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ASSESSMENT OF THE ENTERPRISE INTERNALIZATION LEVEL

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The article is focused on the assessment of the enterprise internalization level grounded on its export activity. It quantitatively indicates the extent of participation in international economics and the number of exporting partner countries, which characterize the scale and quality of enterprise's international cooperation. Moreover, the price determinant is used, as it affects the international market entry and competitiveness. The indicators to evaluate the enterprise level of internationalization reflect this process, i.e. the volume of exports, the number of exporting partner-countries, the price level. The research toolkit includes analytical dependencies to estimate average values of indicators, matrix method to group enterprises with different values of internationalization indicators, as well as the index method to calculate the enterprise internationalization index. To measure the significance level of each indicator, weighting is used, as the indicators' adjustment can estimate the contribution of each indicator to the internationalization boosting. Depending on the internationalization index value, we spell out the further business strategy: "maintaining positions," "further expansion," "urgent actions." In the study we have proved the impact of the enterprise level of internationalization on its development and growth, which is reflected in ranking scores. Based on the internationalization indicators of 5 enterprises, which occupy the first ranks among grain exporters in Ukraine, we have measured the direct correlation between the level of internationalization and enterprise development (ranking scores).

ОЦІНКА РІВНЯ ІНТЕРНАЦІОНАЛІЗАЦІЇ ПІДПРИЄМСТВА

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Ключові слова:
підприємство, інтернаціоналізація, міжнародна діяльність, стратегія, матричний метод, групування.

Концентрується увага на оцінюванні рівня інтернаціоналізації на основі експортної діяльності підприємства, що кількісно є показником рівня залучення у світогосподарські зв'язки та кількістю країн-партнерів у експорті, що свідчить про масштаби та якість міжнародної співпраці підприємства. Також нами використовується ціновий чинник, який має значний вплив на можливість виходу підприємства на міжнародний ринок зі своєю продукцією. Показники для оцінки рівня інтернаціоналізації підприємств відображають цей процес, тобто обсяг експорту, кількість країн-партнерів-експортерів, рівень цін. Інструментарій дослідження включає аналітичні залежності для оцінки середніх значень показників, матричний метод для групування підприємств з різними значеннями показників інтернаціоналізації, а також індексний метод для обчислення індексу інтернаціоналізації підприємства. Для вимірювання рівня значущості кожного показника використовується зважування, оскільки коригування індикаторів може оцінити внесок кожного показника в посилення інтернаціоналізації. Залежно від значення індексу інтернаціоналізації, ми окреслюємо подальшу стратегію бізнесу: "збереження позицій", "подальше розширення", "невідкладні дії". У дослідженні ми довели вплив рівня інтернаціоналізації підприємства на його розвиток та зростання, що відображається на рейтингових балах. На основі показників інтернаціоналізації 5 підприємств, які займають перші місця серед експортерів зерна в Україні, ми виміряли пряму кореляцію між рівнем інтернаціоналізації та розвитком підприємств (рейтингові бали).

Statement of the problem

Today deepening of internationalization for any enterprise, taking part in foreign economic activity, arises a problem of survival and ensuring the continuous development. Enterprises solve these problems differently. To determine the ways of solving the problem, it is necessary to provide enterprise business analysis amid world market internationalization.

World economy's internationalization is accompanied by the gradual "disappearance" of economic boundaries' between countries; the dynamic characteristics of the competitive environment are observed; the socio-cultural environment is getting more complicated. Hence, working out new determinants of economic development, and, accordingly, the formation of modern international priorities of marketing activity, are of particular importance for enterprises. Eventually, the product promotion to the world market enables to expand markets for the producer and to increase its income. Besides, this will positively affect both a business entity itself and the country in general.

To our knowledge, there is a need to assess the enterprise internationalization level to determine the further international market strategy. This is what we would like to present in this manuscript.

