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Oleksii SHCHELKUNOV[1], Iryna PARASII-VERHUNENKO[2], Kostiantyn BEZVERKHYI[3]*, Olena HRYHOREVSKA[4], Oksana KAZAK[5]

METHODOLOGY OF AN APPLIED ANALYSIS OF BUSINESS PARTNERSHIP IN MOTOR VEHICLES ENTERPRISES

Summary. This article examines the practical aspects of analyzing business partnerships in MTEs and proposes a methodology for their applied analysis. The applied assessment of business partnerships in MTEs is based on its organizational and information model, using the apparatus of economic and correlation analysis. An analysis of the economic activities of four domestic MTEs for 2019–2023 allows us to determine the dynamics of their financial indicators and the impact of business partnership efficiency indicators on them. The scientific novelty of the present study is to develop a methodology for analyzing the effectiveness of business partnerships of MTEs with business partners based on the development of a system of financial and non-financial indicators grouped into the following analytical blocks: logistics, marketing, interaction costs, customer loyalty and satisfaction, market activity, leasing, insurance and lending efficiency, digitalization and automation of business processes. The proposed system of indicators enables a comprehensive assessment of the effectiveness of cooperation with various counterparties, identifies the strengths and weaknesses of partnerships in a timely manner compared to competitors, and allows for prompt adjustments to the business partnership strategy.

1. INTRODUCTION

The development of a methodology for the applied analysis of business partnerships in MTEs (MTEs) in the context of strengthening their competitive advantages and improving financial performance is a logical continuation of the application of its analytical, organizational, and informational model. The new economic reality in Ukraine and the increasing turbulence of the market environment, particularly in the logistics sector, necessitate the creation of a universal methodology for flexible managerial responses to changes in market conditions and the behavior of business partners within the logistics network. Therefore, the detailing of indicators and criteria for evaluating the effectiveness of business partnerships, as well as continuous monitoring and factor analysis of the impact of these indicators on profit and profitability, should form the foundation of the applied methodology for analyzing business partnerships in MTEs.

[1] State University of Trade and Economics; 19, Kyoto str., Kyiv-156, 02156, Ukraine; e-mail: o.shchelkunov@knute.edu.ua; orcid.org/0000-0002-5737-6127
[2] State University of Trade and Economics; 19, Kyoto str., Kyiv-156, 02156, Ukraine; e-mail: i.parasij-vergunenko@knute.edu.ua; orcid.org/0000-0001-6506-6965
[3] State University of Trade and Economics; 19, Kyoto str., Kyiv-156, 02156, Ukraine; e-mail: k.bezverkhyi@knute.edu.ua; orcid.org/0000-0001-8785-1147
[4] Kyiv National University of Technologies and Design; 2, Mala Shyianovska (Nemyrovycha-Danchenka) str., Kyiv, 01011, Ukraine; e-mail: grigorevska.oo@knutd.edu.ua; orcid.org/0000-0001-8279-3523
[5] Borys Grinchenko Kyiv Metropolitan University; 18/2, Bulvarno-Kudriavska str., Kyiv, Ukraine, 04053; e-mail: o.kazak@kubg.edu.ua; orcid.org/0000-0003-2088-9022
*Corresponding author. E-mail: k.bezverkhyi@knute.edu.ua

In our opinion, the applied aspects of the expediency and effectiveness of MTE business partnerships and their impact on financial results should be assessed based on economic and correlation analysis tools, along with a clear detailing of the indicators and directions of business partnerships (with intermediaries, end consumers, lessors, contractors, creditors, insurers, lessors, software suppliers, communication providers, etc.).

This article applies this methodology in practice and verifies its effectiveness by analyzing the activities of four operating companies – "SOTA-IF," "Horyzont-SM," "Transport Systems," and "Nika-Trans Ukraine" – based on their financial statements for the period from 2019 to 2023.

2. RECENT RESEARCH AND PUBLICATIONS

In the context of the practical application of effective business partnership models in logistics and MTEs, several comprehensive scientific publications are presented in the literature. In particular, O.V. Portna's publication explores the advantages of implementing new technologies for managing economic and business partnerships within the framework of Industry 4.0, which involves establishing strategic, mutually beneficial relationships with business partners, effectively evaluating key business partners, and defining partnership strategies with them [6]. The work of Western researchers, such as Xu Xiaofeng, examines the mechanism of collaborative logistics networks as a new service style and business model focused on the platform economy. This model aims to attract partners, plan resources, allocate them in space and time, ensure mutual benefits for network participants, and enhance customer satisfaction by individualizing transport and logistics services [8].

According to Remykha Yuliia, the most important factor for the successful cooperation of logistics enterprises is the transformation of logistics chains such that the participants in the partnership no longer experience shortcomings in the organization of their own business processes. In the practical implementation of partnership strategies, it is necessary to follow the global trend of integrating logistics operations and controlling the entire logistics system, including production, supply, distribution, and the establishment of relationships between the client company and the logistics service provider [7]. M. Oliskevych et al. identified the incoming flow of orders as a key factor influencing the effectiveness of business partnerships in transport enterprises. The primary criterion determining the feasibility of such partnerships is the efficiency of transport processes and the maximization of profits from such cooperation [1]. P. Lava studied the issue of effective partnerships in the areas of concessions and the distribution of joint mega transport projects, emphasizing the need to recalibrate procurement policies. The researchers highlight that establishing an effective procurement system based on leadership will maximize value and ensure the fair distribution of costs and rent from participation in partnerships [4]. M. Abdelkader et al. based their analysis of practical issues in business partnerships of transport enterprises on an integrated multi-criteria decision-making model, which increases the reliability of assessing an enterprise's potential to achieve its strategic goals [5].

