

Strategies for Sustainable Development of Companies in International Markets in the context of Digitalization

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ABSTRACT

The war conditions are forcing Ukrainian wood processing companies to review their strategies and identify new opportunities in international markets. It is important to develop business regardless of the circumstances: to be able to adapt to any conditions, whether it is a lack of resources or limited opportunities. The key aspect now is to create sustainable strategies that will allow Ukrainian companies to be flexible and competitive in international markets, strengthening their position regardless of the circumstances.

Sustainable strategies for wood processing companies in international markets are becoming a key success factor in the conditions of modern globalization. The use of digital tools can help improve the efficiency of Ukrainian wood processing companies and provide them with competitive advantages. Digital tools allow for collecting and analyzing large amounts of data about the audience, competitors, and the market in general, which helps to understand consumer needs better, predict market trends, and adapt strategies accordingly. Digital tools also help to improve communication between wood processing companies and international partners and increase interaction with them.

The study confirmed that collecting and analyzing data on potential customers and their requirements is a key step in entering new international markets. Modern digital tools greatly simplify this process, enabling fast and efficient collection, analysis, and interpretation of large amounts of data. They can provide useful insights into consumer behavior, preferences, and demand for certain goods and services. These digital tools have made it possible to process large amounts of data to prepare Ukrainian forestry enterprises for international markets. International marketing research is crucial for the successful development of an enterprise's strategy at the international level.

The markets of Poland, Germany, Austria, Italy, and Ukraine were analyzed to compare various indicators. The expert evaluation was used to calculate the scores for each market, which allowed us to determine which ones are the most attractive for Ukrainian companies specializing in wood processing and creating added value in the domestic market. The study showed that in the current environment, it is possible to increase exports of product subgroups "4407 Timber", "4408 Cladding sheets" and "4415 Cases, boxes" to the markets of Germany, Austria, and Italy. This will help many Ukrainian enterprises to resume their business activity during the second year of the war and in the post-war period.

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1. Introduction

The current stage of Ukraine's economic development is characterized by barriers and obstacles for domestic producers to enter the global markets. During the war, it is impossible to limit the scope of business activities of domestic companies to the domestic market only, as this will not allow them to fully unleash their production and marketing capabilities and be effective in the process of restoring Ukraine's wartime and post-war economy.

Moreover, access to foreign markets forces Ukrainian producers to revise their business strategies, introduce new technological processes, and improve the quality of goods and services in line with international standards, otherwise, they will not be able to compete in specific international markets.

Therefore, Ukrainian enterprises entering international markets in wartime and the post-war period is a natural process that involves long-term work related to the formation of sustainable strategies for enterprises in international markets.

The main goal of enterprises entering foreign markets is to maximize profits by exploiting economies of scale. Achieving this goal does not exhaust all elements of the motivational mechanism, which consists of the following motives:

- limited and relatively low opportunities for expanding the domestic market;
- the level of development of the domestic market, which makes it profitable to place capital abroad;
- overcoming dependence on the domestic market, seasonal fluctuations in demand, and risk dispersion;
- extension of the product life cycle;
- use of government assistance programs in place in the country or abroad;
- improving the efficiency of sales activities.

The entry of business entities into international markets is one of the important and necessary tasks of Ukrainian enterprises. According to the current legislation, they determine the volume of exports of goods based on negotiations with international partners; terms of sale; international markets to which the goods will be supplied; form management structures for these purposes; enter into contracts for the supply of goods, etc.

In the context of war, Ukrainian enterprises must build new models of presence in international markets, a new strategy that will allow businesses to develop under any conditions, with or without electricity, with or without communication, and with sufficient or minimal resources. It is currently important to develop viable strategies for companies in global markets that will allow Ukrainian businesses to be flexible and adaptive, accessible in various international markets, and able to increase their international activity under any circumstances.

Indeed, in the darkness of today's events in Ukraine, entrepreneurs and the entire business community already need to rethink the global sustainable development goals, which focus on security, peace, justice, the value of human rights, integrity, trust, and

mutual assistance. The issue is relevant to the compliance with the ethics of international business, the cessation of business activities in the aggressor's market to prevent taxes from financing the aggressor's budget.

War is always a step backward, so all businesses today are fighting for survival, demonstrating their resilience. As part of the implementation of sustainable development strategies, social projects of companies, humanitarian initiatives, and measures aimed at restoring Ukraine are becoming relevant. For domestic enterprises that had been engaged in international activities before the war, the main task was to preserve the enterprise, retain specialists, partners, and clients, and fulfill all contractual obligations to them.

In today's globalized world, the implementation of sustainable strategies is crucial for businesses aiming to thrive in international markets. The use of digital tools can help Ukrainian businesses improve their performance and secure competitive advantages. In particular, digital tools allow businesses to collect and analyze large amounts of data about their audience, competitors, and the market in general. This allows them to understand consumer needs better, anticipate market trends, and adapt strategies accordingly. In addition, digital tools allow businesses to improve their communication with the audience and increase customer engagement.

2. Theoretical Background

2.1. Literature Review

In order to formulate consistent strategies for companies operating in foreign markets, it is crucial to pay attention to current trends and market conditions. Scientists and practitioners note that to successfully operate in international markets, it is necessary to have a deep understanding of the cultural, economic, and legal characteristics of each country where the company operates (Tanasiichuk, A. (2021). However, the complete potential of digital tools in helping companies create sustainable strategies for international markets has not been fully revealed yet. These tools enable businesses to be more adaptive, competitive, and successful in the modern business environment (Kovinko, O. (2018).

Unfortunately, to date, there are few Ukrainian authors' works devoted to the use of digital technologies in an enterprise's international marketing. However, we can observe a growing interest and activity in this area, which has the potential for further development and a significant contribution to international marketing. Also, digital tools can effectively solve the problems of forming sustainable development strategies in international markets.

