American University Kyiv

A Capstone Project

DEVELOPING A STRATEGY FOR AN ORGANIZATION IN UKRAINE'S GRAIN MARKET CONSIDERING THE IMPACT OF THE WAR ON TRADE (CASE STUDY)

РОЗРОБКА СТРАТЕГІЇ ДЛЯ ОРГАНІЗАЦІЇ НА ЗЕРНОВОМУ РИНКУ УКРАЇНИ З УРАХУВАННЯМ ВПЛИВУ ВІЙНИ НА ТОРГІВЛЮ (НА КОНКРЕТНОМУ ПРИКЛАДІ)

by Krechkevych Igor

Presented in Partial Fulfilment of the Requirements
for the Degree
Master

APPROVED BY:
Professor, Volodymyr Vakhitov

2025

Abstract

The ongoing war in Ukraine has caused significant disruptions to the nation's grain market, affecting production, supply chains, and export capabilities. This capstone examines the strategic challenges and opportunities faced by Kernel Holding S.A., a leading agribusiness company in Ukraine, amidst these unprecedented conditions. Utilizing a combination of qualitative and quantitative research methods, the study evaluates Kernel's market position, the impact of the war on its operations, and potential strategies for resilience and growth. Key findings highlight Kernel's ability to adapt through diversification of export routes, technological investments, and sustainability practices. Strategic recommendations include short-term operational adjustments, mid-term market expansion, and a long-term focus on innovation and sustainability. These insights not only provide actionable strategies for Kernel but also contribute to broader discussions on crisis management and food security in volatile global markets.

Table of content

1. Introduction

1.1 Background and Importance of the Topic

The full-scale war in Ukraine, which began in February 2022 with Russia's invasion, has had far-reaching consequences not only for Ukraine and its immediate neighbors but also for the global community. This conflict, rooted in long-standing geopolitical tensions between Russia and Western nations, has escalated into the most significant military confrontations in Europe since World War II. The impact of the war extends beyond military and political spheres, severely affecting global economic systems, energy markets, and notably, the agricultural sector.

Ukraine has long been a critical player in the global agricultural market, often referred to as the "breadbasket of Europe." Its fertile black soil, known as chernozem, enables the cultivation of high-quality grains such as wheat, barley, sunflower and corn. Before the war, Ukraine contributed approximately **10% of global grain exports (**https://ukraine.ua/faq/what-does-ukraine-export/**)**, securing its position among the top five exporters globally (see Table 1). This dominance is vital not only for Ukraine's economy but also for ensuring food security in regions dependent on imports, such as North Africa and the Middle East.

Table 1. Global Export Contribution by Ukraine

Product	**Exports**		
	Volume (1,000 MT)	**Rank Among Global Exporters**	**% of Global Exports**
Corn	23,000	#4	12%
Wheat	19,000	#5	9%
Sunflower	75	#9	3%
Barley	5,800	#3	17%
Rapeseed	2,700	#3	20%

Source: USDA Foreign Agricultural Service (FAS) report, April 2022

However, the war has caused significant disruptions to Ukraine's agricultural production and exports. Crops production peaked at **102 million tons in 2021**, only to plummet to **67,9 million tons in 2022** due to the ongoing conflict (Figure 1).

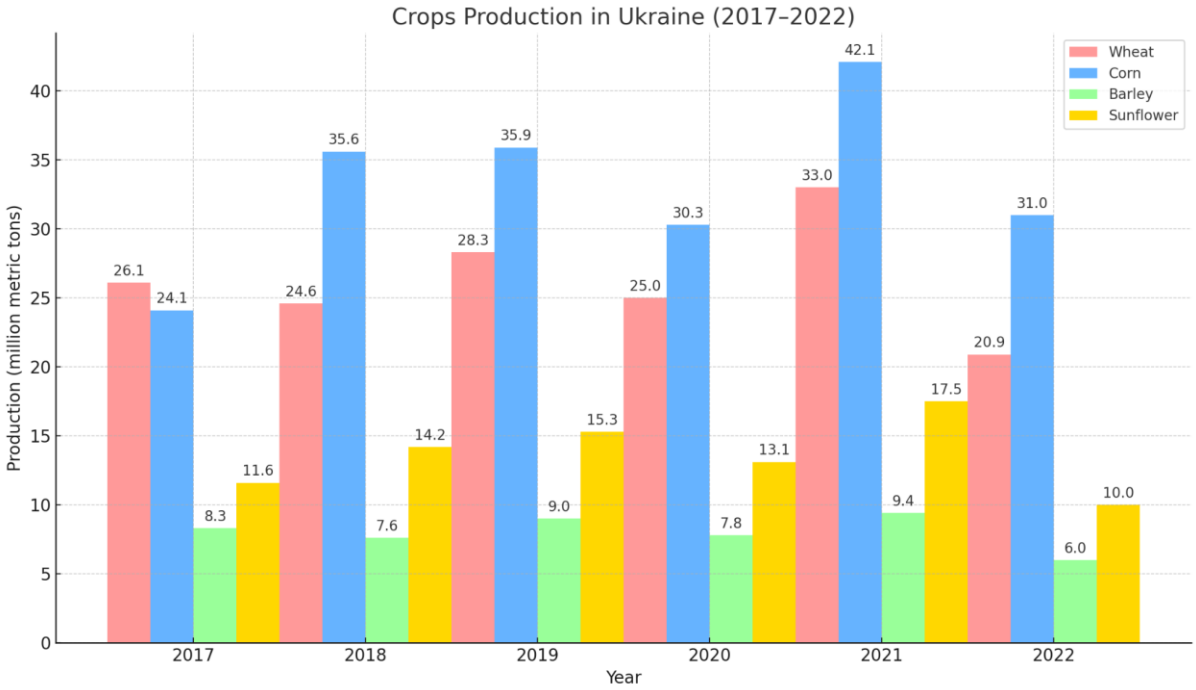

Figure 1. Crops Production in Ukraine

Source: Food and Agriculture Organization, State Statistics Service of Ukraine, & USDA Foreign Agricultural Service. (2022). *Crops production statistics for Ukraine, 2017–2022*. Retrieved from https://www.fao.org

The war has also severely restricted traditional export routes, particularly via Black Sea ports, which previously accounted for **70% of Ukraine's grain exports**. Companies now face logistical challenges, higher costs, and reduced competitiveness in global markets (Figure 2).

