

Digital Technologies in the Process of Forming Sustainable Strategies for Agricultural Enterprises in International Markets

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ABSTRACT:

The active phase of applying digital technologies contributed to their implementation in forming sustainable strategies for agricultural enterprises in international markets. It is proved that the development of certain functions of international marketing and their active extension beyond the enterprise, the development of a scheme of interaction with the consumer, and intra-company integration with increased feedback in modern conditions have gained practical importance and ensured the formation of sustainable strategies of agricultural enterprises.

Ukrainian enterprises, having not yet fully resumed business activity after the COVID-19 pandemic, have entered a new risk zone caused by the armed aggression of the Russian Federation against Ukraine. Ukrainian companies understand the responsibility of business for the state of economic recovery in Ukraine and are trying to act here and now to stay afloat.

Digital technologies are being actively implemented in various economic sectors, so Ukrainian agricultural enterprises have to use digital progress to effectively develop sustainable strategies in international markets to remain competitive in today's market.

It has been proven that in the current conditions of international business activity, only those companies that can use promising digital technologies in the early stages of business development will remain competitive.

It is substantiated that, depending on the specialization of the enterprise and the specifics of the goods or services provided there, the segments of domestic and international markets in which goods and services are sold, it is worth choosing connectivity platforms that will act as information support for enterprises in the process of forming sustainable strategies in international markets.

International marketing research was conducted to select new international markets based on information collected from the "Trade Map" and "Theglobeconomy" connectivity platforms, which operate on a user's request.

Using the example of the product group "1512 Sunflower oil", two segments of attractive international markets for Ukrainian agricultural producers were identified. The first segment is the markets of Ireland, Switzerland, Austria, and Belgium, where there are favorable business conditions for Ukrainian farmers. The second segment is the markets of Poland, Bulgaria, and the United Kingdom, where there is an opportunity to increase sales of sunflower oil. It is substantiated that the intensification of business activities of agricultural producers of the product group "1512 Sunflower oil" will allow in the short term to ensure the implementation of the sustainable development strategy, despite all the difficulties that have arisen as a result of the active phase of the war in Ukraine.

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1. Introduction

In today's environment, the global computer network of a planetary scale, the Internet, quickly collects, processes and almost simultaneously distributes an extremely large amount of various information over a vast territory in a virtually uncontrolled manner. The information transmitted via the Internet instantly passes thousands of miles, crosses state borders, and ensures the widespread usage of multimedia capabilities and means the total digitalization of society.

The rapid development of the latest information technologies contributed to the beginning of the next stage of international marketing development – "Digital technologies in the process of forming sustainable strategies of agricultural enterprises in international markets".

The development of certain international marketing functions and their active extension beyond the enterprise, the development of a scheme of interaction with the consumer, and intra-company integration with increased feedback have become practical in the process of forming sustainable strategies for agricultural enterprises, and new digital technologies have made it possible to overcome borders and distances, so Ukraine's entry into the global information space has taken place and caused a new wave of information expansion in international markets.

It should be noted that the practical activities of agricultural enterprises related to international marketing have expanded significantly, and the tension caused by economic and socio-psychological reasons has eased. International activity has ceased to be a means of achieving short-term goals, but has become worthy of attention and urgently requires specialists to study international experience and further scientific substantiation of the introduction of digital tools in forming sustainable strategies for agricultural enterprises in international markets.

Over the past few years, digital technologies have changed the way people interact, the way people do business, shopping, foreign economic activity, and the rhythm of life and work. They have become an integral part not only of the average person but also of many large and small enterprises that conduct business in domestic and foreign markets.

The importance of digital technologies in international business cannot be underestimated. Today, it's hard to imagine doing business without the Internet, video conferencing, international project management software, analysis of international commodity markets, organization and implementation of international trade contracts, etc. And every year, the role of digital technologies in international business will only continue to grow, so every company, even the smallest, should incorporate digital technologies into its marketing activities.

Globally, the demand for digital technologies has become especially noticeable during the COVID-19 pandemic. The disease outbreak has hit businesses hard, as everyone from small businesses to multinational corporations has been forced to change

their operations amid border closure orders and quarantine restrictions aimed at stopping the spread of the virus.

A significant number of Ukrainian companies have not yet fully resumed business activity after the COVID-19 pandemic and have entered a new risk zone caused by the armed aggression of the Russian Federation against Ukraine. However, from the very first days of the war in the country, Ukrainian enterprises understood the responsibility of business for the state of economic recovery in Ukraine and tried to stay afloat by digitalizing their core business processes. It is noteworthy that all enterprises, including those in the agricultural sector, had to implement large-scale organizational changes.

2. Literature Review

The issue of introducing digital technologies into the international marketing activities of an enterprise is a fairly new topic for research, but there are many meaningful research works by such domestic and foreign authors: M. Matviev, O. Marchuk, A. Sushkina, I. Shevkoplias, A. Tanasiichuk, S. Kovalchuk, D. Gruwell, A. Grubor, P. Jones, B. Conlin, etc.

The relevance of the chosen topic is obvious, as digital technologies are now being actively implemented in various industries, which means that Ukrainian agricultural enterprises should use digital progress to effectively formulate sustainable strategies in international markets to remain competitive in today's market. Although digital technologies are rapidly changing and evolving, which in turn requires fast innovative development from the enterprise, neglecting the importance of digital technologies is now dangerous for the successful operation of Ukrainian agricultural enterprises.

At present, there are not many works by Ukrainian authors on digital technologies in the international marketing activities of an enterprise, which can be explained by such reasons as insufficient internationalization of domestic entrepreneurship, previously existing restrictions on foreign economic activity, low maturity level of the international marketing concept in the country, and the initial stages of digitalization of business processes of domestic enterprises. Continuous changes taking place in the Ukrainian and foreign economies force the management, marketers, and managers of Ukrainian enterprises to monitor the development trends and conditions of the international market, the nature of consumer preferences of various segments of the international market, business activity of competitors and the factors that determine it.