The motivation for our work is the higher level of economic openness and intensification of international activity, which spur enterprises to find new markets and improve business performance. Recognizing the complexity of entering into international markets, it is necessary to define clearly the level of enterprise involvement in the world economic processes. That is, in the general sense, the assessment of internationalization level is the basis for developing strategy for activities in a particular market. There are the following strategy types: "maintaining positions," "further expansion," "urgent actions."

Analysis of recent studies and publications

The initial process of internationalization is explained in "Uppsala model." J. Vahlne, J. Johanson examined the starting point of globalization and its evolution. L. Hakanson and P. Kappen [1] developed the model of internationalization called "Casino Model." The model discovers a set of problems regarding internationalization and the peculiarities of decision-making amid uncertainty. G. Santangelo, K. Meyer [2] emphasized non-linear and discrete nature of internationalization, which complicates doing business abroad.

To substantiate the necessity of deepening globalization, it is necessary to define its part doing business and contribution in the future development. Q.T. Long and T.D. Thi [3] have proved by means of regression analysis the dependence between the level of internationalization and its growth, reflected in higher employment rate and labour productivity. Moreover, the scholars made a conclusion that permanent participation in internationalization activity leads to more considerable growth rate than discrete interaction.

The findings obtained by Z. Chao [4] indicate the correlation between the globalization rate and enterprise's productivity and size. Correlation between the level of globalization and enterprise's size was analysed by G. Qian, L. Li and Z. Qian [5], who proved in their study that small business' level of internationalization depends on its industry's development dynamics and scarcity of resources. M. McCornick, S. Fernhaber [6] proved the hypothesis of small business' lower propensity to internationalization in case of reaching the development peak in comparison with those, which have not exhausted the potential capabilities and have, prospects of the further growth. Besides, H. Fariborzi and M. Keyhani [7] found out that recognizing the necessity of globalization (early internationalization) spurs the expansion of business opportunities to survive more than late internationalization. J. Pinho, L. Martins, A. Soares [8] determined small business potential to internationalization based on the analysis of innovativeness, competitiveness, technical and technological levels.

Studying the performance of Chinese enterprises H. Liu, J. Luo, V. Cui [9] determined that the higher level of enterprise internationalization is, the lower volume of domestic investment is. That is, the more Chinese enterprises depend on foreign markets, the less support they get from the government, so they are not inclined to invest in the development of China.

Studies of the entrepreneur type effects on enterprise internationalization are interesting too. J.E. McHenry and D.E. Welch [10] demonstrated the role of personality in the intensification process of the enterprise internationalization. The similar conclusion was made by P. Li [11], who identified the top-managers' features impact, including international market knowledge, work experience, level of enterprise internationalization.

Of course, before entering into a new international market, the firm must figure out the sources of its advantages over others. It is necessary to analyse country's peculiarities too. This direction of research is discovered by A. Yaprak, T. Yosun and D. Cetindamar, who identified the motives for enterprises internationalization: product prices, inexpensive labour force, access to rapid learning and certain industry's development. Besides, the scholars revealed the characteristics of the country, which contribute to the deepening of internationalization: the home-government situation, logistical advantages arising from geographical position, adaptability.

S. Rodrigues, M. Dieleman [12] regard internationalization as a way to widen autonomy and independence, as well as to diminish the state regulation.

S. Beugelsdijk, T. Kostova and V. Kunst [13] analysed culture effect on the level of internationalization. The scholars proved that enterprises are less likely to expand to culturally distant locations, but if they do, they prefer to integrate subsidiaries more through transfer of management practices.

The analysis of applied studies' literature review concerning the internationalization influence on the enterprise development and growth proves the ambiguity of this process. Nevertheless, when making a decision about entering into a foreign market, the enterprise should consider the peculiarities of the host country and own comparative advantages.

We propose the following hypotheses for testing: H1 – internationalization affects the enterprise development and growth; H2 – the higher export is in terms of the number of markets, the greater the level of internationalization is; H3 – the higher the level of internationalization is, the better ranking position.

Objectives of the article

The objective of the study is the assessment of the enterprise internalization level to determine real opportunities for international business and to create its future strategy.