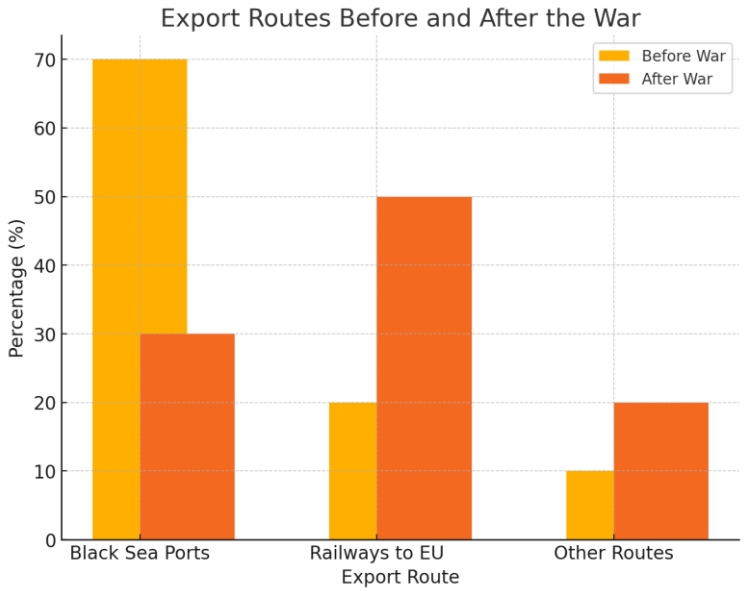

Figure 2. Export routes from Ukraine Before and After the War

Source: Developed by author

Strategic planning in this context is critical for agricultural companies, especially for grain producers and exporters. A robust strategy is essential for mitigating immediate risks, adapting to operational challenges, and positioning the company for sustainable growth in an unstable environment. By addressing these challenges, companies can also contribute to global food security during a time of heightened vulnerability.

1.2 Problem Statement

The war in Ukraine has created unprecedented challenges for the nation's grain market, including a sharp decline in trade volumes, significant supply chain disruptions, and mounting economic pressures on key players of the market. Grain exports have dropped from **64 million tons in 2021** to **37,7 million tons in 2022**, about 50% reduction (Figure 3). This decline is primarily due to blocked Black Sea ports, which have forced exporters to rely on less efficient and more costly alternatives such as rail transport to the EU.

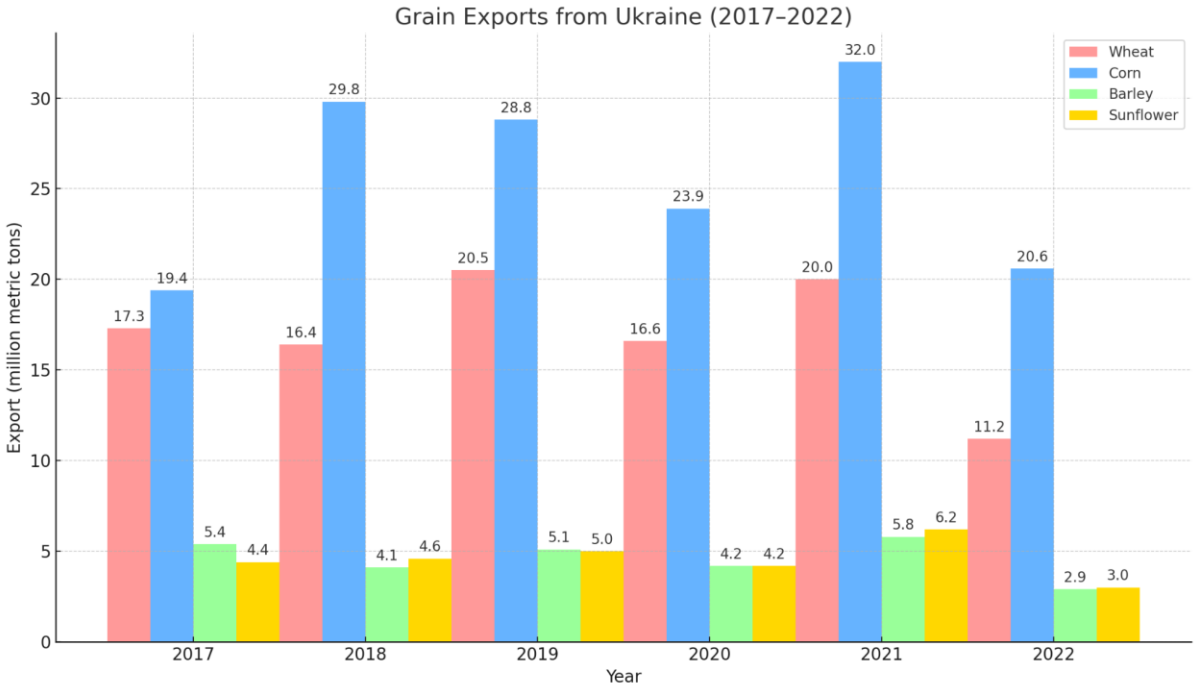

Figure 3. Ukraine's Grain Export

Source: Food and Agriculture Organization, State Statistics Service of Ukraine, & USDA Foreign Agricultural Service. (2022). *Grain export statistics for Ukraine, 2017–2022*. Retrieved from https://www.fao.org

The supply chain has been further strained by the destruction of infrastructure, including railways and storage facilities, as well as increased operational costs. Shipping costs, for instance, have more than doubled during the conflict (Figure 4). These logistical inefficiencies and rising costs have reduced Ukraine's companies competitiveness in the global market, limiting its ability to generate revenue and reinvest in its operations.

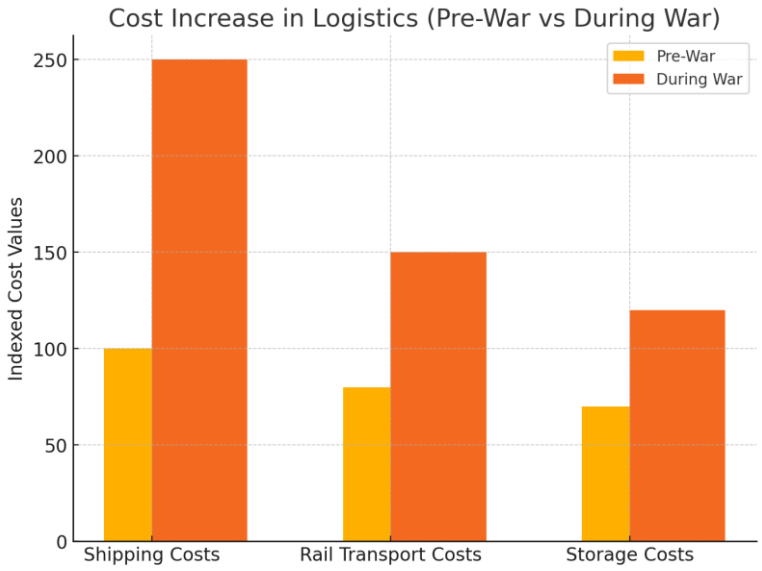

Figure 4. Cost of Logistics

Sourced: Developed by author

During the War Ukrainian companies faced additional challenges such as currency fluctuations (Figure 5), which were permanent from October 2023, credit constraints, connected with a shocked banking system and needs to be balanced for limiting the currency fluctuation especially in 2022-2023 where currency was on the same level, and uncertainty in global demand. Together, these issues emphasize the urgent need for adaptive strategies to ensure resilience and sustainability for companies.