At the same time, Indonesian researchers R. Afrino, A. Syahza, S. Suwondo, and M. Heriyanto [9] developed a business partnership model for sustainable palm oil production. Meanwhile, a group of Canadian scholars, G.R. Amin and M.I. Boamah [10], examined business partnership modeling, focusing on strategic collaboration frameworks. A team of Ukrainian researchers, K. Bezverkhyi, L. Hnylytska, O. Yurchenko, and N. Poddubna [11], studied the analytical procedures of integrated reporting audit for corporate enterprises in the context of business partnership assessment. Similarly, Italian researchers I. Dulskaia and F. Bellini [12] analyzed emerging business models and partnerships aimed at fostering sustainable mobility and advancements in the transport sector. A pair of international authors, D. Fischer and P. Singh [13], highlighted the role of relational leadership in business partnerships in India, emphasizing its impact on organizational cooperation and market integration.

Simultaneously, a group of South Korean scholars, D. Lee, J. Kim, S. Song, and K. Kim, [14], identified sustainable business partnerships using a deep learning approach to maximize potential business value and strategic efficiency. A team of Ukrainian authors, K. Nazarova, K. Bezverkhyi, M. Nezhyva, Y. Gordopolov, and V. Negodenko [15], studied the regression analysis of a company's operating profit to assess the business partnership of a counterparty. A pair of German scholars, S. Züfle

and P. Carlowitz [16], explored key success factors in business partnerships between German and Ghanaian companies, focusing on cross-border collaboration and economic synergies. Furthermore, an international team of researchers, M. Riegler, A.M. Burton, M. Scholz, and K. de Melo [17], investigated the preconditions for companies' engagement in business partnerships for sustainability, assessing corporate motivation and stakeholder alignment. Likewise, a group of Italian researchers, L. Giraldi, S. Coacci, and E. Cedrola [18], examined how relational capability influences the success of business partnerships, underscoring its role in competitive advantage and long-term cooperation.

Despite the significant conceptual and practical contributions of these researchers, the issue of developing an effective methodology for the applied analysis of business partnership efficiency in transport and logistics enterprises, particularly in MTEs, remains underexplored.

3. MAIN RESEARCH MATERIAL

Before analyzing the efficiency of business partnerships in the studied MTEs, let us examine their economic activity from 2019 to 2023, particularly the dynamics of their gross profit (Fig. 1).

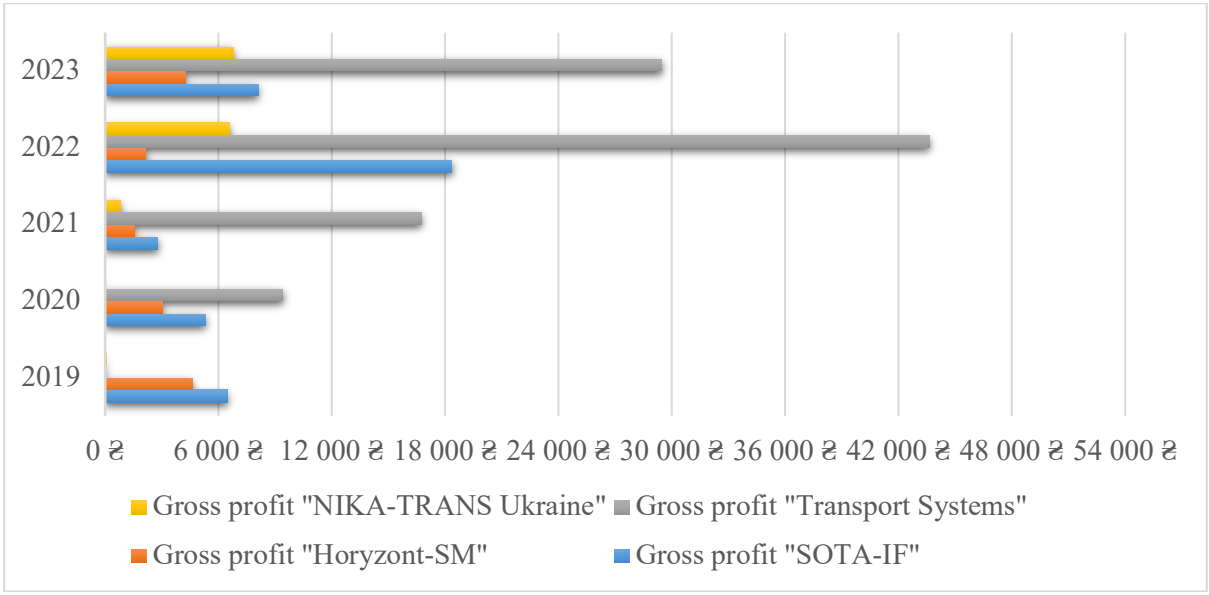

Fig. 1. Gross profit dynamics of "SOTA-IF" LLC, "Horyzont-SM" LLC, "Transport Systems" LLC, and "NIKA-TRANS Ukraine" LLC from 2019–2023. Source: Prepared by the authors based on financial statements data

The data obtained from the MTEs regarding business partnership directions indicate the involvement of all three enterprises in various partnership relations, including the provision of motor transport services (work execution), logistics, marketing, financial funding (leasing, credit, and subcontracting), digitalization, and automation.

In the organizational and informational model, the objects of analysis include indicators of partnership efficiency with intermediate consumers, final consumers, financial support, and digitalization, as well as indicators of revenue, expenses, financial results, and the profitability of MTEs. This model details the indicators characterizing business partnership directions and presents algorithms for their calculation [2].