Due to the current military and economic difficulties in the country and the decline in production, it may seem that international marketing applies to a very limited number of domestic enterprises. However, the possibilities of introducing digital technologies in the strategic marketing activities of Ukrainian enterprises allow us to identify segments of enterprises that are designed to form sustainable development strategies in international markets and increase the efficiency of marketing management of international activities.

3. Results of the Study

The main objective of digital marketing in the international business activities of domestic enterprises is to create an information and analytical system that will allow them

to quickly and efficiently conduct international marketing research, apply digital technologies in analyzing business processes of domestic enterprises in international markets, and assess their marketing attractiveness in new markets.

The main components of the information and analytical system in the process of forming sustainable strategies for agricultural enterprises in international markets are the analysis of the marketing environment of foreign markets, assessment of the ability of domestic enterprises to enter new international markets, development, and implementation of a comprehensive program of marketing actions to promote goods in international markets, assessment of the efficiency of international business activities of enterprises in certain markets, etc.

Given that numerous software products enable marketers, and specialists in the field of international marketing and foreign economic activity to receive information on the volumes of primary trade data, providing them with accessible, convenient, and interactive web applications, digital technologies provide the opportunity to identify alternative markets, performance of competitors and information about the import/export of companies using integrated content – online platforms with filters on request.

Leading companies are allocating a large share of their marketing budgets to technology investments that promise to make their teams more productive and their business models more successful. The biggest benefit that business leaders expect to receive from the introduction of digital technologies is the saving of time and money by automating tasks and reducing the need for human intervention.

In today's international business environment, only those companies that can use promising digital technologies in the early stages of business development will remain competitive. It is impossible to apply all digital technologies and services at once in one enterprise. They should be selected depending on the specialization of the enterprise and the specifics of the goods or services provided there, as well as the segments of domestic and international markets where goods and services are sold.

Let's consider the areas of business activity of enterprises where modern digital technologies can be applied (Table 1).

Table 1. The main groups of digital services in the international marketing of an enterprise

Marketing area	Digital technologies/services	Functional purpose/area of application
1	2	3
Advertising & Promotion	Mobile Marketing	Ways to interact with the target audience through mobile devices
	Display & Programmatic Advertising	A way to purchase targeted advertising on a large number of websites
	Search & Social Advertising	Advertising aimed at solving social and public problems and drawing public attention to them
	Video Advertising	A form of advertising placed on the Internet aimed at promoting goods and services
	Public Relations (PR)	A set of technologies aimed at creating a positive image of a company and its products

Content & Experience	Mobile Apps	Software designed to run on smartphones, tablets, and other mobile devices
	Video Marketing	A way to communicate with the target audience through video content
	Interactive Content	Content that is specifically designed for user interaction
	Email Marketing	Sending out emails to a specific database of addresses
	Search Engine Optimization (SEO)	Website optimization from the point of view of search results, taking into account various requests
	Marketing Automation & Campaign Management	A set of all methods, strategies, tools, and practices used to attract new potential customers, search for new international markets
	CMS & Web Experience Management	Attracts new customers by providing business and marketing professionals with a solution for creating, managing, and distributing rich content over the Internet
Social & Relationships	Social Media Marketing & Monitoring	A tool for dialog between a social group and a company's marketing subject
	Account-based marketing (ABM)	Technology calls for tailoring messages to specific people or audiences
	Feedback & Chat	Customer satisfaction feedback
	Influencers	A form of social media marketing that includes recommendations and product placement by opinion leaders
	Customer relationship management (CRM)	Customer relationship management system
Data	Marketing Analytics, Performance & Attribution	Marketing analytics and performance attribution tools
	Mobile & Web Analytics	Mobile analytics examines behavior and collects data from visitors to mobile apps, websites, and apps
	Customer Data Platforms	User data storage system
	Dashboards & Data Visualization	Presentation of data in the form that ensures the most effective work of a specialist to study them
Management	Talent Management	Human resources tools that attract, and retain employees who make a significant contribution to the development of the organization
	Collaboration	Process of joint activity of two or more organizations to achieve common goals
	Budgeting & Finance	Tools to help maintain the company's budget and finances

Compiled by the author based on (2017, 2021)

As we can see from Table 1, there are many areas in enterprise marketing where digital technologies can be applied. It is unrealistic to implement everything at once. Companies need to choose the most successful options, taking into account their goals and objectives, capacities, and competitive situation in the market.

Domestic experts in the field of export strategies call such digital tools accelerators of domestic enterprises entering new foreign markets because they provide an opportunity

to receive information about the marketing environment of world markets for free and quickly (2017).

Most of the leading exporting enterprises of Ukraine in practice use 5-6 online platforms for data determination, dashboards, and data visualization with filters on request, the list of which is updated daily with new integrated content that is developed and supported by world organizations to provide information support for business activities of enterprises.

Consider the capabilities of certain online platforms used at the current stage of development of digital technologies in international marketing (2018).

"UN Comtrade Database" is the UN database of international trade statistics on goods and services, the world's largest online platform with request filters, which provides free access to detailed information on global trade, the latest trends in trade in goods and services, indicating national and product profiles of international trade. In addition, it contains analytical tables with trade indicators, which are generated at the request of the researcher, foreign trade conversion rates, foreign trade indices, and export indicators. The "Comtrade" database is a unique digital technology created to demonstrate innovative and experimental use of international business data from markets and enterprises and allows visualization of a large amount of data, metadata, leading data retrieval tools on request, and alternative information dissemination platforms.

At the present stage, this online platform includes 18 connect platforms developed and maintained by various global professional organizations, which make it possible to conduct analytical research in the field of international marketing (2018). Consider the features of the practical application of some of them.

One of the platforms is the "Trade Map", which presents indicators of export performance, international demand, alternative and competitive markets, and a directory of importers and exporters in the form of graphs, maps, and tables. The online platform with filters on request "Trade Map" allows to make requests for exports or imports by commodity groups in the context of countries or groups of countries. The interactive "Trade Map" system was developed by the United Nations Department of Statistics, as well as based on data from the World Trade Organization (WTO) and the Organization for Economic Cooperation and Development (OECD). The "Trade Map" database system covers 220 markets, 99 product groups, and 5,300 goods and services; monthly, quarterly, and annual trade data available on request - from the most aggregated level to the tariff line level.