Figure 5. US/Hryvnia Exchange rate

XE. (n.d.). *US Dollar to Ukrainian Hryvnia exchange rate chart*. Retrieved December 2, 2024, from https://www.xe.com/currencycharts/?from=USD&to=UAH&view=5Y

1.3 Research Objectives

The research objectives are important to be defined at the start of research. It is a crucial stage of work because depending on the questions and objectives all next information will be directed on answering these questions.

The primary aim of this research is to develop a comprehensive strategy for a company operating in Ukraine's grain market, focusing on navigating the challenges posed by the ongoing war and its impact on trade. This study will center on Kernel, one of Ukraine's largest agribusinesses, as a case study to analyze the broader implications of conflict on the industry and explore sustainable, innovative strategies for growth and resilience. The key objectives are:

1. **Assess Kernel's Market Position**: one of the capstone aims is to analyze the company's performance, market share, and operational efficiency before and during the conflict.
2. **Evaluate the Impact of the War**: second one is to identify specific challenges, including trade disruptions, supply chain inefficiencies, and financial constraints company faced during the war.
3. **Propose Strategic Solutions**: based on findings and research information the result of capstone is to propose short-, medium-, and long-term strategies to mitigate risks and capitalize on growth opportunities.

These key objectives offer practical, evidence-based solutions and could be implemented by companies as Kernel and similar organizations for mitigating the consequences of war and building resilience for future development and growth, ensuring they remain competitive while contributing to the recovery and stabilization of Ukraine's grain market.

1.4 Research Questions

Research questions are aimed at finding the right answers and finding a way to achieve the research objectives. Therefore, in most cases, the questions posed in the research are closely related to the research objectives, and quite often they can duplicate them. To achieve objectives of capstone, the research is guided by the following questions:

1. What is Kernel's current position in Ukraine's grain market, and how has it evolved due to the war?

2. How has the war affected Kernel's operations, including supply chains, trade volumes, and financial stability?
3. What strategies can Kernel implement to overcome the immediate challenges posed by the conflict?
4. How can Kernel build a sustainable and competitive position in the post-war recovery phase?

1.5 Methodology

The study will employ a mixed-methods approach to provide a comprehensive analysis of the grain market and Kernel's position and strategy in the Ukrainian grain market. For research will be used next methods:

1. **Qualitative Analysis**: this stage examines secondary sources such as company reports, industry analyses, and studies on the war's impact to assess market, industry, company external environment and make findings for potential strategy discussion.
2. **Quantitative Analysis**: for this aim study utilizes production volumes, export trends, and financial data to quantify the war's effects on Kernel and on grain market in general.

Using these types of analysis help develop evidence-based approaches which are connected with the real situation on the market. Additionally possibly interview with top-management or consumers from the grain market. As information also will be used personal experience of a student who was deputy mayor during 2022-2023 years and faced problems with sunflower oil on local market and for bread baking.

For purposes of the capstone data sources will include: company reports (Kernel's annual reports, operational updates, and financial statements), industry analyses (publications from the FAO, market research firms, and Ukrainian economic analysts), and war impact studies (reports from governmental and non-governmental organizations on trade and infrastructure damage).

Such methodology ensures a robust and balanced understanding of Ukrainian grain market and Kernel's challenges and opportunities, integrating diverse perspectives and reliable data.

2. Literature Review

2.1 Overview of the Global Grain Market

The global grain market is a cornerstone of the world economy, supplying essential sustenance for billions of people and serving as a critical input for industries such as livestock feed, biofuels, and food processing. Grain crops such as wheat, corn, rice, and soybeans are staples in global trade, with production concentrated in regions with favorable climates and advanced agricultural technologies. Major players in this market include the United States, Brazil, Russia, Canada, and Ukraine. The United States leads the global export market for corn and soybeans, while Ukraine, before the war, was a top exporter of wheat and sunflower oil, accounting for approximately **10% of global wheat exports** and **50% of global sunflower oil exports** (FAO, 2022) where Ukraine is key supplier in the world (Figure 6).

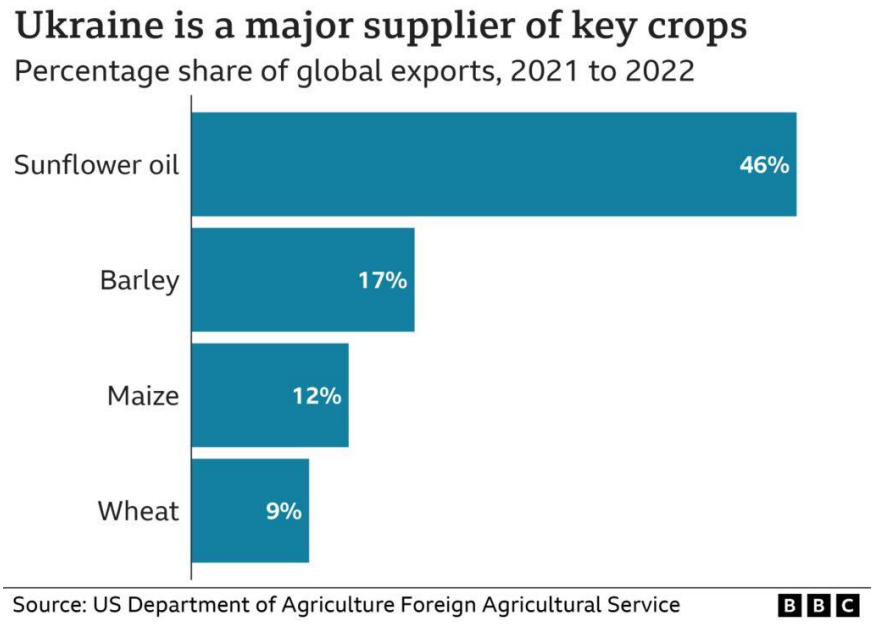

Figure 6. Ukraine's Share of Global Export

In addition, Ukraine is a key supplier of wheat to certain countries (Figure 7). The loss of Ukraine as a supplier for these countries could not only lead to a deterioration in the welfare of citizens or worsen food security in certain countries, but could even cause famine.