The main material of the research

Research methods

The matrix methods to evaluate the level of internationalization have been used. These methods are used for market evaluation of enterprise performance. The methodology is based on two-dimensional arrays, which are built on the principle of a coordinate system. The abscissa and the ordinate axes reflect adjustments of two competitiveness factors, which in turn have a direct relationship and influence on one another. The first indicator denotes the quantitative level of internationalization, the second indicates qualitative one, as it allows to define geographical diversification. The next step is to calculate the average value for enterprises as a whole. For this, we use the formula of the geometric mean, which allows to consider low and high values of the indicator, because high values harmonize low ones. This reduces the level of calculations' objective probability and their adequacy. The formula for the indicator's geometric mean would be:

$$\overline{X_i} = \sqrt[N]{\prod_{i=1}^{N} X_i}, \quad (1)$$

where: $\overline{X_i}$ – geometric mean of $i-$ indicator; N – number of the studied enterprises; $\prod_{i=1}^{N} X_i$ – values` product of the $i-$ indicator of the studied enterprises.

Hypothesis H_2 is the following: The higher export is in terms of the number of markets, the greater the level of internationalization is.

Based on the calculations, we have created the matrix (Table 1) with 4 quadrants: the first matrix quadrant: export share is higher than average and the number of countries where the products are exported is higher than average; the second matrix quadrant: export share is lower than average and the number of countries where the products are exported is higher than average; the third matrix quadrant: export share is lower than average and the number of countries where the products are exported is lower than average; the fourth matrix quadrant: export share is higher than average and the number of countries where the products are exported is lower than average.

Table 1 – The matrix of the internationalization level assessment

	export share is higher than average	***export share is lower than average***
Column 1	**Column 2**	**Column 3**
number of countries where products are exported is higher than average	I quadrant	II quadrant
number of countries where products are exported is lower than average	IV quadrant	III quadrant

Source: own elaboration

If an enterprise is in the first quadrant of the internationalization level assessment matrix, then the hypothesis is confirmed, since the company has not only a significant share of exports, but also the number of foreign markets. If an enterprise is in the second quadrant, then it is necessary to analyse precisely the countries where the products are exported and conditions offered by the enterprise, products' price, to identify reasons caused the low share of exports and improve these components in order to increase exports to the export partner countries. If an enterprise is in the third quadrant, its main task is to form the environment to increase export volume and to find new foreign markets. If an enterprise is in the fourth quadrant, its main task is to find new foreign markets for export diversification and diminishing potential risks. Based on the defined indicators we create the general matrix (Table 2).

Table 2 – The general matrix of the studied enterprises' internationalization level assessment

Internationalization	***Indicators of internationalization***			
	Column 1	**Column 2**	**Column 3**	**Column 4**
	level	Share of export	Number of markets	Price level
	High	growth, development, maintaining positions	growth, development, maintaining positions	Improvement of terms of export based on the price-making policy revision
	Average	growth, development, maintaining positions	Consider opportunities to find new foreign markets	Improvement of terms of export based on the price-making policy revision
	Low	Export diversification to increase its volume and share	to find new foreign markets	Improvement of terms of export based on the price-making policy revision

The matrix can be created for every enterprise to identify its exporting internationalization strategy:

– the strategy of "maintaining positions" – high level of internationalization: growth and maintaining competitive advantages;
– the strategy of "further expansion" – average level of internationalization: consider opportunities to find new foreign markets and to improve export terms in order to enhance competitiveness;
– the strategy of "urgent actions" ("Shock therapy") low level of internationalization: looking for new markets and export terms improvement based on the price-making policy revision.

Besides, based on these indicators we propose the definition of the enterprise general internationalization index.

Taking into consideration that the contribution of the proposed indicators to the development of international and foreign economic relations may be different, then for each internationalization indicator, it is necessary to determine the weighting coefficient (coefficient of significance).

Table 3 represents the possible values of the weighting coefficients of each indicator.