Next, we analyze the efficiency indicators of business partnerships with intermediate consumers of motor transport services and suppliers and determine their numerical values. Table 1 presents data and Key Performance Indicators (KPIs) on output (net revenue from service realization) and the average service duration as the base values for calculating the numerical indicators of partnership efficiency: transport rhythm, fixed asset operation rate, and accuracy of plan execution.

Transport rhythm reflects the regularity and stability of transport services provided in relation to pre-approved planned volumes. It is calculated as the relative deviation of the actual volume of provided transport services from the planned volume. The value of this KPI can be positive (indicating that the planned figures were exceeded) or negative (indicating that the planned figures were not met). Values close to zero indicate a high level of accuracy in planning and stability in transportation operations.

For example, as seen in Table 1, the transport rhythm of "SOTA-IF" LLC increased from -0.275 in 2019 to 0.175 in 2023. This improvement resulted from the alignment of actual output with planned output during 2019-2020 and the exceeding of actual output over planned output from 2021–2023. As a result, the fixed asset operation rate also increased from 0.725 to 1.175. However, the accuracy of plan execution decreased from 1.07 to 0.92, as the actual duration of transport service realization was reduced from 10 to eight days, while the most probable duration also declined from 11 to nine days.

We now analyze the efficiency of partnerships in the "logistics" direction, referring to intermediate consumers of motor transport services specifically, companies that provide logistics services related to inventory storage and deliveries.

For this analysis, we need to consider fixed inventory maintenance costs, variable costs, inventory levels, the number of timely completed orders, and the total number of orders. The key efficiency indicators of partnerships in this direction are inventory levels and timely deliveries (Table 2).

Table 1

Indicators of business partnership efficiency with intermediate consumers of motor transport services and suppliers

Year	Output (Net revenue from sales) actual / plan (thousand UAH)	Average duration of service realization and work execution actual / min / most probable / max (days)	Transport and work rhythm	Fixed asset operation rate	Plan execution accuracy
"SOTA-IF" LLC					
2019	14 491.00 / 20 000.00	10/5/11/12	-0.275	0.725	1.07
2020	21 227.80 / 25 000.00	9/5/9/12	-0.151	0.849	1.04
2021	27 100.70 / 30 000.00	8/5/9/12	-0.097	0.903	0.92
2022	42 260.90 / 40 000.00	8/5/9/12	0.057	1.057	0.92
2023	58 726.40 / 50 000.00	8/5/9/12	0.175	1.175	0.92
"Horyzont-SM" LLC					
2019	50 759.80 / 55 500.00	14/6/12/15	-0.085	0.915	1.27
2020	51 099.80 / 55 500.00	13/6/12/15	-0.079	0.921	1.18
2021	58 177.20 / 60 000.00	12/6/12/15	-0.030	0.970	1.09
2022	81 310.50 / 75 500.00	12/6/12/15	0.077	1.077	1.09
2023	78 204.20 / 80 500.00	11/6/12/15	-0.029	0.971	1.00
"Transport Systems" LLC					
2019	68 616.80 / 70 000.00	8/4/10/11	-0.020	0.98	0.96
2020	76 236.20 / 80 000.00	8/4/9/11	-0.050	0.95	1.00
2021	85 802.90 / 90000.00	7/4/8/11	-0.047	0.95	0.91
2022	152 355.50 / 150 000.00	7/4/8/11	0.016	1.02	0.91
2023	191 750.90 / 200 000.00	6/4/7/11	-0.04	0.96	0.82
"NIKA-TRANS Ukraine" LLC					
2019	885.4 / 10 500.0	12 / 8 / 12 / 13	-0.92	0.08	1.09
2020	0.00 / 0.00	0/0/0/0	0	0	0
2021	11 900.0 / 14 500.0	9 / 6 / 10 / 12	-0.18	0.82	0.96
2022	34 572.4 / 42 500.0	8 / 7 / 9 / 10	-0.19	0.81	0.92
2023	45 077.4 / 48 500.0	8 / 7 / 9 / 10	-0.07	0.93	0.92

Source: Prepared by the authors based on financial statements data

When the organizational and informational model was applied and calculations were performed, the inventory volume of LLC "SOTA-IF" increased by 25% from 2019 to 2023. This growth was driven by an increase in fixed inventory maintenance costs from UAH 2.55 million to UAH 2.91 million and an increase in variable costs per unit of inventory from UAH 350 to UAH 476.2.

Another critical indicator within logistics efficiency is inventory volume, defined as the total monetary value of goods stored (inventory) by the company during a specific period. This KPI depends on both fixed and variable inventory-related costs and is influenced by the effectiveness of business partnerships in logistics operations.

In-time deliveries increased by 9.3% due to the growth in the share of timely completed orders within the total number of orders. In contrast, at "Horyzont-SM" LLC, the inventory volume decreased by 7%, resulting from reductions in both fixed and average variable costs, while the in-time deliveries remained unchanged. At "Transport Systems" LLC, inventory volume increased significantly by 5.35 times, whereas in-time deliveries declined by almost 11%. From 2021–2023, "NIKA-TRANS Ukraine" LLC experienced a 12% decrease in inventory volume and a 7.5% decrease in delivery timeliness.