GFCC Competitiveness Decoder is the first digital competitiveness tool based on dynamic data to visualize key competitiveness factors, built on 130 competitiveness indicators covering more than 100 product markets over the past 35 years. The tool allows researchers to understand global competitiveness by creating on-request visualizations of indicators.

Global Economic Dynamics (GED) "Theglobeconomy" – uses new digital technology tools to measure, forecast, and modulate the dynamics of sales volumes in international markets. The modern connectivity platform, accessible from a PC or mobile phone, works in real time and provides monthly data updates, text, tables, and graphs in any format.

Standardsmap – Standards in the field of sustainable development. The map contains 210 standards, codes of conduct, verification protocols, and access points in global supply chains. This platform provides comprehensive, verified, and transparent information on voluntary sustainability standards and other similar initiatives covering issues such as food quality and safety. The main goal of the information platform is to strengthen the capacity of producers, exporters, and buyers. Users representing the interests of manufacturers, products, brands, retailers, researchers, and policymakers can identify standards or codes of conduct applicable to their business, review the main features of individual standards and codes, compare the requirements of content standards, self-assess their business against standard requirements, create their personalized report that tracks the roadmap to sustainable trade, save and share the personalized report with sustainability stakeholders. The Sustainability Standards website aims to provide its users with solutions to the following problems: lack of a reliable repository of information on standards; avoiding confusion due to the proliferation of standards used in international markets developed by companies and industry associations; ensuring transparency and comparability of data between audit firms' protocols to build trust and mutual recognition.

Exporthelpeuropa is a connecting platform of the European Customs Union and the Union of the Directorate General of Customs, designed to ensure the management, protection, and development of the customs union; to calculate customs duties, customs procedures, and customs control; to solve problems of overcoming tax obstacles and barriers that do not allow companies to operate freely across borders; to respond effectively to international challenges related to customs and tax policy; to promote more effective cooperation between Member States to combat tax and customs fraud; ensuring transparency, providing information on taxation and customs union activities.

All of the above-mentioned connectivity platforms provide information support for international activities for Ukrainian enterprises and enable them to apply digital technologies in practice in forming sustainable strategies for agricultural enterprises in international markets.

It is important to keep in mind the ethical implications of the use of digital technologies in international business, which arise when leveling the digital divide by enhancing digital development for all. World leaders have to bridge the digital divide between developing and developed countries, as well as between different social and racial groups in any country. Digital technologies should be implemented reliably for all participants, including data privacy protection, and algorithms that do not discriminate against any of the "players". This requires the development of public-private partnerships with a human-centered approach.

To summarize the results of scientific research on the theoretical aspects of applying digital technologies in forming sustainable strategies for agricultural enterprises in international markets, we will conduct international marketing research to select new international markets based on information collected from the above-mentioned connectivity platforms.

We believe that during marketing research and the selection of international markets for conducting activities in them, it is necessary to rationally approach the formation of research stages, taking into account the purpose and available resources of

the enterprise. The algorithm for conducting marketing research and selecting international markets is proposed to be carried out in three stages (Fig. 1).

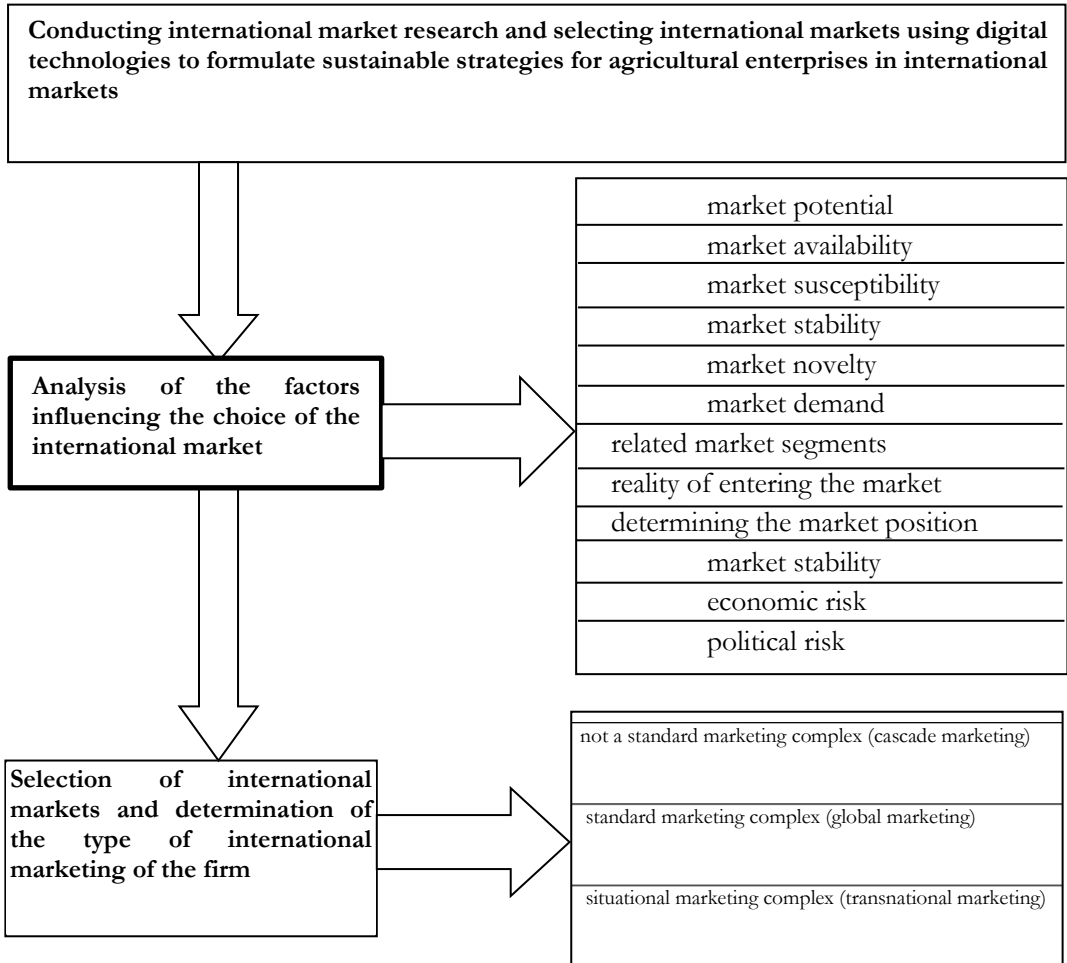


Figure 1. The sequence of international market research and selection of international markets using digital technologies to form sustainable strategies for agricultural enterprises in international markets
 Source: author's own development