Table 3 – Weighting coefficients` values of the internationalization level indicators

Indicator	***Share of export, %***	***Markets, number***	***Price level, hrn***
Column 1	**Column 2**	**Column 3**	**Column 4**
Weighting coefficient	0,4	0,35	0,25

Source: own study

The formula to determine index of internationalization:

$$I_i^{\text{ІП}} = \sqrt[m]{\sum_{j=1}^{m}\left(\frac{a_j x_{ij}}{\max\limits_j(a_j x_{ij})}\right)}, \quad (2)$$

where:

x_{ij} –value of $j-$ indicator of the internationalization indicator of $i-$ enterprise;

a_j –weighting coefficient of $j-$internationalization indicator, $j=\overline{1,m}$

Formula (2) contains the operation of summation, which is equivalent to the operation of disjunction ("or"), i.e. low values are harmonized by high one.

The modified formula can also be used:

$$I_i^{\text{ІП}} = \sqrt[m]{\prod_{j=1}^{m}\left(\frac{a_j x_{ij}}{\max\limits_j(a_j x_{ij})}\right)}. \quad (3)$$

Formula (3) contains the operation of multiplication, which is equivalent to the operation of conjunction ("and"). It simultaneously takes into account the values of the indicators, and does not cause the compensation of low values by higher ones.

It should be noted, that application of the proposed approach allows us to adjust weighting coefficients of indicators and take into account the contribution of each of them to the level of internationalization, that is, to analyse changes in the internationalization index (rise or decrease) with the weighting coefficients change. Thus, we conclude the contribution of each indicator to the enterprise level of internationalization and determine the strategy for further action to enhance the level of internationalization.

Analysis/study/results

Matrix methods are based on the matrix, i.e. the table of sets of elements arranged in rows and columns. The approach is applied to assess the level of internationalization using the case of agribusiness enterprises: LLC "NIBULON" and its closest competitors in the domestic market (TOP 5 – five top leaders) during the 2016/2017 marketing year. The indicators used for the assessment are the share of agricultural products' export and number of exporting countries. We present the data in Table 4.

Table 4 – Share of grain export of the agro-industrial complex enterprises and number of export partner-countries, 2016/2017 MY (marketing year)

№	***Enterprise***	***Export share, %***	***Number of exporting countries***
Column 1	**Column 2**	**Column 3**	**Column 4**
1	LLC "NIBULON"	9,3	64
2	Kernel Holding	7,2	60
3	PJSC "SFGCU"	5,5	30
4	Cargill	4,0	59
5	Louis Dreyfus Ukraine Ltd	2,4	53
Average value (geometric mean)		5,1	51

Source: own calculations based on data from the [http://propozitsiya.com/reyting-ukrainskih-kompaniy-eksporterov-zernovyh-v-201617-mg]

For the analysed enterprises, the matrix of the internationalization level assessment is presented in Table 5.

Table 5 – The matrix of the studied enterprises` internationalization assessment

	export share is higher than average	***export share is lower than average***
Column 1	**Column 2**	**Column 3**
number of countries where products are exported is higher than average	LLC "NIBULON" Kernel Holding	Cargill Louis Dreyfus Ukraine Ltd
number of countries where products are exported is lower than average	PJSC "SFGCU"	-

Source: own elaboration

Based on the matrix 6 analysis, we make the conclusion about partial confirmation of the hypothesis H2, which states that the higher export is in terms of the number of markets, the greater the level of internationalization is. This is true for LLC "NIBULON" and Kernel Holding. The enterprises in the second quadrant reveal, that the export share is lower than average even if a considerable number of partner countries is observed. Thus, there are miscellaneous factors affecting the level of internationalization, for instance, price levels.

The same approach can be used to assess other indicators: share of the export and average prices.