Table 2

Indicators of business partnership efficiency with intermediate consumers of motor transport services and suppliers (logistics direction)

Year	Fixed inventory maintenance costs, thousand UAH	Variable costs per unit of inventory, UAH	Inventory level, thousand UAH	Number of timely completed orders	Total number of orders	Inventory	In-time deliveries
"SOTA-IF" LLC							
2019	2550	350.0	8.5	103	120	5525.00	0.86
2020	2860	335.0	8.8	79	90	5808.00	0.88
2021	1430	312.9	4.6	55	60	2869.34	0.92
2022	2790	340.0	8.2	93	96	5578.00	0.97
2023	2910	476.2	8.4	73	78	6908.40	0.94
"Horyzont-SM" LLC							
2019	4562	550.0	14.2	157	160	12 372.0	0.98
2020	3248	520.5	13.6	137	140	10 326.8	0.98
2021	2866	492.0	13.1	123	126	9311.2	0.98
2022	3110	518.0	13.2	131	132	9947.6	0.99
2023	4120	536.0	13.8	147	150	11 516.8	0.98
"Transport Systems" LLC							
2019	12 218	1232.0	16.2	419	428	32 176.4	0.98
2020	14 642	1318.2	16.0	446	446	35 733.2	1.00
2021	15 228	1322.0	16.6	483	488	37 173.2	0.99
2022	27 540	3456.0	36.8	482	560	154 720.8	0.86
2023	32 660	3650.5	38.2	548	630	172 109.1	0.87
"NIKA-TRANS Ukraine" LLC							
2019	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0
2021	1560.0	382.4	6.8	76	82	4160.32	0.93
2022	1950.0	444.4	7.2	77	90	5149.68	0.86
2023	1260.0	369.2	6.5	69	80	3659.8	0.86

Source: Calculated by the authors based on the financial statements data of MTEs

The next stage of partnership analysis involves calculating efficiency indicators in the "marketing" direction. Table 3 presents the indicators necessary for determining interaction costs, showing how they have changed over the past four years. The "marketing" direction also includes customer satisfaction index, loyalty level, and loyalty index. The ratio of repeat purchases to total purchases must be found to calculate the loyalty level. At "SOTA-IF" LLC, the loyalty level increased by 19.5% between 2019 and 2023, which was the highest increase among all analyzed motor transport services. "Horyzont-SM" LLC followed, with a 17.5% increase, while "Transport Systems" LLC recorded a 2% decline, and "NIKA-TRANS Ukraine" LLC had a 9% increase from 2021 to 2023.

To explore the financial aspects of customer engagements, we introduce the term "interaction costs," which refers to the total expenses incurred by an enterprise during various stages of client interactions, including pre-contract negotiations, contract formation, ongoing support, compliance monitoring, and dispute resolution.

In evaluating marketing effectiveness and customer retention, the concept of loyalty level is applied, which represents the proportion of repeat customer orders relative to total customer orders. It demonstrates an enterprise's ability to retain customers over time, which is directly related to customer satisfaction and effective marketing strategies.

Customer satisfaction indicators were calculated separately using the satisfaction index (SI) formula [2] and are presented in Table 4. The data on the number and percentage of loyal customers and complainers provided by the enterprises were used to calculate the loyalty index [2].

An important indicator for assessing customer relationships is the satisfaction index (SI). The satisfaction index is a composite indicator that measures customer satisfaction based on evaluations of specific criteria such as service quality, reliability, punctuality, pricing, and customer orientation. The KPI is calculated as the weighted average of customer satisfaction ratings obtained from surveys.

When estimating the dynamics of this indicator from 2019-2023, it is worth noting that in LLC "SOTA-IF," it increased by 33% (the best performance); in LLC "Horyzont-SM," it increased by 29%; in LLC "Transport Systems," it increased by 25.5%; and in LLC "NIKA-TRANS Ukraine," it increased by 2.8% (from 2021–2023).

In a marketing study on consumer satisfaction and loyalty, each MTE surveyed a selected target group of consumers to assess the number of loyal customers, complainers, and the level of satisfaction with key criteria of motor transport services, including quality, reliability, on-time performance, pricing, and customer orientation. The aggregated consumer survey data from MTEs, specifically the weighted average importance of each criterion (Si; on a scale from 1 to 5 points) and the weighted average satisfaction level for each criterion (SSt), are presented in Table 4. The consumer satisfaction index was calculated based on these data using the corresponding formula [2]. The table provides an overview of key satisfaction criteria for motor transport services and the weighted average satisfaction score per 100 surveyed consumers.

For example, in 2019, at "Transport Systems" LLC, the quality and reliability of transport services were rated by respondents as the most significant criteria, receiving the highest score of 5 points (Si). The weighted average satisfaction levels per 100 respondents (SSt) for these criteria were 0.6 and 0.7, respectively (with a maximum of 1). Thus, as shown in Table 6, the consumer satisfaction index of "SOTA-IF" LLC more than doubled between 2019 and 2023, while at "Horyzont-SM" LLC, it increased by 68%, at "Transport Systems" LLC, it increased by 53.6%, and at "NIKA-TRANS Ukraine" LLC, it increased by 29.4% (from 2021-2023).

Thus, in the marketing direction of customer loyalty and satisfaction, the most successful partnership indicators are demonstrated by "SOTA-IF" LLC, followed by "Horyzont-SM" LLC and "Transport Systems" LLC; the least successful results are observed in "NIKA-TRANS Ukraine" LLC.

The next step in analyzing the business partnership between MTEs and end consumers is to examine market penetration depth, which involves calculating two key indicators: the rate of market share change and the degree of customer interaction (Table 6). To calculate the rate of market share change, we used the formula that relates the difference between market shares in the reporting and base years to the share in the base year [2]. The market share growth rate of "SOTA-IF" LLC increased from 12.5% to 33% between 2019 and 2023, representing a 2.64-fold growth. "Horyzont-SM" LLC expanded its market share from 0% to 11%, while "Transport Systems" LLC increased this indicator by 8.5 times. In 2022–2023, "NIKA-TRANS Ukraine" LLC grew its market share from 0% to 20%, demonstrating the most impressive growth rate within a short timeframe.