The first stage of the proposed algorithm for conducting market research and selecting international markets involves studying the main factors that influence the choice of foreign markets: market potential, accessibility, susceptibility, and stability. In the course of such analysis, all favorable reasons and obstacles to the development of a particular foreign market should be identified. The result of all the efforts made by the firm in studying markets is the selection of several international candidate markets that are most suitable for the firm in terms of its competitive advantages. Such an analysis should

precede the study of competition since the latter can be so diverse that it is not advisable to study it for all potential markets for the enterprise.

When assessing the market potential, it is important to determine whether there is a similar product or service available on the market. In case of a positive answer, the existing demand is measured and an attempt is made to predict its maximum level. In this case, the market potential is understood as a set of its capabilities, the use of which will allow the company to carry out its activities.

The next stage of the algorithm for conducting market research and selecting international markets directly implies the final stage – the selection of foreign markets and determination of the type of international marketing of the firm. The company compares its strengths and weaknesses and develops the tasks of a strategic approach to the selection of markets in terms of their interconnection and the task of finding approaches to their development within the existing markets.

Finally, after analyzing the views of representatives of different marketing schools on conducting market research and selecting international markets based on the information collected in the process, we believe that international market research is aimed at identifying the best international markets for their goods and services, assessing the economic, political, cultural business environment in each market, identifying potential target markets, systematically researching and analyzing demand for them, assessing the constraints and obstacles that will have to be faced when entering international markets because obtaining information as a result of international market research will allow the company to interpret it and better understand the state and prospects of its international business. Obviously, international market research should be conducted systematically for domestic enterprises to understand the state of implementation of international marketing strategies in the relevant segments of international markets, and the application of digital technologies will ensure that they effectively collect and analyze information about the factors and indicators that influence the choice of foreign markets.

Consider a practical case study of applying digital technologies to form sustainable strategies for agricultural enterprises in international product markets. The product group "1512 Sunflower oil" was chosen for the study, as Ukraine has been the first in the world ranking of exporters for this product group for many years in a row, even in 2022, despite the war in the country, Ukrainian producers of the product group "1512 Sunflower oil" managed to plant, grow and harvest sunflower oil, provide the domestic market with this product and export the largest volume in the world despite all the barriers and obstacles. Everyone has their own front, and Ukrainian farmers, feeling all the responsibility for the sustainable development of agricultural enterprises, managed to maintain their leading position as the world's largest exporter of sunflower oil.

According to the official data of APK-Inform and the European Commission, Ukraine exported 1.95 mln tonnes of sunflower oil to the EU countries in 10 months of the 2022/2023 marketing year (September 2022 to June 2023), up 32% compared to the same period of 2021/2022 marketing year.

In total, for 10 months of the 2022/23 marketing year, 1.95 mln tonnes of sunflower oil was exported to the EU (+32% compared to the same period of the 2021/22 marketing year), or 42% of the total exports of this product from Ukraine since the beginning of the current season.

According to the European Commission, Ukraine increased its share in the total imports of sunflower oil by the EU countries in the September-June of 2022/23 season to about 88%, compared to 82% last season.

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In general, in June 2023, the exports of sunflower oil increased to 476 thousand tonnes, up 5% compared to the previous month, despite the expectations. The increase was due to the EU countries, where the maximum monthly figure since December 2022 was shipped – 256 thousand tonnes (+37% compared to May).

It is noted that in July-August of the current season, Ukrainian oil exports are expected to decline due to the likely termination of the "grain corridor" and a significant increase in the load on the Danube ports and western border crossings.

According to the State Customs Service of Ukraine, in 2022, the value of exports of oilseeds and oleaginous fruits amounted to almost USD 3.8 billion dollars. This is 54% more than in 2021.

Using the digital technologies considered in this study, we will analyze the factors that influence the choice of international sunflower oil-importing markets that will become convergent sales markets for Ukrainian agricultural enterprises.

To do this, it is first necessary to analyze the dynamics of the commodity structure of world exports of the product group "1512 Sunflower oil" in 2018-2022.

Table 1: Dynamics of world exports of the product group "1512 Sunflower oil", TOP-10, 2018-2022, USD million

Exporters	Export value, mln USD					Absolute deviation, +/-	
	018	019	020	021	022	021/ 020	022/ 021
The whole world	0567,9	1423,6	3377	7180,6	0944,4	803,6	763,8
Ukraine	113,4	273,5	319,3	387,6	492,6	068,3	895
Russian Federation	602,1	202,8	472,1	105	175,8	32,9	0,8
Turkey	23,1	00,8	36,9	37,2	899	00,3	61,8
Bulgaria	36,3	13,7	54,7	66,3	663,1	11,6	96,8
Netherlands	52,7	55,2	30,5	55,5	091	25	35,5
Hungary	14	92,1	81,6	02,9	002,4	21,3	99,5
Argentina	54,8	21,4	12,8	64,5	37,3	51,7	2,8
France	25,9	60,7	99,5	18,3	02	18,8	83,7

Spain	33,8	36,9	52,6	30,5	63	7,9	32,5
Romania	92,2	96,5	72,1	66,1	08,6	4	42,5
Other markets	719,6	870	044,9	546,7	809,6	01,8	262,9

Source: Trade statistics for international business development (*Last accessed 08.08.23*)

Based on the results of the analysis of world exports of the product group "1512 Sunflower oil", 2018-2022, USD million, we can conclude that in general, the volume of world exports of sunflower oil is constantly growing (Fig. 2), but only one exporter – the Ukrainian market – reduced its export activity in 2022 due to a number of important reasons, including disruption of logistics due to Russia's armed aggression against Ukraine.