Different authors share different approaches and insights on this issue. Some argue that it is important to use analytical tools to collect and analyze sustainability data, while others emphasize the importance of communication and interaction tools for cooperation with various stakeholders (Oklander, M. (2017). The use of digital technologies allows the creation of more transparent and effective sustainable development strategies that take into account the needs of the present without prejudice to the future (Lukyanenko, D., Poruchnyk, A., Kolot, A., Stolyarchuk, A. (2011). The introduction of digital technologies is becoming increasingly important for the competitiveness of enterprises in the modern world. Ukrainian businesses should also use these opportunities to successfully compete in international markets (Tanasiichuk, A. (2024).

2.2. Digital marketing tools in the activation of international activities of enterprises

To start researching the possibilities of forming sustainable strategies in new international markets, it is necessary to study practical cases of using different approaches to finding and selecting new markets, such as market analysis, competitor research, demand assessment, and business expansion opportunities. Collecting and analyzing data on potential customers and their requirements is also important.

Collecting and analyzing data about potential customers and their requirements is a very important step in entering new international sales markets. Today, digital tools can greatly facilitate this process by allowing you to collect, analyze, and interpret large amounts of data quickly and efficiently. They can provide valuable insights into consumer behavior, preferences, and demand for specific products or services. The use of digital tools will allow you to better understand your target audience and adapt your marketing strategy to their needs, which will help complete the process of entering new markets.

It is important to remember that enterprises undergoing restructuring and developing new directions for promoting goods and services to international markets face many issues: what prospects may open up for the enterprise and what risks may arise; if entering the international market, then which country's market; what products can be offered to consumers in this market: existing or new; how to enter the chosen market, find the consumer and offer him your products; what specific program of marketing activities should be developed to achieve the goals set in the chosen market; what economic, scientific and technical and other results can and should be obtained as a result of the enterprise's participation in the international division of labor.

The scientific approach to the use of digital technologies to formulate effective sustainability strategies in international markets is to use data and research to develop and implement innovative, environmentally, and cost-effective solutions. This may include using on-demand digital platforms such as TradingView, Thinkorswim, and MetaTrader, blockchain technologies to create transparent resource management and waste reduction systems, and other digital tools to monitor and assess the environmental conditions of domestic and foreign markets. The implementation of science-based digital solutions can help achieve a balance between the economic, environmental, and social aspects of sustainable development.

TradingView, Thinkorswim, and MetaTrader are popular platforms for trading on international markets. They provide a wide range of tools for market analysis and trading. TradingView is known for its charts and indicators that allow traders to analyze market dynamics and make informed decisions. Thinkorswim, developed by TD Ameritrade, also has a large number of tools for technical and fundamental analysis, as well as trading opportunities using various order types. MetaTrader by MetaQuotes is a very popular trading platform that offers a wide range of tools for market analysis, automated trading, and copying trades. All of these platforms help domestic businesses analyze the market and execute trades, offering a variety of features and tools to work effectively on international markets.

To effectively formulate a company's strategy in international markets, it is important to conduct international marketing research. Indeed, in the context of the war

in Ukraine, a key stage in the formation of consistent strategies for Ukrainian businesses in foreign markets is to conduct detailed market research that will allow to identify the needs and demands of consumers, the competitive situation, trends in the new international market, identify opportunities and threats, determine the optimal strategies and conditions for successful business activities in new international markets.

3. Results of the Study

In today's environment, conducting international market research is possible with the help of digital tools that allow companies to collect data, analyze trends, and identify opportunities in international markets with unprecedented speed and accuracy. Some key characteristics of digital international market research tools include:

1. Global coverage: digital tools allow companies to access data from several international markets and regions simultaneously, providing a complete picture of convergence conditions in them.

2. Real-time data: with the help of digital international marketing research tools, companies can access real-time data on consumer preferences, market trends, and the competitive landscape, allowing them to make quick decisions and develop flexible market strategies.

3. Customization: many digital international market research tools offer customizable features that allow companies to tailor their research to specific international markets, industries, or target demographics.

4. Cost-effectiveness: compared to traditional market research methods, digital tools are often more cost-effective, allowing companies of all sizes to conduct international market research within budgetary constraints.

5. Data visualization: digital international market research tools are equipped with data visualization capabilities, making it easier for companies to interpret complex data sets and identify patterns and insights.

In general, digital international marketing research tools have revolutionized the way businesses conduct international market research, making it faster, more accurate, and more affordable than ever before. Let's analyze Ukraine's exports in 2018-2023 using these tools (Table 1).

Table 1: Dynamics of Ukraine's exports, TOP-7 export leaders, 2018-2023, million USD*

Number/ Name of the product group TOP-7	Export volume, million USD						Deviation	
	2018	2019	2020	2021	2022	2023	2022/2021	2023/2022
10 Grain crops	7241,6	9633,3	9410,7	12343,8	9 171	8306,5	-35	-10
15 Animal or vegetable fats and oils	4497,5	4732,2	5746,9	7037,2	5983,6	5649,1	-18	-6
12 Oil seeds and oleaginous fruits	1954,2	2563,2	1842,4	2435,1	3780,9	2819,4	36	-34
72 Ferrous metals	9937,1	8736,1	7690,6	13950,1	4559,6	2647,7	-206	-72
26 Ores, slag and ash	3035,3	3590,2	4420,7	7119,6	3084,1	1870	-131	-65

85 Electric machines	2930,4	2772	2572,4	3139,3	2574,8	1664,4	-22	-55
44 Timber and wood products	1492,5	1398,3	1409,1	2000,5	1889,9	1488,8	-6	-27

* *Data exclude the territories that are temporarily occupied by the Russian Federation and part of territories where the military actions are/were conducted.

An analysis of the commodity structure of Ukraine's exports for the period from 2018 to 2023 showed that the TOP-7 product groups remained in the ranking even during the crisis caused by the coronavirus pandemic in 2019 and during military events, although exports in six of these groups decreased significantly. The largest decline was recorded in the product group "72 Ferrous metals" by 206% in 2022 and by 72% in 2023. Product group "26 Ores, slag and ash" also showed a decrease of 131% in 2022 and 65% in 2023.

