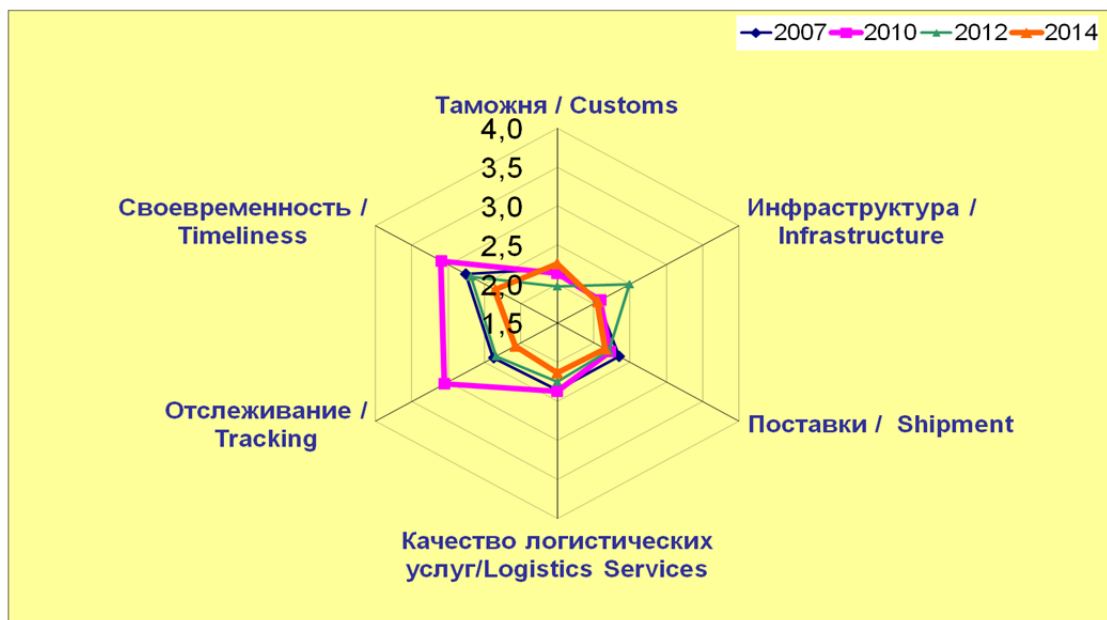


Figure 7. Kyrgyz Republic LPI development on 2007-2014. Source: Authors analysis.

The LPI analysis also looks at the different measures and areas of intervention that has been the focus of improvements by the different countries categorized into the Quintiles. This analysis is shown as a Logistics Improvement Matrix shown on Figure 8.

Areas of Intervention	LPI Quintiles			
	5	3 / 4	2	1
<i>Transport infrastructure</i>	■	■	■■	■
<i>information and communications technology</i>	■	■		
<i>Logistics facilities</i>			■	■■
<i>Customs</i>	■■■	■■	■	
<i>Integration of border management</i>	■	■■■	■■■	■
<i>Services Reform</i>	■■	■■■	■■■	
<i>Regional Facilitation and Corridor</i>	■■■	■■	■■	
<i>National Data Tools</i>	■	■	■■■	■■■
<i>Green Logistics</i>			■■	■■■

Figure 8. Logistics Improvement Matrix. Source [2].

The Logistics Improvement Matrix allows to draw the following observations:

1. Infrastructure development is an area of continuous improvements that concerns members of all quintiles. The second quintile members have put higher focus on this area of action to enable a leap forward. This is added to further development of the logistics facilities.
2. The attention to green logistics is growing but remains concentrated in high-income countries.
3. Countries of top groups have moved into new area of improvements, namely green logistics.
4. Third and fourth quintile members are still focusing on their customs improvements and the reform of the services.

Conclusions and Recommendation.

The top-ranked countries remain those of high-income. A mature logistics services market is distinctive of the high-performing countries. Yet the gap between the best and worst performers is slowly narrowing thanks to improvements in infrastructure and border clearance. LPI gave them warning [2].

The LPI analysis shows that a strategic use of logistics is likely to continue altering the nature of operations in the sector. Governments of TRACECA countries are well advised to match these changes. However, it is important for governments to deploy adapted concepts of logistics and to stimulate economic competitiveness to achieve the targeted economic development. On the same time, governments need to watch for negative impacts to achieve a more balanced approach to economic growth with sustainable development.

In order to increase competitiveness by promoting the opportunities offered by the logistics sector and also achieving sustainable development, governments of TRACECA countries need to pursue an integrated policy framework. The range of policy issues affecting the efficiency are wide and extend beyond the jurisdiction of single government agencies charged solely with improving the performance of the transport sector. Also, since transport and logistics are interrelated with international trade, international finance, sustainable economic development, global climate change and regional and local concerns, the policy framework should be seen in a much broader context and be coordinated accordingly.

TRACECA countries differ in their use of logistics since they are at different stages of development with diversified cultural backgrounds. Several countries suffer from insufficient specialized logistics knowledge as well as lack of more general awareness of the importance of logistics, and are therefore unable to formulate cohesive policies to manage logistics. In addition, modern logistics concepts such as intermodal transport have not penetrated these countries yet. Nevertheless, all regions should respond to the current developments in logistics and the need for efficient and environmentally friendly transport solutions. The effectiveness and efficiency of policy actions could be analyzed through comparative studies.

In both developed and developing countries, financial instruments available to governments for the development of infrastructure are still not sufficiently flexible, prevalent, or transparent to cover and

serve current needs. The potential for innovative financing arrangements, including Public-Private Sector Partnerships, should be explored.