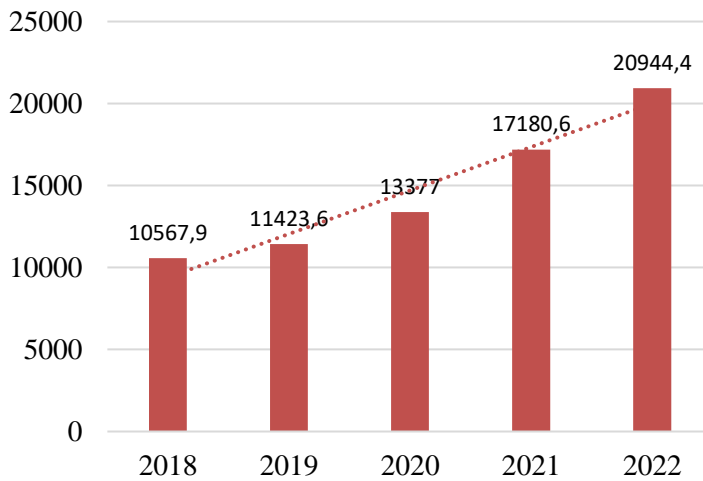


Figure 2. Structure of world exports of the product group "1512 Sunflower oil", 2018-2022, USD million

The reason for the increase in global exports of sunflower oil (in value terms) was the growth of the global sunflower oil price index due to the Ukrainian-Russian war, which in May 2020 fell to the lowest value at the peak of quarantine worldwide to 77.8 points (the value of the base period 2014-2016 = 100), and with the beginning of Russia's armed invasion of Ukraine, problems with the supply chain and logistics appeared, barriers arose to restore the supply chain, the so-called "grain corridor," which works with problems The whole world experienced problems with the purchase of sunflower oil, but even an increase in the price of this product group did not allow entrepreneurs to easily switch to other vegetable oils for their products. Due to food safety and regulatory laws in many countries, the switch to more affordable oils requires snack food companies to produce new packaging indicating the presence of any oil they have replaced.

Take a look at the structure of world exports of the product group "1512 Sunflower oil" in 2021-2022, when many barriers appeared for the world's leading exporters in the production and sale of this product group (Fig. 3).

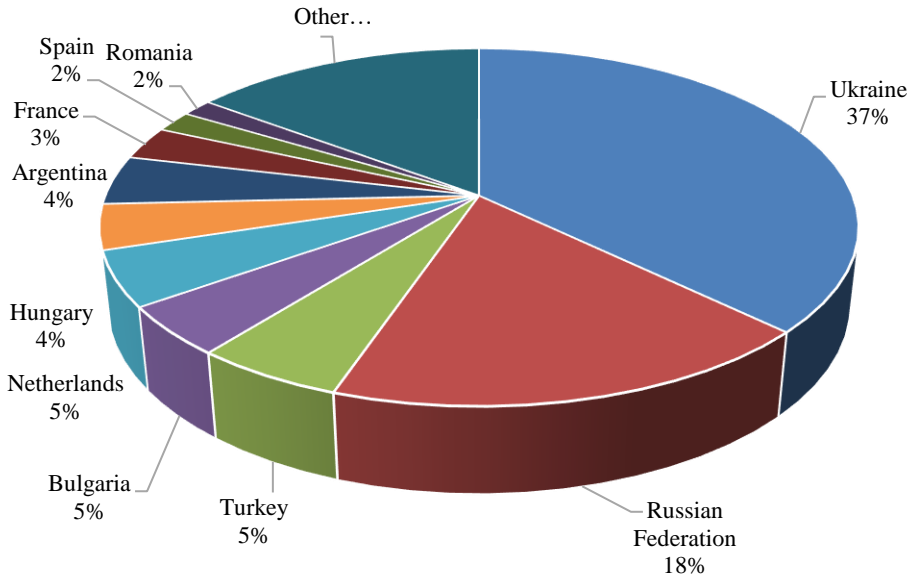


Figure 3. Structure of world exports of the product group "1512 Sunflower oil", 2021, USD million

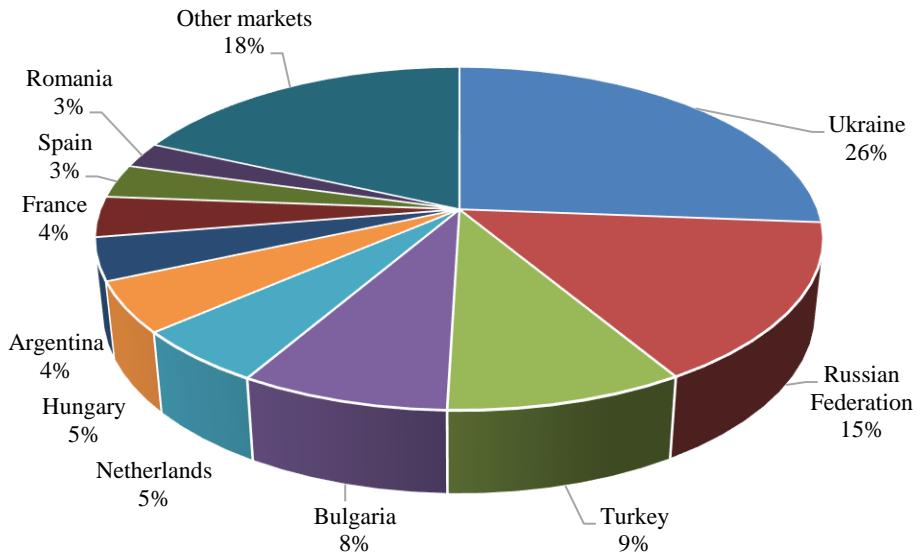


Figure 4. Structure of world exports of the product group "1512 Sunflower oil", 2022, USD million

Figures 2 and 3 show that even in the difficult year of 2022, the year of the Russian aggressor's military invasion of Ukraine, Ukrainian farmers conducted the 2022 sowing season and harvested the crop, but due to objective circumstances, sales volumes on the

international market decreased by 11%. Since Ukraine was a leading producer and processor of sunflower seeds in previous periods, any decrease in harvest will undoubtedly have a significant impact on the global sunflower oil market. In the forecasts for 2023, the greater the decline in exports of Ukrainian sunflower oil, the higher will be the shortage of its export availability, which affects the pricing policy and the elasticity of demand for sunflower oil.