The smallest declines in exports were observed in the product groups "15 Animal or vegetable fats and oils" and "44 Timber and wood products". The leader among the product groups that demonstrated export growth even during the first year of the war is "12 Oil seeds and oleaginous fruits".

An analysis of export dynamics in 2023 showed that the largest share was taken by the following product groups: "Grain crops" – 23%, "Animal or vegetable fats and oils" – 16%, and Oil "Seeds and oleaginous fruits" – 8%. It is important to note that these product groups have been leading in the export structure over the past 15 years. Other product groups included in the TOP-7 export leaders account for 4% to 7% of Ukraine's total exports in 2023 (Fig. 1).

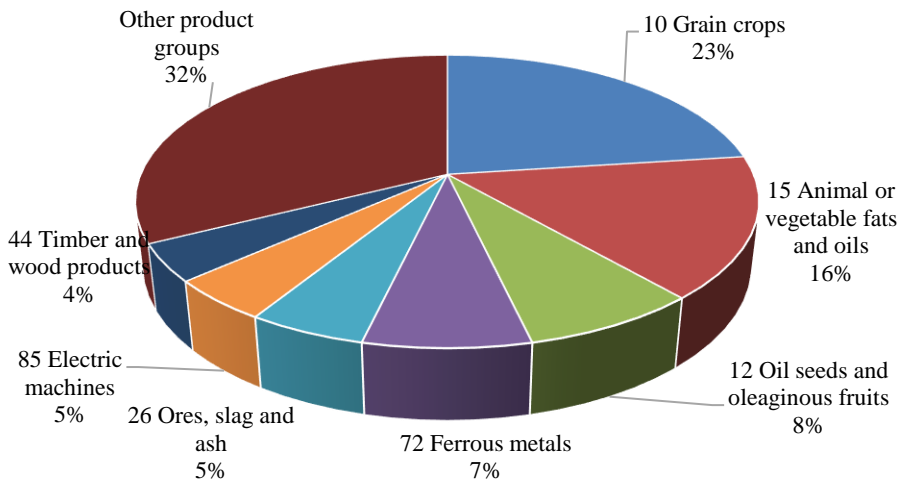


Figure 1. Commodity structure of Ukraine's exports by product group, %, 2023

Given the competitive environment of commodity markets in Ukraine, the success of companies depends on their ability to develop sustainable strategies for international markets. We consider the practical aspects of forming strategies to support the sustainable growth of Ukrainian businesses in global markets, taking as an example the producers of the product group "44 Timber and wood products, charcoal", which is among the top product groups with the largest exports in 2023. This product group represents 4% of Ukraine's total exports.

This study will establish demand for timber and forecast future trends, which will help Ukrainian producers of timber and wood products respond to the needs of consumers in international markets. It will also help Ukrainian timber producers to respond effectively to changes in the industry during the war in Ukraine, ensure sustainable production and marketing of products, preserve natural resources for future generations, and balance the economic and environmental aspects of their activities (Table 2).

Table 2: Dynamics of export volumes from Ukraine of TOP-5 subgroups of the product group "44 Timber and wood products, charcoal", 2018-2022, million USD

Name of product subgroup, TOP-5	Export value, million USD					Deviation, %	
	2018	2019	2020	2021	2022	2021/ 2020	2022/ 2021
Total by product group	1492,5	1398,3	1408,9	2000,5	1889,9	30	-6
4407 Timber	586,1	515,2	514,9	694,6	479,2	26	-45
4408 Cladding sheets	198,2	197,3	205,8	283,6	320,4	27	11
4415 Cases, boxes	64,2	67,9	68,8	153,8	237,6	55	35
4418 Carpentry, wooden, and construction products	174,3	189,2	191,1	254,4	206,7	25	-23
4401 Fuel wood in the form of logs, stumps, branches	146,7	111,8	101,3	123,4	193,3	18	36
Other subgroups	323,1	317	327,1	490,7	452,8	33	-8

In 2021, the volume of Ukrainian exports of the product group "44 Timber and wood products, charcoal" almost reached 2 million USD. However, in 2022, there was a decrease in volumes by \$110 thousand (Fig. 2).

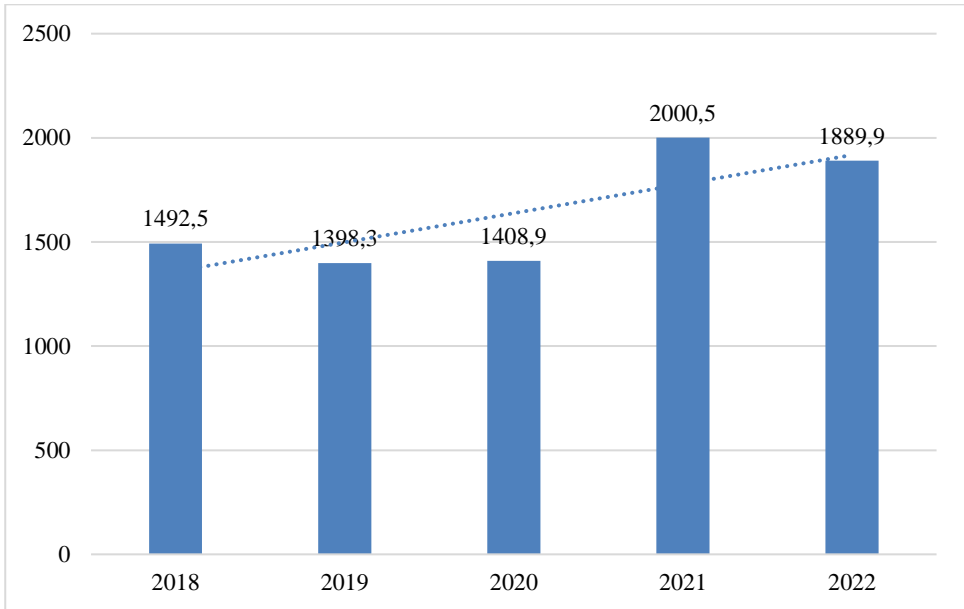


Figure 2. Export volumes dynamics of the product group "44 Timber and wood products, charcoal" from Ukraine, 2018-2022, USD million

This year is the first time that the physical volume of timber exports has become so important, as logistics has become the priority in trade due to the war.