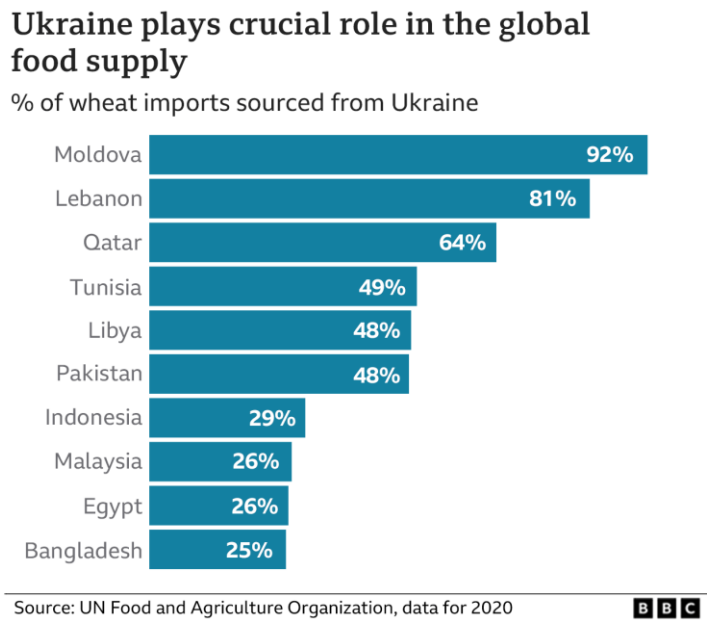

Figure 7. Largest Importer of Ukraine's Wheat

Emerging agricultural economies such as Argentina, India, and Australia also play significant roles in balancing global grain supply. Global trade ensures that regions with less arable land or limited agricultural output—such as North Africa, the Middle East, and parts of Asia—can meet their food security needs (OECD & FAO, 2021).

Growing Demand for Grains

Global demand for grains has increased significantly in recent decades due to population growth, urbanization, and shifts in dietary preferences in emerging economies. The rise in protein-rich diets has fueled demand for feed grains, such as corn and soybeans, used in livestock production (FAO, 2020). Furthermore, grains have become a vital input for biofuel production, particularly in regions like the United States and Brazil, where corn and sugarcane are processed into ethanol.

The **Food and Agriculture Organization (FAO)** projects that by 2050, global grain production will need to increase by 50% and demand will reach approximately 3 billion tonnes by 2050, up from nearly 2.1 billion tonnes in recent years, marking an increase of about 43% (FAO, 2009). This projection accounts for both food and animal feed uses and must be reached to meet population growth and rising consumption trends. This heightened demand places

pressure on producers to innovate and scale up operations while grappling with resource constraints and environmental concerns (FAO, 2020).

Market Volatility and Challenges

Despite its critical role in global food security, the grain market is highly susceptible to volatility due to a combination of environmental, political, and economic factors:

1. **Climate Change:** Increasingly erratic weather patterns, including droughts, floods, and temperature extremes, have disrupted agricultural productivity worldwide. Key grain-producing regions such as the U.S. Midwest, Brazil, and Ukraine have faced significant yield losses due to climate variability in recent years (OECD, 2021).
2. **Geopolitical Tensions:** Trade policies, sanctions, and conflicts have directly impacted global grain supply chains. For instance, export restrictions imposed during the COVID-19 pandemic disrupted trade flows, while the ongoing war in Ukraine has created significant supply shortages (World Bank, 2022).
3. **Input Cost Inflation:** Rising costs for fertilizers, energy, and labor have added to the financial burden on producers, translating into higher grain prices globally. The reliance on inputs like natural gas for fertilizer production has exposed the grain market to additional vulnerabilities (FAO, 2022).
4. **Infrastructure Constraints:** Inefficient logistics and outdated storage facilities in many exporting countries limit their capacity to scale production or respond to demand surges (World Bank, 2022).

2.2 Impact of War on Agricultural Trade

The war in Ukraine has profoundly destabilized the global grain market, intensifying pre-existing challenges and introducing new complexities. Ukraine plays a critical role in global agricultural trade, particularly in supplying wheat and sunflower oil to import-dependent regions. However, the conflict has led to severe disruptions in exports, with blockades of Black Sea ports—the primary gateway for Ukraine's grain exports—significantly reducing global supply. In 2022, Ukrainian grain exports fell by over **40%**, creating acute shortages in critical markets such as North Africa (FAO, 2022; WFP, 2022).

These disruptions have contributed to a sharp increase in global grain prices, which surged by **17%** in 2022 due to reduced availability and speculative trading (Figure 8). The price spikes have disproportionately affected low-income, grain-importing nations, exacerbating food insecurity in regions like the Middle East and Africa (FAO, 2022). Additionally, countries like India and Brazil have stepped in to fill the gaps left by Ukrainian exports, reshaping traditional trade routes and altering buyer relationships (World Bank, 2022).

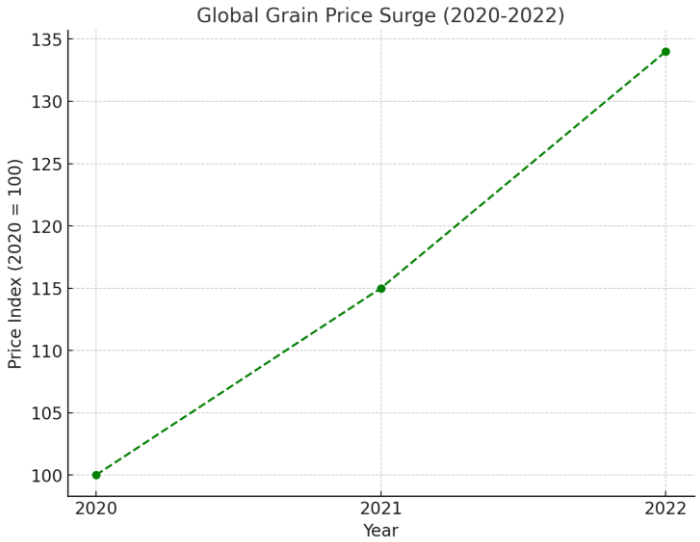

Figure 8. Global Grain Price

Source: Developed by author

Beyond direct export losses, the war has triggered broader economic and geopolitical ripple effects. Trade routes have been rerouted through less efficient rail and road networks to neighboring European countries, significantly increasing transportation costs and transit times. The logistical challenges have strained Ukraine's infrastructure, compounding the difficulty of maintaining export volumes and changing the network of end customers and logistics routes (Figure 9). Moreover, the uncertainty surrounding future production levels has fueled speculative behavior in global commodity markets, further intensifying price volatility. Geopolitically, the conflict has prompted nations to reassess their dependence on single sources of agricultural imports, encouraging a shift toward diversification and regional self-sufficiency (World Bank, 2022; FAO, 2022).