To determine the degree of customer interaction, it is necessary to apply the methodology presented in our publication [2], which involves calculating the ratio of the sum of customer partnership duration and market presence duration to the product of market presence duration and the number of customers. "SOTA-IF" LLC recorded a 63.3% increase in the degree of customer interaction from 2019–2023, while "Horyzont-SM" LLC showed a 22.2% increase. "Transport Systems" LLC maintained this indicator at the same level, whereas "NIKA-TRANS Ukraine" LLC improved customer interaction by 32.7% from 2021–2023. Thus, the most effective customer interaction in terms of depth of engagement was observed in "SOTA-IF" LLC, whereas the highest market share growth rates were demonstrated by "NIKA-TRANS Ukraine" LLC, which increased its market share from 0% to 20% in one year, and "Transport Systems" LLC, which expanded its market share 8.5 times between 2019 and 2023.

Table 3

Indicators of business partnership efficiency with end consumers (direction: marketing, interaction costs)[6]

Year	Pre-contract costs	Support costs	Negotiation costs	Costs compliance criteria measurement procedures	Contract formation costs	Costs contract terms and rights protection monitoring	Interaction costs (total expenses), thousand UAH
"SOTA-IF" LLC							
2019	76.1	100.0	25.0	25.0	50.0	100.0	376.1
2020	51.5	90.0	10.0	20.0	80.0	200.0	451.5
2021	0.8	9.0	8.0	5.0	3.0	4.0	29.8
2022	41.4	50.0	10.0	30.0	20.0	40.0	191.4
2023	33.2	30.0	10.0	10.0	5.0	5.0	93.2
"Horyzont-SM" LLC							
2019	132.0	10.1	40.0	25.0	12.0	13.0	232.1
2020	94.7	50.0	60.0	30.0	20.0	40.0	294.7
2021	42.2	40.0	30.0	15.0	8.0	7.0	142.2
2022	26.0	60.0	40.0	10.0	30.0	20.0	186.0
2023	40.0	20.0	20.0	40.0	30.0	30.0	180.0
"Transport Systems" LLC							
2019	61.0	100.1	250.0	50.0	400.0	200.0	1061.1
2020	84.6	200.0	200.0	100.0	500.0	400.0	1484.6
2021	85.1	400.0	200.0	200.0	500.0	300.0	1685.1
2022	64.9	500.0	300.0	200.0	800.0	700.0	2564.9
2023	120.5	500.0	400.0	300.0	1300.0	1000.0	3620.5
"NIKA-TRANS Ukraine" LLC							
2019	-	-	-	-	-	-	0
2020	-	-	-	-	-	-	0
2021	4.4	30.0	20.0	40.0	35.0	5.0	134.4
2022	12.8	50.0	20.0	40.0	25.0	5.0	162.8
2023	18.8	30.0	20.0	20.0	25.0	5.0	118.8

Source: Prepared by the authors based on data obtained from MTE

We now analyze the efficiency indicators of MTE partnerships in the leasing, insurance, and subcontracting relations direction (Table 7).

"SOTA-IF" LLC increased its leasing profitability from 0.96 to 1.09, reflecting a 13.5% growth. "Horyzont-SM" LLC improved by 21.4%, "Transport Systems" LLC achieved a 2.7-fold increase, and "NIKA-TRANS Ukraine" LLC demonstrated the best performance, with an 8-fold increase between 2021 and 2023. "Transport Systems" LLC showed the greatest increase in efficiency of subcontracting relations (6.7%), followed by "SOTA-IF" LLC (by 2%). "Transport Systems" LLC experienced a decline of 18%, while "NIKA-TRANS Ukraine" LLC remained virtually unchanged. Regarding insurance efficiency, an increase was observed only in "SOTA-IF" LLC (by 5.4%). In contrast, "Horyzont-SM" LLC recorded a 5.7% decline, and "Transport Systems" LLC experienced a 5.6% decrease.

To calculate the total gross leasing expenses, we applied the formula that multiplies the leasing cost per unit of single vehicle by the total number of units in the entire operational fleet. Data on the number of vehicles in the fleets and the leasing costs from 2019–2023 are provided in Table 8.

[6] Interaction costs with customers are not separately reported in accounting records; however, they are included in the total gross expenses and consist of pre-contract costs, support costs, negotiation costs, costs of compliance criteria measurement procedures, contract formation costs, and costs of monitoring and rights protection. The breakdown of these expense categories was provided by the enterprises in response to our request.

Table 4

Indicators of business partnership efficiency with end consumers (direction: marketing, customer loyalty, and satisfaction)