Therefore, the value of timber exports in 2022 decreased by 6% compared to 2021. Despite this, the results in these wartime conditions are positive.

It is important to note that certain subgroups of the product group "44 Timber and wood products, charcoal" maintained positive dynamics even in the first year of the war in Ukraine. These groups include "4408 Cladding sheets" (11%), "4415 Cases, boxes" (35%), and "4401 Fuel wood in the form of logs, stumps, branches" (36%) (Figure 3).

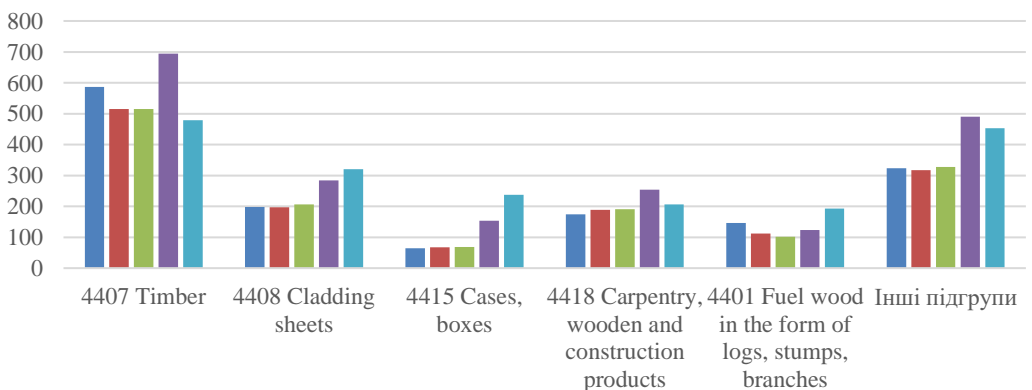


Figure 3. Dynamics of export volumes of the TOP-5 subgroups of the product group "44 Timber and wood products, charcoal", Ukraine, 2018-2022, million USD

An assessment of the dynamics of exports of product subgroups such as "4407 Timber", "4408 Cladding sheets", "4415 Cases, boxes", "4418 Carpentry, wooden and construction products", "4401 Fuel wood in the form of logs, stumps, branches", led to the conclusion that in 2022, the exports of product subgroups "4408 Cladding sheets", "4415 Cases, boxes" and "4401 Fuel wood in the form of logs, stumps, branches" increased compared to 2021.

The increase in exports of product subgroups "4408 Cladding sheets", "4415 Cases, boxes" and "4401 Fuel wood in the form of logs, stumps, branches" may have several reasons. One of the reasons is the growing demand for these types of materials in international markets due to their quality, price competitiveness, or fashion trends. It is also possible that new trade agreements were concluded or contracts were signed with foreign partners, which contributed to an increase in exports.

If we compare the export volumes of product subgroups of the group "44 Timber and wood products, charcoal" in 2022, we see that the leaders in international markets are "4407 Timber", "4408 Cladding sheets", and "4415 Cases, boxes" (Figure 4).

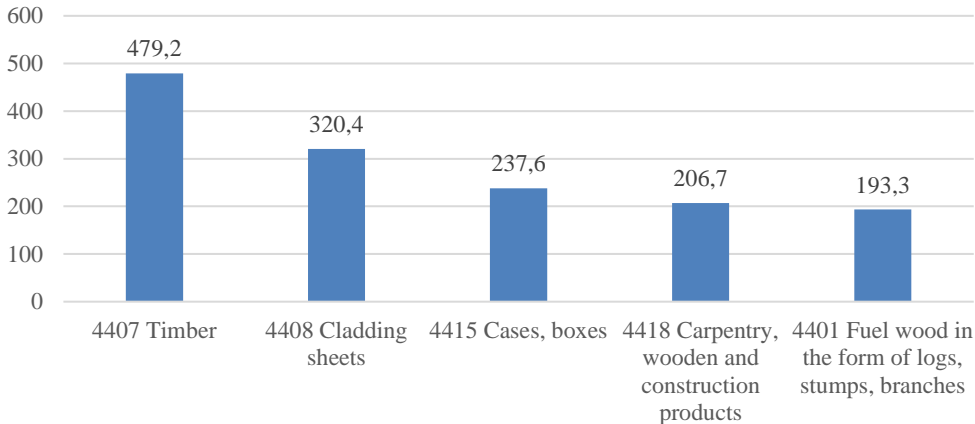


Figure 4. Export volumes analysis of the product group "44 Timber and wood products, charcoal" in the context of the TOP-5 subgroups from Ukraine, 2022, million USD

When examining the composition of exports within the product group "44 Timber and wood products, charcoal", it is possible to identify three subgroups, the export volume of which is more than 15% of the total volume of wood exports from Ukraine (Figure 5).

Timber and cladding sheets are an important export item for many countries, as they are a source of raw materials for the construction, and production of furniture, paper, and other goods.

The largest share in the structure of the product group "44 Timber and wood products, charcoal" is due to Ukraine's significant forest resources, as well as the demand of other markets for such materials.