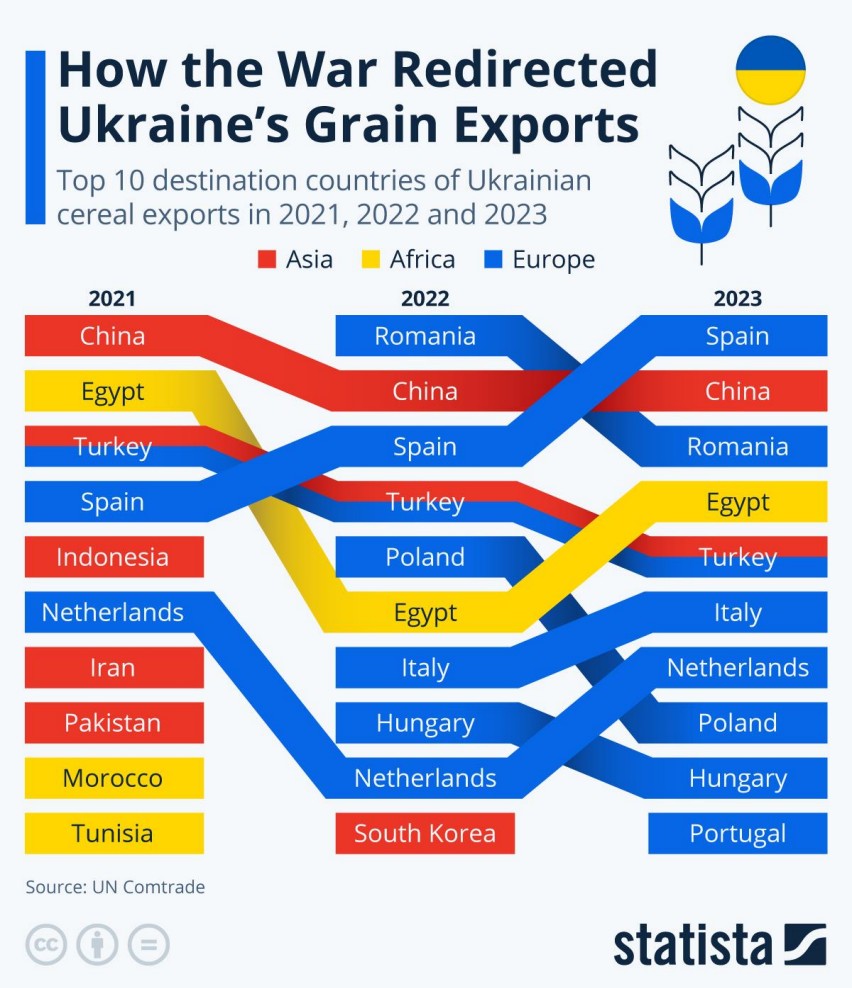

Figure 9. Top ten destinations of Ukrainian cereal export

In summary, the war in Ukraine has disrupted the global grain market by reducing export capacity, inflating prices, and altering trade dynamics. Addressing these challenges requires coordinated international efforts to stabilize supply chains, enhance infrastructure, and mitigate the socioeconomic impacts on vulnerable regions.

Outlook for the Global Grain Market

While the global grain market has shown resilience, adapting to crises such as the pandemic and geopolitical conflicts, it faces ongoing uncertainty. Innovations in agricultural technology, such as precision farming and genetically modified crops, offer potential solutions for increasing productivity (OECD, 2021). However, addressing structural challenges, such as improving infrastructure, reducing waste, and fostering international cooperation, will be critical for ensuring stable and equitable access to grain in the future.

The next decade will likely see a greater focus on sustainable agricultural practices to mitigate environmental risks and ensure long-term food security. For Ukraine, rebuilding its agricultural sector post-conflict will be essential not only for its economy but also for stabilizing global food systems (FAO, 2022).

2.3 Strategic Frameworks in Crisis Management

Strategic frameworks are structured methodologies that organizations use to analyze their environment, set priorities, and make decisions that align with their long-term goals. These frameworks provide a systematic approach to understanding complex challenges, evaluating opportunities, and crafting strategies to achieve sustainable growth and resilience.

In a dynamic and uncertain business landscape, strategic frameworks enable companies to identify their strengths and weaknesses, assess external threats and opportunities, and position themselves effectively within their industry. By integrating both internal and external analyses, these tools guide decision-makers in allocating resources, optimizing operations, and responding proactively to market changes.

Some of the most commonly used strategic frameworks include **SWOT Analysis**, which focuses on internal and external factors; **PESTLE Analysis**, which evaluates macro-environmental influences; and **Porter's Five Forces**, which examines industry competitiveness. Each of these frameworks offers unique perspectives and serves as a critical component of comprehensive strategic planning.

Strategic frameworks are particularly valuable during times of crisis or uncertainty, as they help organizations adapt to changing conditions and maintain focus on their core objectives. When implemented effectively, these tools empower businesses to navigate complexity, drive innovation, and create value for stakeholders.

In the face of such disruptions as we are considering, companies must adopt robust strategic frameworks to ensure business resilience and recovery. The following models can be relevant for Kernel assessment:

1. **SWOT Analysis**: Identifies strengths, weaknesses, opportunities, and threats to inform strategic decision-making. For Kernel, this could include

leveraging its established market presence and exploring new markets while addressing vulnerabilities in its supply chain.

2. **PESTLE Analysis**: Assesses external macroeconomic factors, including political, economic, social, technological, legal, and environmental elements. The war has shifted political and economic dynamics, necessitating Kernel's adaptation to a changing regulatory and market landscape.
3. **Porter's Five Forces**: Evaluates industry competitiveness. Kernel faces heightened supplier bargaining power due to increased logistics costs and reduced alternative routes for grain exports.
4. **Scenario Planning**: Develops strategies for various potential future scenarios. For example, Kernel can prepare for outcomes ranging from prolonged conflict to a rapid post-war recovery.

These theoretical frameworks provide a structured approach for addressing crises and are critical for businesses operating in unstable environments and most suitable for developing Kernel strategy for crysis period and post-crisis period.

2.4 Kernel Company Overview

Kernel is one of the largest agribusiness companies in Ukraine and a leading global exporter of sunflower oil, wheat, and corn. Kernel was founded in 1995 by Andrey Verevsky in Poltava, Ukraine. Initially, the company focused on trading agricultural commodities domestically. By the late 1990s, Kernel expanded its operations into the export of grains and oilseeds, capitalizing on Ukraine's fertile black soil (chernozem) and the country's long-standing reputation as a "breadbasket" (Kernel, 2021).