Year	Purchases (orders) quantity	Subsequent (orders) quantity	Total number of respondents	Number of supporters (P)	Number of opponents (K)	Satisfaction index	Loyalty level	Loyalty index (%P - %K)
"SOTA-IF" LLC								
2019	120	92	48	40 (83%)	8 (17%)	1.9	0.77	66
2020	90	80	36	32 (89%)	4 (11%)	2.1	0.89	78
2021	60	52	28	26 (93%)	2 (7%)	2.8	0.87	86
2022	96	88	40	37 (92.5%)	3 (7.5%)	3.6	0.92	85
2023	78	72	34	32 (94%)	2 (6%)	4.1	0.92	88
"Horyzont-SM" LLC								
2019	160	128	64	56 (87.5%)	8 (12.5%)	2.5	0.80	65
2020	140	130	58	52 (90%)	6 (10%)	2.9	0.93	80
2021	126	122	47	39 (83%)	8 (17%)	3.4	0.97	66
2022	132	128	52	49 (94%)	3 (6%)	4.0	0.97	88
2023	150	141	51	47 (92%)	4 (8%)	4.2	0.94	84
"Transport Systems" LLC								
2019	428	412	168	142 (84.5%)	26 (15.5%)	2.8	0.96	69
2020	446	440	171	150 (88%)	21 (12%)	3.0	0.99	76
2021	488	452	172	155 (90%)	17 (10%)	3.7	0.93	80
2022	560	520	158	142 (90%)	16 (10%)	4.3	0.93	80
2023	630	592	182	170 (93.4%)	12 (6.6%)	4.3	0.94	86.6
"NIKA-TRANS Ukraine" LLC								
2019	0	0	-	-	-	-	-	-
2020	0	0	-	-	-	-	-	-
2021	82	74	14	10 (71.4%)	4 (28.6%)	1.7	0.90	42.8
2022	90	82	22	18 (82%)	6 (18%)	2.0	0.91	64
2023	80	78	18	13 (72%)	5 (28%)	2.2	0.98	44

Source: Prepared by the authors based on data obtained from MTE

Table 5

Consumer satisfaction index of enterprises from 2019-2023 (Satisfaction Index, SI)

Year	Quality		Reliability		On-time performance		Price		Customer orientation		SI Max=5
	Si	SSt	Si	SSt	Si	SSt	Si	SSt	Si	SSt	
"SOTA-IF" LLC											
2019	4	0.5	5	0.6	3	0.6	4	0.5	3	0.2	1.9
2020	4	0.6	4	0.7	3	0.7	5	0.5	3	0.3	2.1
2021	5	0.7	4	0.8	4	0.7	5	0.6	3	0.5	2.8
2022	5	0.8	5	0.8	5	0.8	4	1.0	4	0.5	3.6
2023	5	0.9	5	0.9	5	0.9	4	1.0	5	0.6	4.1
"Horyzont-SM" LLC											
2019	4	0.6	4	0.6	5	0.5	5	0.6	4	0.5	2.5
2020	5	0.8	4	0.7	4	0.5	5	0.8	3	0.6	2.9
2021	4	0.9	4	0.8	5	0.7	5	0.9	3	0.7	3.4
2022	5	0.9	5	0.8	5	0.8	5	0.9	4	0.7	4.0
2023	5	0.9	5	0.9	5	0.8	5	1.0	5	0.6	4.2

“Transport Systems” LLC											
2019	5	0.6	5	0.7	3	0.8	4	0.9	3	0.5	2.8
2020	5	0.7	4	0.8	4	0.8	5	0.8	2	0.6	3.0
2021	5	0.8	4	0.8	5	0.9	5	0.9	3	0.7	3.7
2022	5	0.9	5	0.9	5	0.9	5	1.0	4	0.8	4.3
2023	5	0.9	5	0.9	5	0.9	5	1.0	4	0.8	4.3
“NIKA-TRANS Ukraine” LLC											
2019	-	-	-	-	-	-	-	-	-	-	-
2020	-	-	-	-	-	-	-	-	-	-	-
2021	5	0.4	5	0.3	5	0.3	4	0.5	3	0.5	1.7
2022	5	0.5	5	0.3	5	0.5	4	0.5	3	0.5	2.0
2023	5	0.4	5	0.4	5	0.4	5	0.6	4	0.5	2.2

Source: Calculated by the authors based on survey data from a target group of 100 consumer respondents, carried out by the MTEs from 2019–2023

To further assess the depth of client relationships, we employed the customer interaction degree, which reflects the depth and duration of customer relationships. It is calculated by combining the length of customer partnerships with market presence duration, relative to the total number of customers.

Table 6

Indicators of business partnership efficiency with end consumers (direction: market penetration)

Year	Market share in the base period	Market share in the reporting period	Customer partnership duration, years	Market presence duration, years	Number of customers	Market share (change rate) %	Customer interaction degree
“SOTA-IF” LLC							
2019	0.008	0.009	5	6	60	12.5	0.030
2020	0.009	0.010	6	7	45	11.0	0.041
2021	0.010	0.009	7	8	30	-10	0.063
2022	0.009	0.009	8	9	48	0.00	0.039
2023	0.009	0.012	9	10	39	33.0	0.049
“Horyzont-SM” LLC							
2019	0.011	0.011	19.5	20	72	0.00	0.027
2020	0.011	0.009	20.5	21	65	-18.0	0.030
2021	0.009	0.009	21.5	22	54	0.00	0.037
2022	0.009	0.009	22.5	23	57	0.00	0.035
2023	0.009	0.010	23.5	24	60	11.0	0.033
“Transport Systems” LLC							
2019	0.148	0.150	14.5	16	204	1.3	0.009
2020	0.150	0.155	15.5	17	210	3.3	0.009
2021	0.155	0.156	16.5	18	207	0.6	0.009
2022	0.156	0.262	17.5	19	198	68.0	0.010
2023	0.262	0.290	18.5	20	210	11.0	0.009
“NIKA-TRANS Ukraine” LLC							
2019	-	-	0	0	0	-	-
2020	-	-	0	1	0	-	-
2021	0.000	0.001	1	2	27	-	0.055
2022	0.001	0.001	2	3	30	000	0.055
2023	0.001	0.0012	3	4	24	20.0	0.073