Table 6 – Share of export of the agro-industrial complex enterprises and agricultural products price index

№	***Enterprise***	***Export share***	***Price level, hrn/t***
Column 1	**Column 2**	**Column 3**	**Column 4**
1	LLC "NIBULON"	9,3	5450
2	Kernel Holding	7,2	5700
3	PJSC "SFGCU"	5,5	5400
4	Cargill	4,0	5500
5	Louis Dreyfus Ukraine Ltd	2,4	5800
Average value (geometric mean)		5,1	5568

Source: own calculations based on data from the [https://tripoli.land/traders]

The peculiarities of the proposed approach application are illustrated above. We create the matrix for the studied enterprises (Table 10).

The matrix 7 analysis shows that the lower price level is, the higher the export volume is (the third matrix quadrant - LLC "NIBULON," PJSC "SFGCU")

Table 7 – The matrix of the assessment of studied enterprises` internationalization

	export share is higher than average	***export share is lower than average***
Column 1	**Column 2**	**Column 3**
Price level higher than	Kernel Holding	Louis Dreyfus Ukraine Ltd
Price level lower than	LLC "NIBULON" PJSC "SFGCU"	Cargill

Based on the proposed approach, one can identify the strategy for the studied enterprises:

- LLC "NIBULON" and Kernel Holding have a high level of internationalization, which is proved by the considerable export share, number of foreign markets and product price level. The strategy of "maintaining positions" could be chosen for these enterprises.

- PJSC "SFGCU" and Cargill have an average level of internationalization, i.e. considerable export share and number of foreign markets, but high prices. The strategy of "further expansion" could be chosen for these enterprises.

- Louis Dreyfus Ukraine Ltd has the lowest level of internationalization in comparison with competitors. Thus, the enterprise's main tasks are to find new markets, provide export terms improvement based on the price-making policy revision. The strategy of "urgent actions" could be chosen.

Besides, based on these indicators we propose the definition of the enterprise general internationalization index.

Taking into consideration that the contribution of the proposed indicators to the development of international and foreign economic relations may be different, then for each internationalization indicator, it is necessary to determine the weighting coefficient (coefficient of significance).

Table 8 – Weighting coefficients` values of the internationalization level indicators

Indicator	***Share of export, %***	***Markets, number***	***Price level, hrn***
Column 1	**Column 2**	**Column 3**	**Column 4**
Weighting coefficient	0,4	0,35	0,25

Source: own study

To calculate the enterprise internationalization index, it is necessary to create the matrix of internationalization indicators (Table 9).

Table 9 – Data to determine the level of internationalization

№	***Enterprise***	***Share of export, %***	***Markets, number***	***Price level, hrn/t***
Column 1	**Column 2**	**Column 3**	**Column 4**	**Column 5**
1	LLC “NIBULON”	9,3	64	5450
2	Kernel Holding	7,2	60	5700
3	PJSC “SFGCU”	5,5	30	5400
4	Cargill	4,0	59	5500
5	Louis Dreyfus Ukraine Ltd	2,4	53	5800

Source: own calculations based on data from the [https://tripoli.land/traders] [http://propozitsiya.com/reyting-ukrainskih-kompaniy-eksporterov-zernovyh-v-201617-mg]

The index could be calculated according to formulas (2) and (3). Then we compare the obtained values (Table 10).

Table 10 – Calculation of the level of internationalization using the formulas (2) and (3)

№	***Enterprise***	***Level of internationalization according to formula 2.1***	***Level of internationalization according to formula 2.2***
Column 1	**Column 2**	**Column 3**	**Column 4**
1	LLC “NIBULON”	1,43	0,98
2	Kernel Holding	1,39	0,89
3	PJSC “SFGCU”	1,26	0,64
4	Cargill	1,32	0,72
5	Louis Dreyfus Ukraine Ltd	1,28	0,60

Source: own calculations based on data from the [https://tripoli.land/traders] [http://propozitsiya.com/reyting-ukrainskih-kompaniy-eksporterov-zernovyh-v-201617-mg]

The obtained results' analysis confirms that LLC “NIBULON” has significant level of internationalization, which is proved by the enterprise's leading position both in the domestic and foreign markets. This demonstrates hypothesis H_3.