In the early 2000s, Kernel diversified into sunflower oil production, a key milestone that laid the foundation for its global leadership in this market. The company acquired its first oilseed crushing plant and steadily expanded its processing capacity. By 2007, Kernel launched an Initial Public Offering (IPO) on the Warsaw Stock Exchange, raising funds to further grow its operations. The IPO positioned Kernel as a prominent international agribusiness player (Warsaw Stock Exchange, 2007).

During this period, Kernel focused on vertical integration, acquiring grain storage facilities, port terminals, and additional farmland to enhance operational efficiency. By 2020, Kernel was handling over 8 million tons of grain exports

annually and had established itself as the world's leading producer and exporter of sunflower oil, accounting for approximately 7% of global supply (Kernel, 2020).

The COVID-19 pandemic and the ongoing war in Ukraine presented unprecedented challenges for Kernel. Despite supply chain disruptions and geopolitical instability, the company maintained operations under difficult circumstances. Kernel's adaptability has solidified its role as a critical contributor to global food security (Kernel, 2022).

Established in 1995, the company has built a business model with strong market presence through vertical integration, controlling operations from production to export (Figure 10). Kernel's assets include:

1. **Farming**: The company operates over 500,000 hectares of agricultural land in Ukraine, producing wheat, corn, and sunflower seeds (Kernel, 2021).
2. **Oilseed Processing**: Kernel processes sunflower seeds into crude and refined oil, with an annual capacity of over 3 million tons (Kernel, 2021).
3. **Infrastructure and Storage**: Kernel owns an extensive network of grain elevators and storage facilities, ensuring efficient handling and distribution (Kernel, 2020).
4. **Export Logistics**: The company operates port terminals in Ukraine, enabling the export of grains and oils to over 80 countries (Kernel, 2022).

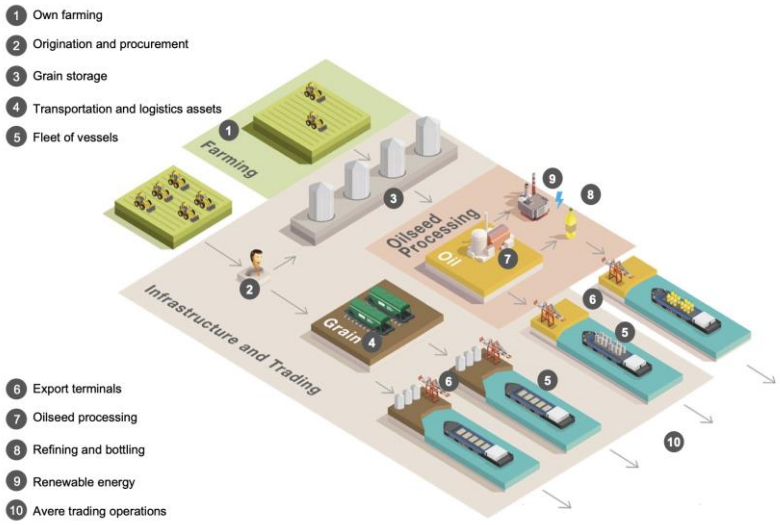

Figure 10. Kernel's Business Model

Before the war, Kernel exported its products to over **60 countries**, primarily through Black Sea ports. However, the conflict has significantly impacted its operations, necessitating shifts in strategy. Despite these challenges, Kernel remains a key player in the Ukrainian grain market due to its scale, operational efficiency, and established international partnerships. Key operating highlights of the company displayed on Figure 11.

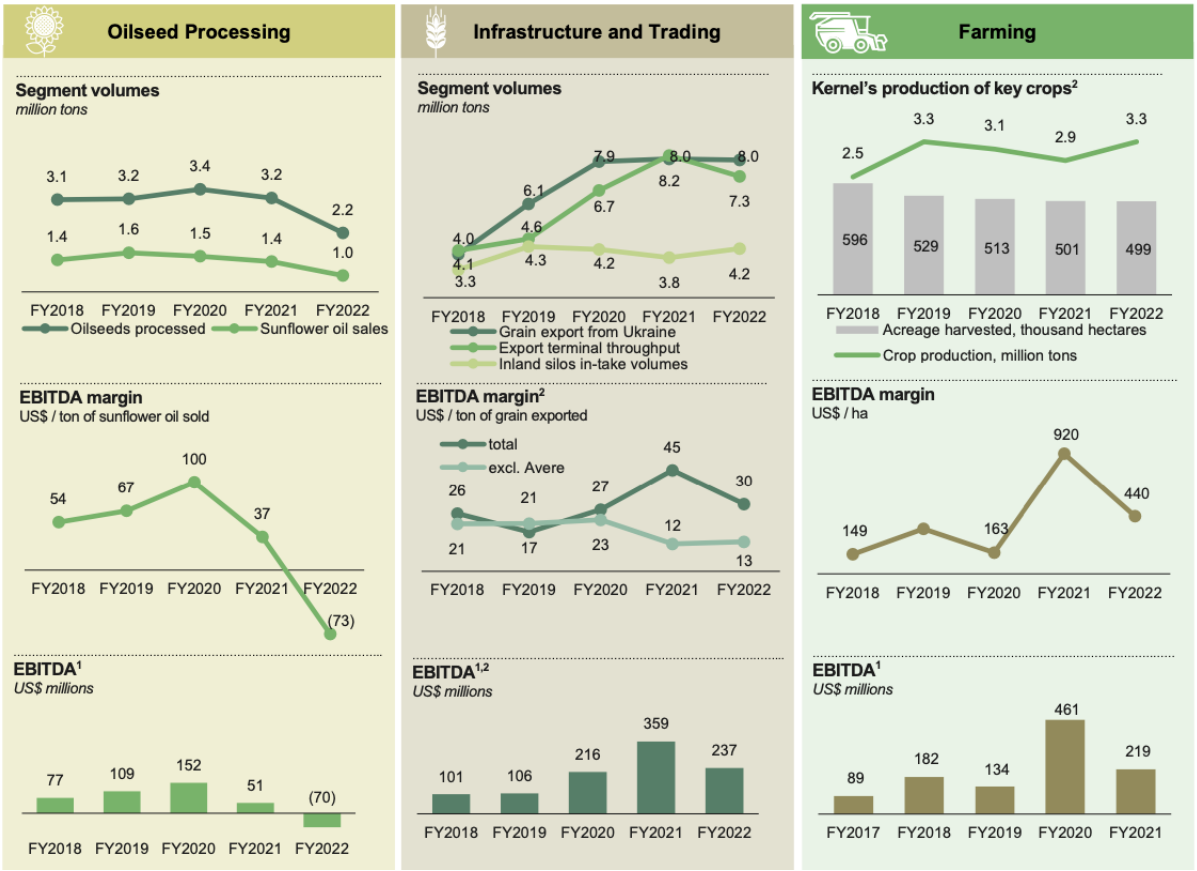

Figure 11. Key Operating Highlights of Kernel

Additionally, it should be noted that Kernel pays a lot of attention to sustainable development and reducing greenhouse gas emissions. For the purposes of sustainable development, Kernel has a diversified business in alternative energy sources, namely biomass processing into electricity and heat. Electricity and heat are used both for own needs and for sale. These generation points are located in central, southern and eastern Ukraine.