Source: Prepared by the authors based on data obtained from MTEs

Table 7

Indicators of business partnership efficiency with lessors and contractors (direction: leasing relations, insurance, and subcontracting)

Years	Total gross profit received, thousand UAH	Total gross leasing expenses, thousand UAH	Leasing profitability	Profit from subcontracting resource realization, thousand UAH	Total expenses for contract execution	Contracting efficiency	Insurance payments, thousand UAH	Insurance compensation	Efficiency Insurancея
"SOTA-IF" LLC									
2019	4597.10	4800.0	0.96	1762.6	662.8	2.66	10.1	14.8	1.47
2020	3027.80	3783.0	0.80	1490.5	580.5	2.57	14.5	16.6	1.14
2021	1542.30	2546.0	0.60	1890.5	780.4	2.42	0.2	0.24	1.20
2022	2142.70	4768.0	0.45	1290.6	480.6	2.69	25.2	37.8	1.50
2023	4247.60	3879.2	1.09	1680.8	620.2	2.71	23.6	36.5	1.55
"Horyzont-SM" LLC									
2019	6462.4	5760.0	1.12	2440.8	825.5	3.0	101.0	142.0	1.41
2020	5313.7	6305.0	0.84	2120.4	792.3	2.7	101.1	142.2	1.41
2021	2793.0	4582.8	0.61	1940.6	722.4	2.7	110.6	148.5	1.34
2022	18 359.5	5662.0	3.24	2660.0	862.4	3.1	112.0	154.6	1.38
2023	8106.2	5968.0	1.36	2890.6	890.2	3.2	119.1	158.8	1.33
"Transport Systems" LLC									
2019	-971.6	16 320.0	-	5660.8	1464.4	3.9	0.00	0.00	-
2020	9400.0	17 654.0	0.53	6840.7	1620.5	4.2	26.9	38.8	1.44
2021	16 732.9	17 567.4	0.95	7434.5	1925.5	3.9	34.2	42.2	1.23
2022	43 647.8	19 668.0	2.22	12 670.5	3880.2	3.3	50.6	74.9	1.48
2023	29 461.0	20 888.0	1.41	16 680.2	5200.6	3.2	79.9	108.8	1.36
"NIKA-TRANS Ukraine" LLC									
2019	-	-	-	-	-	-	-	-	-
2020	-	-	-	-	-	-	-	-	-
2021	800.00	2291.4	0.35	245.5	86.6	2.8	-	-	-
2022	6566.4	2980.0	2.20	1890.0	644.6	2.9	-	-	-
2023	6783.0	2387.2	2.84	1920.0	680.5	2.8	-	-	-

Source: Prepared by the authors based on financial statements and other data obtained from MTEs.

As shown in Table 8, "SOTA-IF" LLC optimized its leasing expenses by 19.2% due to a reduction in the fleet of truck combinations from 20 to 13, despite an increase in the leasing cost per vehicle from UAH 240,000 to UAH 298,400. In "Horyzont-SM" LLC, leasing expenses increased slightly (by 3.6%), while in "Transport Systems" LLC, they increased by 28%. "NIKA-TRANS Ukraine" LLC experienced a 4.2% increase in leasing expenses from 2021–2023.

In analyzing the efficiency of partnerships with banks, we identified two key indicators for assessing the credit relations efficiency of MTE borrowers: net profit per borrowed credit amount and crediting efficiency (Table 9). The net profit per borrowed credit amount was determined based on data on operating profit (Pro), total credit amount (C), total interest paid (i), and total current assets (At). Using the formula: Pr c net = (Pr0/At)*C – i, we calculated the net profit per borrowed credit amount. In "SOTA-IF" LLC, this indicator declined by 8.3 times.

We now analyze the efficiency of partnerships in the direction of digitalization and automation of MTE business processes. Table 10 presents the data required to calculate the profitability of digitalization and automation. The digital transformation of these business processes was assessed based on how quickly new technologies and automated systems are implemented and to what extent they may increase or complicate employee productivity and accelerate or slow down operations.

Table 8

Companies' data on leasing and its expenses

Year	Leasing expenses per vehicle, thousand UAH	Number of vehicles (truck combinations)	Gross leasing expenses
"SOTA-IF" LLC			
2019	240.00	20	4800.0
2020	252.20	15	3783.0
2021	254.60	10	2546.0
2022	298.00	16	4768.0
2023	298.40	13	3879.2
"Horyzont-SM" LLC			
2019	240.00	24	5760.0
2020	252.20	25	6305.0
2021	254.60	18	4582.8
2022	298.00	19	5662.0
2023	298.4	20	5968.0
"Transport Systems" LLC			
2019	240.00	68	16 320.0
2020	252.20	70	17 654.0
2021	254.60	69	17 567.4
2022	298.00	66	19 668.0
2023	298.4	70	20 888.0
"NIKA-TRANS Ukraine" LLC			
2019	0	0	0
2020	0	0	0
2021	254.60	9	2291.4
2022	298.00	10	2980.0
2023	298.4	8	2387.2

Source: Prepared by the authors based on data obtained from MTEs

Table 9

Business partnership efficiency indicators with banks (direction: credit relations)

Years	Total operating profit	Total own and borrowed capital invested in current assets	Including short-term bank loans	Profit amount per borrowed credit	Total interest paid	Net profit per borrowed credit amount	Credit efficiency
"SOTA-IF" LLC							
2019	1699.00	4519.9	737.1	277.07	132.68	144.39	1.09
2020	1493.90	4898.9	423.8	129.24	29.67	99.57	3.36
2021	1065.80	9337.9	1249.0	142.56	87.43	55.13	0.63
2022	2036.80	20 007.5	562.2	57.24	39.35	17.89	0.45
2023	3811.00	26 987.5	341.0	48.15	30.69	17.46	0.57