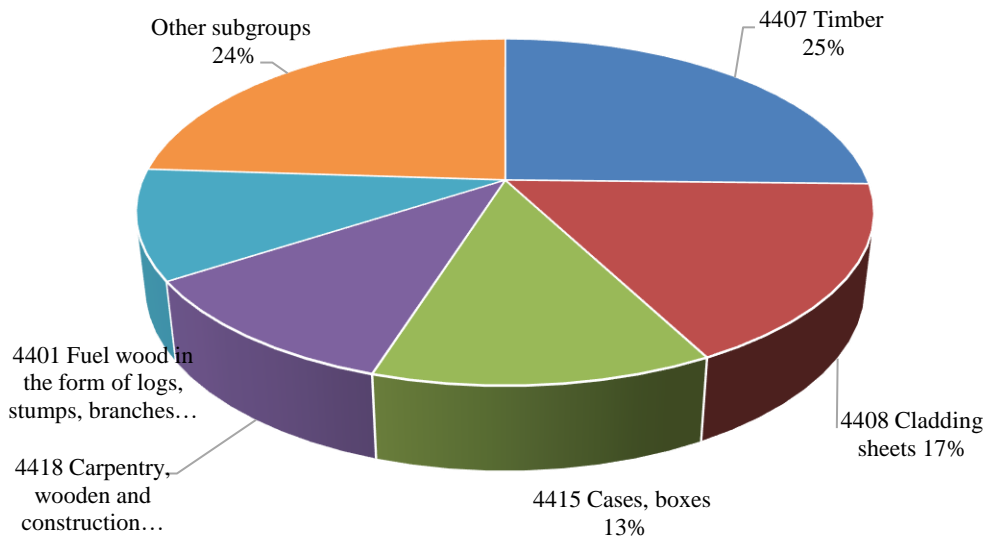


Figure 5. Structure of exports from Ukraine by product group "44 Timber and wood products, charcoal", 2022, %

To study the factors that influence the formation of sustainable development of businesses in foreign markets, it is worth considering that Ukraine harvests mainly coniferous timber of quality classes C and D, which make up the majority of all timber. Approximately 80% of harvested timber consists of coniferous species. Oak timber is the second largest source of timber, accounting for 9%. Other species, such as alder (3%), beech (3%) and birch (2%), have smaller market shares. Class A timber accounts for less than 5% of all harvested timber, while class B timber accounts for 16% to 18%. The largest volume is accounted for by timber of quality classes C and D, which make up approximately 34-36% and 42-45%, respectively.

Domestic timber exporters need to take into account the legislation and regulations governing timber harvesting in Ukraine, as this helps to ensure the efficient and sustainable development of the country's forestry sector. Despite the relatively small share of forest resources in Ukraine compared to other countries, harvesting volumes have remained stable over the past 10 years. This is an important indicator of sustainable forest management. For the successful implementation of the state policy in the field of forestry in Ukraine, it is necessary to take into account the historical context and the influence of various factors on the development of this industry in different regions of the country. It is also important to combine natural and economic aspects for a balanced development of forestry in Ukraine. For example, the development and implementation of strategies for fundamental economic principles of forest conservation and increased efficiency of forest management can be a key factor for success in this sector.

The study selected three product subgroups: "4407 Timber", "4408 Cladding sheets", and "4415 Cases, boxes", which, based on the results of international business activity, became the top three exporters during the first and second years of the war in Ukraine. Russia's widespread military aggression in Ukraine has had a major impact on the

forestry and wood processing economy in Ukraine. The hostilities in 2022 negatively affected the volume of commercial round wood harvesting (decreased by 22%), in particular conifers (decreased by 26%), and led to an increase in fuelwood harvesting (increased by 3%). The Ukrainian forestry sector has suffered significant losses due to the war in the country. The harvesting and sale of forest materials decreased significantly, a wide area of forests was damaged, and illegal logging began to occur in some areas. In 2023, logging recovered to the level of 2021, but timber sales remain extremely low. If the hostilities do not end in 2024, timber harvesting and sales will remain at the same level as in 2023. If the war ends, forests and the timber sector will be restored, leading to an increase in harvesting and sales of forest materials.

To study the factors that influence the development of sustainable strategies of companies in the timber processing industry in international markets and the possibility of entering new international markets, it is necessary to analyze changes in the commodity structure of world exports of three product groups: "4407 Timber", "4408 Cladding sheets", "4415 Cases, boxes" for the period from 2018 to 2022 (Table 3).

Table 3: Dynamics of world exports of product groups: "4407 Timber", "4408 Cladding sheets", "4415 Cases, boxes", 2018-2022, million USD

Exporters	Export value, million USD					Absolute deviation +/-	
	2018	2019	2020	2021	2022	2021/ 2020	2022/ 2021
The whole world 44	147431,8	133879,8	133500,4	185030,7	183228,9	28	-1
Other markets 44	98947,5	90741,5	89436,1	118626	120118	-69	-15
"4407 Timber"							
The whole world 4407	40894	35690,2	37040,4	56121,1	51344,1	34	-9
1. Canada	8201	6319,3	7753	13446,3	10845,2	42	-24
2. Sweden	3265,7	3022,9	3369,5	5346,7	4829,6	37	-11
3. Germany	2519,3	2320	2572,7	4372,3	4199,2	41	-4
4. United States of America	3650,2	2804,2	2561,5	3428,9	3393,6	25	-1
5. Finland	2163,1	1936,8	1779	3042,8	2737,1	42	-11
6. Austria	1617,2	1476,3	1429,3	2347,4	2134,7	39	-10
7. Latvia	866,5	771,5	780,4	1459,7	1285,9	47	-14
8. Chile	945,2	788,7	731,8	927,9	1029,1	21	10
9. Brazil	771,6	700,9	707,3	944,8	1021	25	7
10. Thailand	1215,5	955,9	927,4	1059,7	999,6	12	-6
11. Belgium	649,6	622,2	624,2	1011,7	822,1	38	-23
12. Czech Republic	476,7	434,5	429,4	773,1	712,2	44	-9
13. Romania	553,7	488,7	519,7	769,4	669,1	32	-15