Analyzing the sales markets of Ukrainian agricultural enterprises in the product group "1512 Sunflower oil", we can see that a characteristic feature of 2022 was the further consolidation of the European Union's position among the markets for domestic oilseeds (Table 2).

Table 2 Analysis of the dynamics of sales of Ukrainian agricultural enterprises by product group "1512 Sunflower oil", 2022

Importers	Export value in 2022 (mln USD)	Trade balance 2022 (mln USD)	Share in Ukrainian exports (%)	Total export volume in the market in 2022, thousand tons	Average distance between partner countries (km)	Distance between the markets of Ukraine and the partner (km)	Concentration of all partner countries supplying countries
India	772,3	772,3	14,1	633,6	7357	5235	0,24
Turkey	661,7	661,7	12	606,0	1617	2064,8	0,48
Poland	490,6	490,5	8,9	375,4	840	1146,4	0,54
Romania	421,7	421,6	7,7	349,2	565	795,5	0,27
Netherlands	385,6	385,6	7	274,2	1405	2139,0	0,14
China	339,8	339,8	6,2	276,8	5741	5943	0,41
Italy	323,8	323,8	5,9	268,1	1318	2393,0	0,2
Bulgaria	280,5	280,5	5,1	245,8	857	1016,6	0,61
Spain	263,0	263,0	4,8	212,2	2558	3774,8	0,18
Iraq	195,2	195,2	3,6	161,1	1496	3178,6	0,43
France	172,3	172,3	3,1	114,3	1813	2693,7	0,18
Hungary	106,7	106,7	1,9	67,2	898	1192,5	0,68
World	5492,6	5490,2	100	4312,9			

Source: compiled by the author for (Global Economy), Trade Statistics for the Development of International Business) (Last accessed 08.08.23)

The trade balance in 2022 of the top 12 importers of sunflower oil is positive, which indicates the presence of demand for the product group "1512 Sunflower oil" in the markets of India, Turkey, Poland, Romania, the Netherlands, China, Italy, Bulgaria, Spain, Iraq, France, Hungary, which are the top 12 markets of Ukraine's import partners in 2022.

Analyzing the average distance between the partner countries, we see that the distance between the Ukrainian market and the market of the TOP-12 partners is significantly higher than the average value, except for the markets of India and China,

which indicates that despite the increase in the cost of delivery of sunflower oil, the demand for this product group did not decrease in these markets, i.e. the demand for the product group "1512 Sunflower oil" is elastic.

The indicator "Concentration of all partner countries supplying the product group "1512 Sunflower oil" in all markets is less than 0.5, which confirms the presence of favorable conditions for doing business in the markets of India, Turkey, Romania, the Netherlands, China, Italy, Spain, Iraq, France, and the United States. The markets of Poland, Bulgaria, and Hungary have a high concentration of partner countries supplying the product group 1512 Sunflower oil, so it is important to study other indicators characterizing the business climate in these markets to make a decision on increasing sales of sunflower oil in future periods.

Consider the dynamics of exports from Ukraine of the product group "1512 Sunflower oil" over the past five years in order to determine the changes that have occurred in the structure of exports of Ukrainian sunflower oil (Table 3)

Table 3 Dynamics of export volumes from Ukraine of the product group "1512 Sunflower oil", 2018-2022, USD mln TOP-15

Importers	Export volume of the product group "1512 Sunflower oil"					Deviation	
	2018	2019	2020	2021	2022	+-	%
India	1774,1	1418,1	1436,9	1905,2	772,3	-1132,9	-146,69
Turkey	54,8	11,9	64,6	79,4	661,7	582,3	88,00
Poland	42,2	49,5	107,8	110,9	490,6	379,7	77,40
Romania	0,6	0,2	10,4	3,7	421,7	418	99,12
Netherlands	240,6	454,7	526,5	670,3	385,6	-284,7	-73,83
China	333,9	592,3	970,9	917,1	339,8	-577,3	-169,89
Italy	235,9	263,8	287,3	328,7	323,8	-4,9	-1,51
Bulgaria	0,2	13,0	20,24	5,3	280,5	275,2	98,11
Spain	238,5	311,7	342,1	469,4	263,0	-206,4	-78,48
Iraq	261,7	265,2	323,9	313,9	195,2	-118,7	-60,81
France	80,7	97,1	121,5	203,8	172,3	-31,5	-18,28
Hungary	0	0	16,8	1,1	106,8	105,7	98,97
Malaysia	60,4	73,9	67,1	77,4	105,4	28	26,57
United Arab Emirates	60,6	70,1	77,5	82,4	74,9	-7,5	-10,01
Lithuania	21,7	17,9	13,9	15,7	67,4	51,7	76,71
United States of America	20,0	24,5	56,2	60,3	60,6	0,3	0,50
United Kingdom of Great Britain	84,8	80,7	99,3	177,5	56,8	-120,7	-212,50

and Northern Ireland							
Germany	13,3	26,7	16,8	7,6	44,5	36,9	82,92

Source: compiled by the author for (Global Economy, Trade Statistics for the Development of International Business) (Last accessed 04.10.23)

The analysis of the dynamics of Ukrainian exports in 2018-2022 of the product group "1512 Sunflower oil" confirms that the war in Ukraine has caused a significant decrease in activity in many international markets: India, the Netherlands, China, the UK, and Spain. However, in order to prevent the global food crisis, Ukrainian farmers used every opportunity to increase sales in other international markets where there was no demand for Ukrainian sunflower oil before.