Source: Calculated by the authors based on credit data obtained from "SOTA-IF" LLC

Company managers evaluated the following labor productivity indicators: the number of tasks completed by workers within a specified period and the amount of time spent on task execution, both "before" and "after" the implementation of artificial intelligence. Based on these indicators, managers of "SOTA-IF" LLC estimated that the share of profit from digitalization and automation in total gross profit was 10%, while in "Horyzont-SM" LLC, it was 20%, in "Transport Systems" LLC, it was 60%, and in "NIKA-TRANS Ukraine" LLC, it was 5%. Accordingly, using the "digital" profit share in the gross profit of MTEs, it is possible to calculate total profit generated from digitalization and automation, as well as their respective profitability. At "SOTA-IF" LLC, the profitability of digitalization and automation declined by 8.4% and 10%, respectively, from 2019–2023. Conversely, "Horyzont-SM" LLC recorded increases of 42.7% and 26.7%, respectively. At "Transport Systems" LLC, these

indicators declined by 26.5% and 29.2% from 2020–2023**. At "NIKA-TRANS Ukraine" LLC, the profitability of digitalization increased by 59.6% from 2021–2023, whereas the profitability of automation declined by 29.6%.

4. CONCLUSIONS

Based on the analysis of financial statements of MTEs, formulating a clear financial performance plan for the future is challenging due to the unstable nature of enterprise development dynamics. Notably, the profitability growth trends of "SOTA-IF" LLC and "Horyzont-SM" LLC show a declining development path, primarily due to the rising cost of services and operations, which poses a potential risk of financial losses for MTEs. Because of the complexity of defining a precise financial performance plan resulting from business partnerships, it is advisable to conduct a correlation analysis to examine the relationship between business partnership efficiency indicators and the financial performance of MTEs from 2019–2023.

The applied analysis of business partnerships in MTEs should be implemented by monitoring dynamics and conducting a factor analysis of the impact of business partnership efficiency indicators on profit and profitability. The applied analysis revealed divergent and ambiguous effects of business partnership efficiency indicators on the financial performance of MTEs, highlighting the need for a more comprehensive evaluation of influencing factors.

Table 10

Business partnership efficiency indicators in digitalization and automation of business processes

Years	Total gross profit received	Total profit generated from digitalization and automation	Digitalization expenses, thousand UAH	Transactions with IT service, telecom, internet providers, (automation)	Profitability of digitalization	Profitability of automation
"SOTA-IF" LLC						
2019	4 597.10	459.7	95.5	88.4	4.8	5.2
2020	3027.80	302.8	54.6	50.2	5.5	6.0
2021	1542.30	154.2	26.2	22.9	5.9	6.7
2022	2142.70	214.3	44.8	42.2	4.8	5.1
2023	4247.60	424.8	95.8	90.5	4.4	4.7
"Horyzont-SM" LLC						
2019	6462.4	1292.5	144.4	150.0	8.9	8.6
2020	5313.7	1062.74	129.2	139.0	8.2	7.6
2021	2793.0	558.6	56.0	58.0	10.0	9.6
2022	18359.5	3671.9	320.2	280.8	11.4	13.1
2023	8106.2	1621.24	128.0	149.0	12.7	10.9
"Transport Systems" LLC						
2019	-971.6	-582.96	5670.6	2370.2	-	-
2020	9400.0	5640.0	6800.0	4800.0	0.83	1.2
2021	16732.9	10 039.74	14 450.0	12 500.5	0.69	0.8
2022	43647.8	26 188.68	32 820.5	28 860.6	0.80	0.91
2023	29461.0	17 676.6	28 755.6	20 778.0	0.61	0.85
"NIKA-TRANS Ukraine" LLC						
2019	-	-	-	-	-	-
2020	-	-	-	-	-	-
2021	800.00	40.0	8.5	5.6	4.7	7.1
2022	6566.4	328.32	40.2	60.2	8.2	5.5
2023	6783.0	339.15	45.2	67.8	7.5	5.0

Source: Calculated by the authors based on data obtained from MTEs

Not all business partnership efficiency indicators have the same impact on the dynamics of net profit and profitability. For example, in one of the analyzed enterprises, transport rhythm, fixed asset utilization rate, customer satisfaction, on-time performance, and insurance efficiency drive a consistently strong positive influence on net profit dynamics and profitability (correlation coefficients ≥0.7). A notable paradox was also identified: the accuracy of plan realization has a strong negative correlation with net profit and profitability. At the same time, partnership efficiency indicators such as loyalty level, loyalty index, and market share positively impact net profit, but no significant correlation with profitability was detected. Additionally, credit efficiency, digitalization, and automation have a significant negative impact on profitability (correlation coefficients ≤ -0.7), although their effect on net profit is less considerable.

Based on the current findings, a system of efficiency metrics was developed to assess the effectiveness of business partnerships in the road transport industry, offering considerable practical value and applicability across different market players.

In particular, the developed metrics allow for

1) suppliers and intermediate consumers – to refine contractual policies, enhance operational coordination, and reduce collaboration-related risks
2) end customers – to evaluate critically service quality and make informed decisions regarding the rational choice of transport service providers
3) lessors and contractual partners – to monitor obligation fulfilment, efficiency of asseti use, and justification for extending the partnership
4) banking institutions – to conduct more in-depth assessments of corporate reliability when making financial decisions.

Thus, the present results contribute to enhancing the transparency, resilience, and operational effectiveness of business relationships within the transport sector.

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