14. New Zealand	653,8	571,7	552,4	668,6	627,5	17	-7
15. Malaysia	906,5	814,6	569,8	605,6	606,3	6	0
16. Croatia	464,1	432	390,3	504,8	578,4	23	13
17. France	415,2	381,6	400,5	571,2	568,3	30	-1
18. Poland	367,9	122,6	148,6	177,1	487,8	16	64
19. Lithuania	271,8	258,8	288,9	490,7	481,2	41	-2
20. Ukraine	586,1	515,2	514,9	694,6	479,2	26	-45
The whole world 4407	10333,3	9951,8	9989,8	13477,8	12837	26	-5
"4408 Cladding sheets"							
The whole world 4408	3521,8	3451,4	3233,5	4560	4804,5	29	5
1. China	483	525	537,4	801,3	671,3	33	-19
2. Canada	328,8	267,4	264,1	412,9	448,7	36	8
3. United States of America	337,8	301,9	279	360++5	392,2	23	8
4. Ukraine	198,2	197,3	205,8	283,6	320,4	27	11
5. Italy	151,8	183	123,5	163,4	186,4	24	12
6. Vietnam	40,5	53,6	88,8	226,4	175,7	61	-29
7. Germany	168,4	157,1	145,9	179,8	164,8	19	-9
8. Romania	126,1	116,2	92	115,7	131,6	20	12
9. Spain	88,5	90,5	80,7	113,8	127	29	10
10. Indonesia	113,4	90,4	80,5	114,6	114,8	30	0
11. Croatia	67,7	60,9	57,8	89,4	111,6	35	20
12. Czech Republic	77,6	67	61,4	81,9	88,1	25	7
13. France	99	80,7	71,5	88,7	86,8	19	-2
14. Estonia	54,9	43,8	45,6	68,1	74,1	33	8
15. Portugal	39,2	36,2	37,7	53,9	73,5	30	27
16. Austria	62,4	59,8	54,9	66,7	70,5	18	5
17. Finland	40,6	52,7	50,7	64	65,7	21	3
18. Slovenia	37,1	39,5	41,1	55,1	63,1	25	13
19. Turkey	30,6	28,5	29	41,5	60,6	30	32
20. Brazil	40,5	34,4	44,4	42,4	55,4	-5	23
Other markets 4408	935,7	965,5	841,7	1136,3	1322,2	26	14
"4415 Cases, boxes"							
The whole world 4415	4068,5	3996,7	3790,4	5723,4	6962,2	34	18
1. Poland	656,5	625,2	617,6	1018,7	1324,2	39	23
2. Germany	409	361,2	334,1	517,3	618,9	35	16
3. Czech Republic	259,1	250,3	230,4	348,2	414,7	34	16

4. Netherlands	220,5	220,2	234,2	332,5	385,4	30	14
5. Belgium	211,9	200,5	196,6	279,8	316,4	30	12
6. Ukraine	64,2	67,9	68,8	153,8	237,6	55	35
7. Britain	60,8	66,7	53,2	199,6	226,3	73	12
8. Italy	138,6	133,8	128,7	166,9	222,8	23	25
9. Lithuania	132,1	116	107,7	187,6	220,8	43	15
10. Latvia	128,7	108,2	102,8	186,2	220,6	45	16
11. France	132,1	124,9	118,2	177,4	215,9	33	18
12. United States of America	157,5	184,8	139,1	157,9	208,9	12	24
13. China	71,6	74,8	86,8	108,9	190,5	20	43
14. Canada	103,7	96,7	95,3	158,1	144	40	-10
15. Sweden	64,3	66,3	69	96,4	127,8	28	25
16. Mexico	53,9	61,4	66,2	87,4	126,1	24	31
17. Spain	90,8	86,6	86,8	108,2	118,3	20	9
18. Austria	57,4	61,2	58,1	87,5	114,9	34	24
19. Malaysia	83,6	85,8	79,4	106,2	105,4	25	-1
20. Slovakia	59,7	52,1	44,4	71,8	90,6	38	21
Other markets 4415	912,5	952,1	873	1173	1332,1	26	12

Source: compiled by the author for (Global Economy, Trade Statistics for the Development of International Business)

In 2022, the volume of global exports of products in the "4407 Timber" group decreased by 9% overall. The largest decrease in timber exports was observed from Ukraine - by 45% compared to the volume in 2021. The reason for this decrease is the two-year military actions of the aggressor in the market for these products.

Some markets have significantly increased their exports of wood products. For example, in 2022, exports from Poland increased by 64% compared to the previous year.

Despite the decline in timber exports, the top 3 exporters are Canada with exports of \$10.845 billion (21% of the world total), Sweden with \$4.829.6 billion (9% of the world's exports in this group of products) and Germany with \$4.199.2 billion (8% of the world total).

In 2022, the volume of global exports of products of the group "4408 Cladding sheets" increased by 5%. The highest growth in timber exports in 2022 was recorded in the following markets: Turkey – 32%, Portugal – 27%, Brazil – 23%, Croatia – 20%, and Ukraine – 11%.

When assessing the increase in exports of cladding sheets and other building materials, international experts point to a positive impact on the domestic market due to the formation of added value. The Ukrainian market also assesses such changes as stimulating.

Some markets have significantly reduced their exports of wood cladding and other building materials to international markets. For example, in 2022, exports from Vietnam

decreased by 29% and from China by 19% compared to the previous year. This situation can play a significant role in increasing the export activity of Ukrainian enterprises that have shifted their activities from preparing and selling forest materials to processing them into cladding sheets and other construction materials that are in demand in international markets (Source: compiled by the author for Trade Statistics for the Development of International Business).

For an obvious reason, all domestic enterprises should consider these changes in their business activities as an opportunity to create sustainable tactics for entering global markets. Also, the reduction of timber production and exports can be perceived as a step towards the preservation of forest plantations in Ukraine.

The military situation between Russia and Ukraine has led to serious disruptions in global timber trade due to a decrease in exports from both countries, which has raised concerns about weakening environmental protection measures to compensate for this missing volume.

The situation on the world market with the product subgroup "4415 Cases, boxes" turned out to be interesting. In 2022, there was an 18% increase in global exports for this product group. This is because the global packaging market has been developing positively for several years, so leading market participants are investing heavily in research and development to introduce innovative products in the product subgroup "4415 Cases, boxes" to the market.