At the same time, the price of sunflower oil rose on the global market: from February 24 to March 24, 2022, the price of oil futures on the Chicago Board of Trade increased. Due to the constant shelling of fuel depots in Ukraine, prices for fuel needed for agricultural machinery rose, with a shortage of 85%. Ukrainian seaports (the main Black Sea ports of Ukraine are Odesa, Kherson, Mykolaiv, and Pivdennyi in Yuzhne) were also out of service. The entry and exit of ships were temporarily impossible, which meant that Ukrainian farmers could not supply food to the world and did not receive fuel and mineral fertilizers. Some ports partially operated for shipments by road and rail, and from the end of March 2022, sunflower oil was exported exclusively by rail. Due to the blocking of ports as a result of Russia's aggression and disruption of logistics within Ukraine, exports, in particular of sunflower oil, fell by 11%, and maritime exports accounted for half of Ukraine's total exports.

Only in the first year of a full-scale war in the markets of Turkey, Poland, Romania, Bulgaria, Hungary, Lithuania, and Germany, there were practically no reserves of sunflower oil. Then, in these markets increased exports from Ukraine product group "1512 Sunflower oil": in the Turkish market, the volume of sunflower oil imports from Ukraine increased from 79.4 thousand dollars in 2021 to 661,7 thousand dollars in 2022, on the Polish market with 110,9 thousand dollars to 490.6 thousand dollars, in the Romanian market from 3.7 thousand dollars to 421.7 thousand dollars, in the Bulgarian market from 5.3 thousand dollars to 280.5 thousand dollars, in the Hungarian market there was an increase from 1.1 thousand dollars to 106,8 thousand dollars, on the German market from 7.6 thousand dollars to 44.5 thousand dollars.

In 2022, the countries of the European Union purchased more than $\frac{3}{4}$ of the cost of supplying oilseeds from Ukraine. The second place with a share of 12% was regained by Turkey, which in 2021 lost to Belgium. Poland, which in 2021 was not included in the top 10 main buyers of domestic oilseeds, confidently took third place (8.9%), Romania – 7.7% (4th place of importers of Ukrainian sunflower oil), the Netherlands – 7%, Italy – 5.9%. Also, the "newcomer" in the top 10 ranking is Bulgaria, whose share was 5.1% last year. The markets of France and Hungary also got into the rating of the main importers of oilseeds from Ukraine, securing a share of 3.1% and 1.9%. In total, these eight countries brought Ukraine almost 56.4% of export revenues from all foreign oil supplies.

The great war in the center of Europe, namely in Ukraine, the consequences of the pandemic, and a record increase in agricultural prices make analysts assume the

inevitability of a large-scale economic crisis, which is called a recession. Recession is the state of the economy, when business activity simultaneously falls, consumption costs decrease, enterprises go bankrupt and the unemployment rate rises. Over the past two decades, Ukrainians have faced recession twice: in 2008 and 2015. Every time Ukraine experienced all the described phenomena.

In 2020, we determined that the markets of Ireland and Switzerland are promising for domestic agricultural enterprises selling sunflower oil. However, due to objective reasons, namely the distance between partner countries, an increase in the volume of Ukrainian exports of the product group "1512 Sunflower Oil" did not occur. As of 2023, when the logistics system in Ukraine is destroyed, we consider it necessary to re-examine the possibilities of agricultural enterprises in the markets of Ireland and Switzerland. In addition, according to our research, in 2020, the markets of Austria, Belgium, and Italy showed low individual indicators, such as economic growth rates, trade conditions index, and confidence index (FDI): inflow of foreign direct investment, high commercial tax rate; unstable business climate for agricultural exporters and low quality of life (2020). In 2022, only the Italian market became the leader-importer of the product group "1512 Sunflower Oil" from Ukraine. It is important to analyze how the indicators of the attractiveness of the business environment have changed after reformatting logistics routes through the countries of the European Union, and what opportunities exist for Ukrainian farmers.

The degree of development of individual international markets will be assessed by indicators of the attractiveness of their business environment (Table 4), which are important to take into account for the further development of a strategy for the sustainable development of the international business of agricultural enterprises in Ukraine.

Table 4. Assessment of individual international markets by indicators of attractiveness of their business environment, 2022

	Factor/ foreign market	Poland	Bulgaria	Hungary	Germany	United Kingdom	Ireland	Switzerland	Austria	Belgium
	2								0	1
1.	Economic growth, % (2022)	,87	,36	,58	,79	,1	1,97	,06		,25
2.	GDP, billion dollars (2022)	27,5	1,4	57,7	618,1	163,2	01,4	75,8	25,4	14,3
3.	GDP per capita, purchasing power parity, thousand dollars (2022)	6,8	6,8	5,3	3,6	6,8	13,9	0,9	6,3	3,2
4.	Inflation, % (2022)	4,4	5,3	4,6	,9	,9	,8	,8	,5	,6
5.	Trade conditions index, % (2022)	00,7	14,9	07,1	01,8	1,2	1,7		6,6	6,25
6.	Trade openness (quotas), % (2022)	22,3	36,3	84,9	8,6	8,9	36,6	37,7	20,1	93,1

7.	Confidence index (FDI) inflows of foreign direct investment (2022)	,09	,61	7,35	,16	,44	,83	,43	,01	,69
8.	Unemployment rate, % (2022)	,6	,4	,42	,99	,57	,36	,2	,71	,63
9.	Commercial tax rate, % (2022)	0,8	8,3	7,9	8,8	0,6	6,1	8,8	1,4	5,4
10.	Taxes on international trade, % (2022)		,04			,63		,92		
11.	Government efficiency ratio, (2022)	,29	0,14	,63	,33	,28	,5	,03	,57	,13
12.	Corruption control ratio (2022)	,57	0,24	,04	,81	,67	,65	,99	,27	,48
13.	Legislative regulation quality factor (2022)	,84	,45	,5	,63	,47	,56	,73	,35	,34
14.	Business freedom index, points (2023)	5	2	4	0	9	7	4	9	9
15.	Trade freedom index, points (2023)	9	9	9	9	2	9	7	9	9
16.	Economic globalization, % (2022)	3	4	2	0	0	8	6	2	9
17.	Population, million people (2022)	7,6	,5	,7	4,1	6,9	,1	,8	,04	1,7
18.	Carbon dioxide emissions (CO2) per capita, ton (2020)	,37	,92	,59	,26	,6	,71	,04	,63	,4
19.	Happiness index (2022)	,26	,47	,04	,89	,8	,91	,24	,1	,86