For example, Ukraine, being on the verge to be more aligned along the European logistics, will need to invest much in further improving its logistics performance. The LPI can be a helpful instrument to reveal areas of actions. Also further internal benchmarking (partially performed by TRACECA) can be of support to the national agencies to gear up their efforts to match the European standards. To achieve efficient border clearance, Ukraine will require substantial improvements in customs and other control agencies. A new generation of reforms and approximation more complex in nature are needed and they will span across many sectors.

Logistics developments necessitate changes in the demand for skills and not only in the infrastructure, hardware and legislations. Improved training and qualification systems are needed to respond to these developments. Human resource development is of paramount importance to accompany the infrastructure investment to ensure sustainability. Also Public private partnership provides support to the freight industry improvements. It remains a fact that the level of skills in the most TRACECA countries is in need of substantial capacity building measures.

REFERENCES

1. Monitoring TRACECA Route Attractiveness TRACECA Route Attractiveness index (TRAX)-
2. Connecting to Compete 2014. Trade Logistics in the Global Economy. The Logistics Performance Index and Its Indicators. <http://lpi.worldbank.org>
3. Internet resource <http://www.internationaltransportforum.org>
4. Internet resource <http://www.ciilogistics.com>
5. Internet resource <http://www.traceca-org.org/en/traceca>
6. Internet resource: <http://lpi.worldbank.org>
7. TRACECA IGC Strategy
8. Dr. Hamed IDEA PROJECT Working Paper

A. Хамед, Л. Гасуха. Аналіз індексу ефективності логістики як системного показника з метою допомоги країнам ТРАСЕКА визначити проблеми та можливості.

Останні дослідження показують, що країни ТРАСЕКА поліпшили свої логістичні можливості протягом останніх десятиліть після здобуття незалежності. Але ступені поліпшення різнилися в різних країнах, що і вплинуло на загальний розвиток коридору ТРАСЕКА. [1].

В рамках технічної допомоги Європейської комісії країнам ТРАСЕКА було зроблено порівняльний аналіз, який дав змогу побачити, що прикордонні переходи являються основними вузькими місцями для більш плавного потоку вантажів вздовж усіх країн по коридору.

Прикордонні переходи не повинні розглядатися ізольовано, а в більш широкому контексті загальних показників, які впливають на ефективність логістики на національному рівні.

Індекс ефективності логістики (LPI) та його показники дають першу глибоку порівняльну оцінку розриву логістики між країнами. Спираючись на досвід професіоналів з логістики по всьому світу, він дає повну картину продуктивності ланцюжка поставок від митних процедур, витрат на логістику і якість інфраструктури до здатності відслідковування вантажів, своєчасності у досягненні мети, і компетенції вітчизняної індустрії логістики.

LPI і його індикатори вказують на значні відмінності в ефективності логістики між країнами і регіонами. Це відображає не тільки очікувані відмінностей між розвиненими і країнами, що розвиваються, але більш важливі, істотні відмінності між країнами з аналогічним рівнем розвитку [2].

LPI рейтинги і показники дають надійні орієнтири, які можуть допомогти започаткувати реформи. Допомогають пролити світло на те, в що обходиться низька ефективність логістики. LPI і його показники можуть допомогти країнам вирватися з порочного кола логістики з низьким рівнем ефективності і розширити доступ на світові ринки.

Країни ТРАСЕКА, включаючи Україну, зробили багато чого в поліпшенні логістики, хоча вони як і раніше мають вузькі місця для маршрутів торгових потоків.

Ключові слова: Індекс ефективності логістики, LPI рейтинг, показники LPI, ТРАСЕКА (транспортний коридор Європа-Кавказ-Азія), Матриця реформ логістики.

A. Хамед, Л. Гасуха. Анализ индекса эффективности логистики как системного показателя с целью помочь странам ТРАСЕКА определить проблемы и возможности.

Последние исследования показывают, что страны ТРАСЕКА улучшили свои логистические возможности на протяжении последних десятилетий после обретения независимости. Но урны улучшения в разных странах были очень разные и это повлияло на общее развитие коридора ТРАСЕКА [1].

В рамках технической помощи Европейской комиссии странам ТРАСЕКА был сделан сравнительный анализ, который показал, что пограничные переходы представляет основные узкие места для более плавного потока грузов по всем странам вдоль коридора.

Пограничные переходы не должны рассматриваться изолированно, а в более широком контексте

общих показателей, который влияет на эффективность логистики на национальном уровне.

Индекс эффективности логистики (LPI) и ее показатели дают первую углубленную сравнительную оценку разрыва логистики между странами. Опираясь на опыт профессионалов с логистики по всему миру, он дает полную картину производительности цепочки поставок от таможенных процедур, затрат на логистику и качество инфраструктуры к способности отслеживания грузов, своевременности в достижении цели, и компетенции отечественной индустрии логистики.

LPI и его показатели указывают на значительные различия в эффективности логистики между странами и регионами. Это отражает не только ожидаемые различия между развитыми и развивающимися странами, но более важные, существенные различия между странами с аналогичным уровнем развития [2].

LPI рейтинги и показатели дают надежные ориентиры, которые могут помочь провести реформы. Помогают пролить свет на то, в что обходиться низкая эффективность логистики. LPI и его показатели могут помочь странам вырваться из порочного круга логистики с низкой эффективностью и получить доступ на мировые рынки.

Страны ТРАСЕКА, включая Украину, сделали многое в улучшение логистики, хотя они по-прежнему имеют узкие места в маршрутах торговых потоков.

Ключевые слова: Индекс эффективности логистики, LPI рейтинг, показатели LPI, ТРАСЕКА (транспортный коридор Европа-Кавказ-Азия), Матрица реформ логистики.

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