In general, it should be noted that the business has fixed assets located throughout the country - mostly in the central, eastern and southern parts of Ukraine (Figure 12).

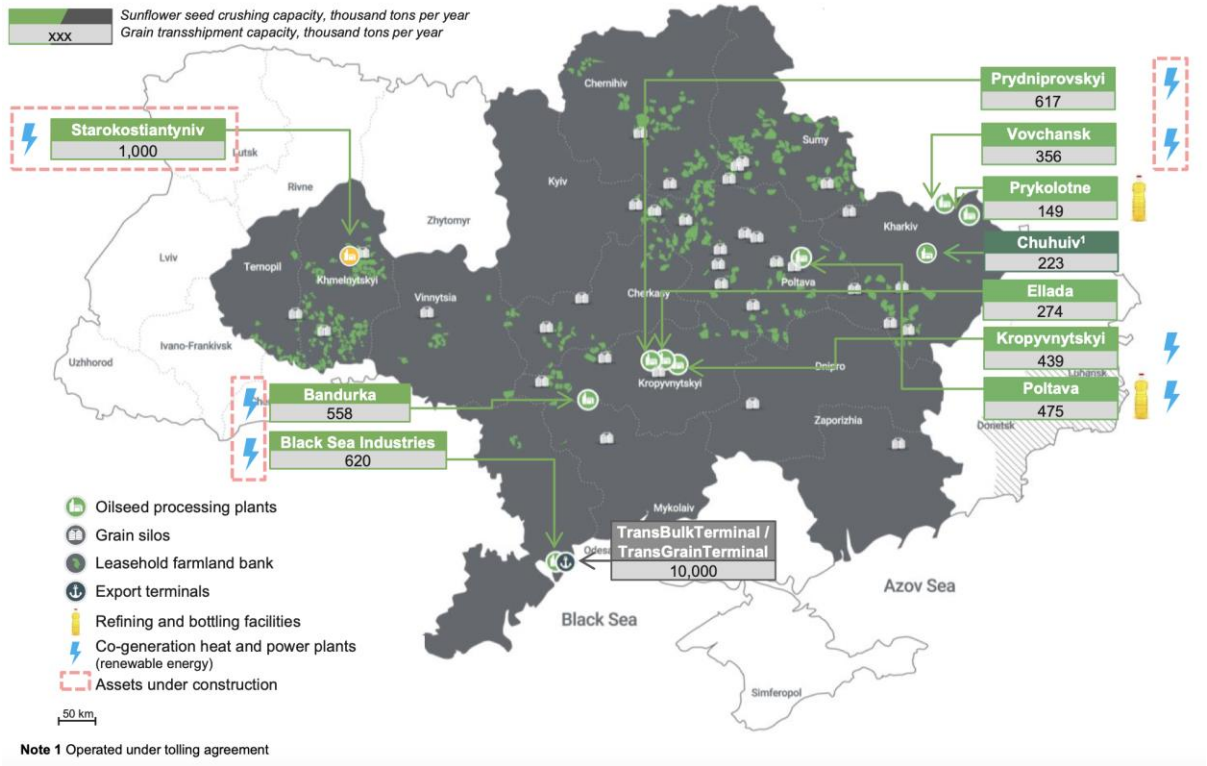

Figure 12. Kernel's Assets

In the fiscal year ending June 30, 2021, Kernel Holding S.A. demonstrated significant growth in key financial metrics. The company reported revenue of $5.65 billion, reflecting a 38% increase from the prior year. This growth was primarily attributed to higher global prices for grain and sunflower oil, despite a reduction in physical export volumes from Ukraine (Kernel, 2021).

Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA) reached $929 million, more than double the previous year's figure, highlighting effective operational strategies and favorable market dynamics. The net profit attributable to shareholders was $513 million, resulting in an Earnings Per Share (EPS) of $6.10, a marked increase from $1.42 in the previous year.

The company's segment performance was as follows:

- **Oilseed Processing:** Processed 3.2 million tons of oilseeds, generating an EBITDA of $56 million.
- **Infrastructure and Trading:** Handled 8.1 million tons of grain exports, with an EBITDA of $346 million.
- **Farming:** Produced 3.4 million tons of crops, achieving an EBITDA of $461 million.

These results underscore Kernel's strong financial position and its leading role in the agricultural sector.

Company overview showing for us that Kernel Holding S.A. is vertical integrated with different types of businesses has wide range of capabilities in grain market of Ukraine and it core competencies include:

- **Operational Scale**: Large-scale farming operations and storage capacity enable Kernel to handle significant production volumes.
- **Logistical Expertise**: Prior investments in logistics infrastructure have positioned Kernel to adapt to alternative export routes.
- **Market Relationships**: Long-standing relationships with international buyers provide a stable demand base even during crises.

By leveraging these strengths, Kernel has the potential to navigate current challenges and emerge stronger in the post-war period.

3. Research Methodology

3.1 Data Collection Methods

For capstone purposes a combination of secondary and partially primary data collection methods were used to examine Kernel Holding S.A.'s strategic position amidst the challenges posed by the war in Ukraine.

Secondary Data

Secondary data forms the backbone of the research. The following sources were used:

- **Company Reports**: Kernel's annual reports, investor presentations, and financial disclosures were used to provide insights into the company's performance, market share, and strategic initiatives.
- **Market Analyses**: Industry reports from organizations like the Food and Agriculture Organization (FAO) and the International Grains Council (IGC) offer macroeconomic perspectives on the global grain market and Ukraine's role within it and are used for capstone purposes.
- **Case Studies**: Analyses of similar agribusiness companies in crisis situations can contribute comparative insights into resilience strategies and adaptive practices.

Primary Data

While direct interviews with Kernel executives or industry experts were not feasible for this capstone, alternative primary data source is **Policy Reviews**: Analysis of governmental and international trade policies impacting agricultural exports in Ukraine which provide context for regulatory challenges.