This product subgroup also includes disposable tableware. These plastic cups, which have a significant impact on plastic pollution, are the most commonly used worldwide.

As the world is focused on preserving the environment, business representatives from various international markets need to realize the importance of sustainable development in this area and stimulate demand for paper disposable tableware made from recycled pulp.

Given global trends, Ukrainian companies are actively implementing sustainable development strategies in domestic and international markets. This is confirmed by the analysis of the growth in exports from Ukraine of the product subgroup "4415 Cases, boxes". In 2021, there was a 55% increase in exports, and in 2022 - by 35%. Even in the first year of the war in Ukraine (2022), which led to the suspension of business activities of many enterprises in the regions where hostilities are ongoing and the temporary suspension of business activities of other Ukrainian companies, there was a positive dynamic development in this industry.

In the framework of this study, using modern digital technologies, we will analyze the structure of importers of products of the forestry processing industry in terms of product subgroups "4407 Timber", "4408 Cladding sheets", "4415 Cases, boxes" for 2022 (Table 4).

Table 4. Evaluation of the international activity of the largest importers-partners of Ukraine in terms of product subgroups "4407 Timber", "4408 Cladding sheets", "4415 Cases, boxes", 2022, thousand USD

Potential markets	Ukraine's exports by product group "44"	Partner's trade balance for product group "44"	Export volume 4407	Export volume 4408	Export volume 4415	Total amount of exports of the studied product subgroups
Poland	366 283	313 867	49856	46766	22830	119452
Germany	204 931	186 018	34026	28167	46726	108919
Austria	112 318	109 405	6971	80217	14701	101889
Italy	138 144	134 530	40433	9265	43464	93162

As a result of the analysis of the international activity of the largest importers-partners of Ukraine in the product subgroups "4407 Timber", "4408 Cladding sheets" and "4415 Cases, boxes" in 2022, we concluded that even during the first year of the war, Ukrainian wood processing companies worked actively in order not to lose international markets. Given the ongoing conflict and the constant danger to Ukrainian business, we believe that the main focus should be on meeting the needs of the markets of importers from the European Union, with which it is important to maintain logistics flows in the conditions of a difficult economic situation.

With the help of digital tools, namely on-demand platforms, we will assess the level of development of individual international markets based on the criteria of the attractiveness of their business environment (Table 5), which are important for further developing a strategy for enduring international business in forestry and wood processing enterprises in Ukraine.

Table 5. Analysis of the attractiveness of the business environment in selected international partner markets of Ukraine, 2022, according to certain global indicators, 2022 (18.03.2024)

№	Indicator / international market	Poland	Germany	Austria	Italy	Ukraine
1.	Inflation: percentage change in the purchasing price index	14,4	6,9	8,5	8,2	20,2
2.	Trade openness: exports plus imports as a percentage of GDP	103,45	88,52	107,92	60,3	99,2
3.	Exports of goods and services as a percentage of GDP	61,72	50,34	60,79	37,15	35,46
4.	Income, profit, and capital gains tax	14,08	17,49	27,6	32,27	17,27
5.	Carbon dioxide emissions, thousand tons	279224	603351	59142	281287	165664
6.	Forest land, the share of the total area	31	32,7	47,3	32,5	16,7
7.	Value added in agriculture, billion USD	19,54	37,57	6,53	37,32	13,2
8.	Forest land, square kilometers	94950	114190	39027	96199	96960
9.	Economic freedom, overall index (0-100)	68	74	71	62	-
10.	Carbon dioxide (CO ₂) emissions per capita, tons	7,37	7,26	6,63	4,73	3,75

Source: gathered by the author for the report on Global Economy, Trade Statistics for the Development of International Business

Next, ten experts evaluated the appeal of global markets on a 5-point scale based on the minimum and maximum values. The table displays the foreign markets that received the highest scores in the assessment (Table 6).

Table 6. Evaluation of the attractiveness of international markets on a 5-point scale of their business environment at an expert level

Indicator / international market	Poland	Germany	Austria	Italy	Ukraine
Inflation: percentage change in the purchasing price index	2	4	3	3	1
Trade openness: exports plus imports as a percentage of GDP	3	4	3	5	4
Exports of goods and services as a percentage of GDP	3	3	3	2	2
Income, profit, and capital gains tax	4	4	3	3	4
Carbon dioxide emissions, thousand tons	5	5	5	5	5
Forest land, the share of the total area	1	1	1	1	3
Value added in agriculture, billion USD	4	4	1	4	22
Forest land, square kilometers	1	1	5	1	5
Economic freedom, overall index (0-100)	4	4	4	4	2
Carbon dioxide (CO ₂) emissions per capita, tons (2020)	2	5	2	2	5
Total	29	35	30	30	53

With the help of modern digital technologies, in particular, the "Trade Map" and "The global economy" platforms, which work at the request of the user, a study was conducted on worldwide markets that Ukrainian forestry and wood processing companies could target for sales.

4. Discussion

In Table 6, the markets of Poland, Germany, Austria, Italy, and Ukraine were evaluated to compare various indicators. The expert evaluation was used to calculate the scores for each of the markets, which made it possible to determine which ones are the most attractive for Ukrainian companies specializing in wood processing and creating added value in the domestic market.

The highest scores were obtained in the markets of Germany, Austria, and Italy. This indicates that it is important to maintain exports of the product subgroups "4407 Timber", "4408 Cladding sheets" and "4415 Cases, boxes" to these markets. This will help many Ukrainian enterprises to resume their business activity during the second year of the war and in the post-war period. These companies are already operating today despite the barriers and obstacles caused by the war.

It is important to note that the considered markets have similar indicators, such as "Forest land, the share of total area" and "Forest land, square kilometers", compared to the Ukrainian market, but they are active importers of wood products from Ukraine. We

can assume that business structures in these markets may treat forest plantations more cautiously or pay more attention to processing to create finished goods for consumption and industrial use. Therefore, Ukrainian businesses should take into account their experience in formulating strategies for sustainable development in this area.