Conclusions

The study findings confirmed the enterprise internationalization impact on its development and growth, which reflected its ranking scores. Providing the research of internationalization indicators of 5 top exporters we found out the direct correlation between the level of internationalization and enterprise development (ranking position). The study findings revealed that the high-scoring enterprise is the top exporter, price leader in the international market, has the biggest number of export partner-countries (LLC “NIBULON”). The other enterprises have similar dependence between the ranking score and the level of internationalization. The incorporated system of weighting coefficients shows that the volume of export as one of internationalization facets is the key indicator of internationalization. Management of weighting coefficients' system allows to consider the main enterprise characteristics and to define every indicator's contribution into its internationalization level.

References

1. Håkanson L., Kappen P. J. (2017) The 'Casino Model' of internationalization: An alternative Uppsala paradigm. Journal of International Business Studies. 48 (9), 1103-1113. doi.org/10.1057/s41267-017-0113-9 [in English].
2. Santangelo G.D., Meyer K.E. (2017) Internationalization as an evolutionary process.Journal of International Business Studies. 48 (9), 1114-1130. doi.org/10.1057/s41267-017-0119-3 [in English].
3. Long Quang Trinh, Ha Thi Thanh Doan (2018) Internationalization and the growth of Vietnamese micro, small, and medium sized enterprises: Evidence from panel quantile regressions. Journal of Asian Economics. 55, 71-83.doi.org/10.1016/j.asieco.2018.01.002 [in English].
4. Chao Z. (2018) Internationalization and performance: evidence from Chinese firms. Chinese Management Studies. 12 (1), 19-34. doi.org/10.1108/CMS-04-2017-0098 [in English].
5. Qian G., Li L., Qian Z. (2018) Interactions Among Factors Driving and Inhibiting the Early Internationalization of Small, Young Technology Enterprises. Management International Review. 58 (2), 251-280. doi.org/10.1007/s11575-017-0321-3 [in English].
6. McCormick M., Fernhaber S. Small Bus Econ (2018) Are growth expectations being met? Implications for the internationalization of micro-sized ventures. Small Business Economics. 50 (3), 591-605. doi.org/10.1007/s11187-017-9909-z [in English].
7. Fariborzi H., Keyhani M. (2018) Internationalize to live: a study of the post-internationalization survival of new ventures. Small Business Economics. 50 (3), 607-624. doi.org/10.1007/s11187-017-9910-6 [in English].
8. Pinho J. Carlos M., Martins L., Soares A. M. (2018) Small businesses' internationalization: International readiness in the context of Asian countries. Asia-Pacific Journal of Business Administration. 10 (1), 50-63. doi.org/10.1108/APJBA-05-2017-0043 [in English].
9. Liu H., Luo J., Cui V. (2018) The Impact of Internationalization on Home Country Charitable Donation: Evidence from Chinese Firms. Management International Review. 58 (2), 313-335. doi.org/10.1007/s11575-018-0343-5 [in English].
10. McHenry, Joyce E. H., Welch Denice E. (2018) Entrepreneurs and internationalization: A study of Western immigrants in an emerging market. International Business Review. 27 (1), 93-101. doi.org/10.1016/j.ibusrev.2017.05.008 [in English].
11. Li Peng-Yu (2017). Top management team characteristics and firm internationalization: The moderating role of the size of middle managers. International Business Review. 27 (1), 125-138. doi.org/10.1016/j.ibusrev.2017.05.011 [in English].
12. Rodrigues S. B., Dieleman M. (2018) The internationalization paradox: Untangling dependence in multinational state hybrids. Journal of World Business. 53 (1), 39-51. doi.org/10.1016/j.jwb.2017.08.003 [in English].
13. Beugelsdijk S., Kostova T., Kunst V. E. (2018) Cultural Distance and Firm Internationalization: A Meta-Analytical Review and Theoretical Implications. Journal of Management. 44 (1). 89-130. journals.sagepub.com/doi/10.1177/0149206317729027 [in English].