Source: compiled by the author for (Global Economy, Trade Statistics for the Development of International Business) (Last accessed 04.10.23)

Further, a group of 5 experts evaluated the indicators of attractiveness of international markets (Table 4) in points on a 5-point scale (the evaluation scale was developed in accordance with the minimum and maximum value of the indicator in the world market) and determined the markets of foreign countries that scored the maximum number of points in the rating of the studied international markets (Table 5).

Table 5. Assessment of selected international markets by indicators of attractiveness of their business environment, 2022

Factor/ foreign market	Poland	Bulgaria	Hungary	Germany	United Kingdom	Ireland	Switzerland	Austria	Belgium
2	3	4	5	6	7	8	9	10	11
Economic growth, % (2021)	4	4	4	4	4	5	4	4	4

GDP, billion dollars (2021)	4	3	3	5	5	5	4	4	4
GDP per capita, purchasing power parity, thousand dollars (2021)	4	4	4	4	4	5	4	4	4
Inflation, % (2021)	4	4	4	5	5	5	5	5	5
Trade conditions index, % (2020)	4	5	4	4	4	4	5	4	4
Trade openness (quotas), % (2021)	5	5	5	4	4	5	5	5	5
Confidence index (FDI) inflows of foreign direct investment (2021)	5	4	0	1	1	3	3	4	1
Unemployment rate, % (2021)	5	5	5	5	5	5	5	5	5
Commercial tax rate, % (2021)	5	5	5	4	5	5	5	4	4
Taxes on international trade, % (2021)	5	5	5	5	5	5	5	5	5
Government efficiency ratio (2021)	4	5	4	3	3	3	3	3	3
Corruption control ratio (2021)	4	5	5	3	3	3	3	3	3
Legislative regulation quality factor (2021)	4	4	4	5	5	5	5	5	5
Business freedom index, points (2021)	5	5	5	5	5	5	5	5	5
Trade freedom index, points (2021)	5	5	5	5	5	5	5	5	5
Economic globalization, % (2020)	5	5	5	5	5	5	5	5	5
Population, million people (2022)	5	3	3	5	5	3	3	3	4
Carbon dioxide emissions (CO ₂) per capita, ton (2020)	3	5	5	3	5	4	5	4	4
Happiness index (2022)	5	5	5	5	5	5	5	5	5
Total value	85	85	80	83	85	89	88	88	87

Emissions of carbon dioxide (CO₂) per capita, tons

As a result of the application of digital technologies, namely the "Trade Map" and "Theglobeconomy" platforms, which operate on request, a study of international markets was conducted, which were previously identified as potential markets for Ukrainian sunflower oil. Table 4 shows an assessment of the global indicators of the markets of Poland, Bulgaria, Hungary, Germany, the UK, Ireland, Switzerland, Austria, and Belgium. Based on the expert assessment, the scores were calculated for each market under study (Table 5), and the markets that are attractive for Ukrainian agricultural producers of the product group "1512 Sunflower oil" were identified, namely the markets of Ireland, Switzerland, Austria, Belgium and the markets where it is possible to increase sales of sunflower oil - the markets of Poland, Bulgaria, and the UK.

The markets of Bulgaria and Great Britain increased their attractiveness index due to the evaluation of the "Carbon dioxide emissions (CO₂) per capita, ton" coefficient, which is important in terms of sustainable development of the agricultural sector, both at the international and domestic levels.

The results of the study have shown that Ukrainian farmers will be able to formulate sustainable development strategies in the two identified segments of international markets. After all, the possibility of generating additional income through market expansion in Poland, Bulgaria, and the United Kingdom and access to new potential markets in Ireland, Switzerland, Austria, and Belgium will ensure that Ukrainian agricultural enterprises strengthen their sustainable positions.

Intensifying international activities during a period of war in a country can help companies adapt to changing business conditions and provide an opportunity to take advantage of profit opportunities.

We believe that the problems of price formation on international markets for the product group "1512 Sunflower Oil", which arose as a result of uncontrollable factors faced by Ukrainian enterprises due to the COVID-19 pandemic and Russia's aggression, are important to solve at the level of macroeconomic policy, introducing a mitigation strategy currency restrictions, a transition to greater exchange rate flexibility and a return to inflation targeting.

It is the mitigation strategy that will create the conditions for the intensification of international activity during the war in the country and will help enterprises adapt to changing business conditions and provide an opportunity to take advantage of the opportunity to make a profit.

4. Conclusion

The article studies the possibilities of entering new international markets and expanding the existing markets of Ukrainian agricultural enterprises through the use of modern digital technologies, namely, digital platforms that, at the request of the user, allow the forming and evaluation of a system of indicators of the attractiveness of sales markets.

Using the example of the product group "1512 Sunflower Oil", two segments of attractive international markets for Ukrainian agricultural producers have been identified. The first segment is the markets of Ireland, Switzerland, Austria, and Belgium, where there are favorable conditions for conducting business by Ukrainian farmers. The second segment is the markets of Poland, Bulgaria, and Great Britain, where there is an opportunity to increase the sales of sunflower oil. It is substantiated that the activation of international business activities of agrarian producers of the product group "1512 Sunflower Oil" will allow in the near future to ensure the implementation of the strategy of sustainable development, the strategy of easing currency restrictions, regardless of all the difficulties that arose as a result of the active phase of the war in Ukraine.

For agricultural enterprises, we recommend systematically analyzing the attractiveness of the business environment of international markets using digital services to search for relevant information.

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