At the same time, a carbon tax was introduced in the Ukrainian and German markets as a measure to increase the use of renewable energy sources in the energy balance. This initiative is aimed at financing energy efficiency measures and promoting the use of green technologies. This policy contributes to the faster restoration of forest plantations and creates conditions for strengthening international cooperation in the context of the military conflict, allowing Ukrainian timber processing companies to adapt to changing business conditions.

5. Implications and further research

The current stage of Ukraine's economic development is characterized by obstacles and barriers to the country's producers entering international markets. The war conditions limit the capabilities of Ukrainian timber processing companies, which cannot limit themselves to the domestic market. This hinders their ability to fully realize their production and marketing potential and become effective in the process of economic recovery after the war in Ukraine.

The entry of Ukrainian timber processing companies into international markets during the war and post-war period is a necessary and natural process that requires continued work to develop sustainable strategies for successful operations in foreign markets.

The study used a scientific approach to apply digital technologies for creating sustainable development plans in global markets. This approach involves the use of data and research to implement innovative, environmentally, and cost-effective solutions. The study used digital platforms such as TradingView, Thinkorswim, and MetaTrader, blockchain technologies, as well as other digital tools to monitor and assess the state of the environment in domestic and external markets. We believe that the implementation of data-driven digital solutions can help achieve a balance between the economic, environmental, and social aspects of sustainable development.

The article briefly mentions the impact of the conflict between Russia and Ukraine on the timber trade, but it does not delve deeply into the broader geopolitical factors that could affect Ukrainian enterprises' international operations. A more thorough examination of geopolitical risks and their implications for market entry strategies would provide a more holistic perspective.

Given the competitive environment of commodity markets in Ukraine, the success of companies depends on their ability to develop sustainable strategies for international markets. The study examines the practical aspects of forming a sustainable development strategy for Ukrainian enterprises in international markets, taking as an example the producers of the product group "44 Timber and wood products, charcoal", which is among the TOP-7 product groups with the largest exports in 2023. This product group accounts for 4% of Ukraine's total exports.

As part of the study, three product subgroups were selected: "4407 Timber", "4408 Cladding sheets" and "4415 Cases, boxes", which, according to the results of international business activity, were among the top three exporters during the first and second years of the war in Ukraine.

The growth of exports of the product subgroup "4415 Cases, boxes" from Ukraine is confirmed. In 2021, there was a 55% increase in exports, and in 2022 - by 35%. Even during the first year of the war in Ukraine (2022), when many companies ceased operations in the conflict zone and others temporarily suspended their work, there was a positive development in this area.

Discussing regulatory barriers such as trade tariffs, import/export regulations, and environmental standards would provide a more comprehensive understanding of the challenges involved.

The markets of Poland, Germany, Austria, Italy, and Ukraine were assessed to compare various indicators. The expert evaluation was used to assign points to each of the markets, which made it possible to identify the most attractive for Ukrainian companies specializing in wood processing and added value creation in the domestic market.

By increasing exports of products from the groups "4407 Timber", "4408 Cladding sheets" and "4415 Cases, boxes" to the markets of Germany, Austria, and Italy, Ukrainian enterprises will be able to improve their business activity during the second year of the war and the post-war period. This strategy takes into account business climate indicators and will help many Ukrainian companies to resume their operations.

Despite the availability of forest land, the markets under consideration remain active importers of wood products from Ukraine.

Despite the availability of forest land, the markets under consideration remain active importers of wood products from Ukraine.

Therefore, we recommend that Ukrainian companies take into account Germany's experience in formulating strategies for sustainable development. This will help to restore forests and strengthen international cooperation in the context of the military conflict, allowing Ukrainian logging companies to adapt to changing business conditions.

References

- Oklander, M., Oklander, T., Yashkina, O. (2017). Digital marketing model of marketing of the XXI century. *Odesa: Astroprint*, 2017, 292.
- Kovinko, O., Kovalchuk, S., Lisovskyi, I. (2018) The role of digital marketing in the activation of international business activities of enterprises. *Marketing and digital technologies*, 2018, No 1, 55-74.
- Global economy. URL: https://www.theglobaleconomy.com/Ukraine/gdp_current_local_currency/. [Last accessed 18.03.2024].
- Tanasiichuk, A., Kovalchuk, S., Otylvanska, G., Andrushkevych, Z., & Sokoliuk, K. (2021) Influence of Structural Processes in the Economy of Ukraine on Marketing and Logistical Processes of Domestic Enterprises *European Journal of Sustainable Development*, 10 (2). Retrieved from: <https://doi.org/10.14207/ejsd.2021.v10n2p187> [in English].
- Trade statistics for international business development. URL: <http://www.trademap.org>. [Last accessed 18.03.2024].
- Tanasiichuk, A., Kovalchuk, S., Ivanchenkova, L., Hromova, O., Havenko, M., Shevchuk, A. (2024) Digital Technologies in the Process of Forming Sustainable Strategies for Agricultural Enterprises in International Markets. *European Journal of Sustainable Development*, 13(1), 321. <https://doi.org/10.14207/ejsd.2024.v13n1p321>

- Bedenkov, A. Methods for assessing regional economic and social asymmetries. Regional socio-economic asymmetry and mechanisms for its alignment. *M.: INSAN, 1998.*
- Lukyanenko, D., Poruchnyk, A., Kolot, A., Stolyarchuk, A. (2011) Resources and models of global economic development: monograph. *K: KNEU, 703 p*
- Tanasiichuk, A., Hromova, O., Abdullaieva, A., Kovtun, E., Marshuk, L. (2021) Assessing the Convergence of International Agricultural Markets as a Prerequisite for Rapeseed Sale at New Markets, *European Journal of Sustainable Development. Italy. Vol 10, No 1. 527-538.*
DOI:<https://doi.org/10.14207/ejsd.2021.v10n1p527>
- State Statistics Service of Ukraine. URL: <https://www.ukrstat.gov.ua/>