These combined primary and secondary data collection methods ensure a comprehensive understanding of the complex environment in which Kernel operates.

3.2 Analytical Framework

An analytical framework is an important tool for assessing a company in terms of its resilience to internal and external influences, strengths and weaknesses, and creates the basis for further building a successful strategy. To be prepared for strategic planning, we will assess the company by the two widely recognized strategic tools to provide a structured analysis of Kernel's position and the challenges it faces. Usually, one of the possible frameworks is used for such purposes. However, given the challenges and the situation facing the Ukrainian grain market, it is worthwhile for the company to make an assessment

using different frameworks, as each of them has a greater focus on either external or internal influences. Assessment by different frameworks will allow us to see the complex picture of the company's situation and avoid the problem of concentrating each individual framework on internal or external assessment.

SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis is designed to facilitate a realistic, fact-based, data-driven look at the strengths and weaknesses of a company, initiatives, or within its industry. It assesses internal Kenel's strengths and weaknesses and external factors for opportunities, as well as current and future potential. SWOT will provide a holistic view of Kernel's strategic position and areas for improvement (Gürel & Tat, 2017).

The PESTLE framework is used to analyze and monitor the macro-environmental (external marketing environment) factors that have an impact on Kernel's operations, such as Political, Economic, Social, Technological. This tool ensures Kernel's strategies are aligned with external environmental changes (Perera, 2017). This analysis additionally identifies threats and weaknesses which are used in a SWOT analysis.

The Porter's Five Forces evaluates the competitive landscape within the grain industry by the next five characteristics: Threat of New Entrants, Bargaining Power of Suppliers, Bargaining Power of Buyers, Threat of Substitutes, Industry Rivalry.

By employing these tools, the research provides a detailed understanding of Kernel's strategic challenges and opportunities in a complex and evolving market.

4. Analysis and Findings

4.1. Industry Benchmarking

As an exporter of products, Kernel competes not only in the domestic market and with domestic competitors, but also fights for customers with foreign companies. This is an important definition, as the need to compete with international companies requires certain strategic, managerial and operational steps that will allow you to stay above the competition and fight for market share. If a company is not able to show satisfactory financial results on a par with its competitors, the only possible option for its stable existence may be a monopoly on the production of a certain type of product. Given that neither Kernel nor Ukraine is the only supplier of grain products (although it is the largest supplier of sunflower oil), it is necessary to evaluate the company against its competitors.

Kernel's market performance was compared with local peers MHP SE, one of the biggest and successful Ukrainian market players, and global competitors Bunge Limited and ADM (Archer Daniels Midland) as one of the successful international competitors of the company on the grain trading market (Table 2).

Company	**Revenue (USD Million)**			**EBITDA (USD Million)**			**Net Profit Margin (%)**		
	2020	**2021**	**2022**	**2020**	**2021**	**2022**	**2020**	**2021**	**2022**
Kernel Holding S.A.	4,107	5,595	5,332	443	806	220	2,9	9,2	(0,8)
MHP SE	1,911	2,372	2,642	340	648	384	(7)	17	(9)
Bunge Limited	41,400	59,150	67,230	1,86	2,55	2,72	2,71	3,46	2,39
ADM	64,355	85,249	101,556	2,742	3,989	5,24	2,75	3,18	4,27

Table 2: Comparative Financial Performance

According to data Kernel demonstrates strong performance relative to local peers but faces challenges in maintaining competitiveness against global agribusiness giants. This makes it difficult to expand in new markets and maintain

operational effectiveness because it needs big investments which can cause problems for long-term financial stability of a company.

4.2. Kernel's Market Position and Competitiveness

Below is an in-depth SWOT and PESTEL analysis for Kernel Holding S.A., emphasizing its specific context as a key player in Ukraine's grain and sunflower oil markets during the ongoing war. The Porter's Five Forces framework was used for capstone just superficially because of concentrating on market competitiveness at a time when the main problem of a company was placed inside the country and connected mostly not with market competitiveness. At the same time this type of framework will be important to developing the expansion of new market strategies where companies need to evaluate their competitive advantages and weaknesses according to the local market.

Kernel Holding S.A. is a leading player in Ukraine's grain and sunflower oil market, demonstrating significant strengths in operational scale, logistical efficiency, and established global relationships. However, the ongoing war has introduced unique challenges that are unprecedented in the agribusiness industry. The company's strategic response must account for its competitive position while addressing vulnerabilities exposed by the conflict.

Porter's Five Forces

Applicable to Kernel we can state that high capital and logistical barriers limit the entry of new competitors (Threat of New Entrants) which states a safe position for the company because no one starts to enter the market under war conditions.

Bargaining power of suppliers increased because suppliers of agricultural inputs gained leverage due to rising costs and limited availability.

Bargaining power of buyers, despite the buyers possibility to diversify sourcing to reduce dependence on Ukrainian exports, affecting Kernel's market share. This share will decrease without any steps to defend market position.

Threats of substitutes can increase demand for alternative grains or synthetic food products. But in general, it can't be a threat from a short-term perspective. Mostly this fact can lead to an increased amount of researchers

finding a way to synthesize new types of grain substitutes. More difficult can be situations with sunflower oil because of existing alternative oils.

Industry rivalry in case of war in Ukraine just improves positions for companies from abroad which are not working with Ukraine and makes them more competitive. This competition among global agribusiness firms striving to fill market gaps caused by Ukraine’s reduced output (Porter, 2008). At the same time it can lead to loss of market share for Kernel.

PESTEL Analysis

As was mentioned before PESTEL analysis assesses external factors and nature which can impact on a company and make a drastic shift from success to failure. The results of analysis are part of SWOT analysis so have been done before it. PESTEL can make vital clues for a company about the external environment and its future prospects, which can have a dramatic impact on the company's operations. Despite good operational management, business model, or strategy, external factors can completely change the situation for a company, proving This is exactly the factor that affected the situation of grain market companies, as wine is not an internal factor of influence on the company. At the same time, it is not a market factor, because the entire market has been affected by the consequences of full-scale military operations in Ukraine.

Understanding and assessing these potential external factors of influence allows the company to prepare for potential threats and opportunities. At the same time, the analysis of these factors allows the company to include in its strategy an element of mitigation of potential negative consequences of such situations.

For Kernel, the assessment of external risk factors and opportunities is particularly relevant, as they have changed after the full-scale invasion and will potentially be key in influencing the company's strategy and its operational and financial activities in the near future.

Below, the key factors which influence Kernel were assessed and briefly described key points.

Political

The war has shifted political dynamics in Ukraine, making international support critical for sustaining Kernel's operations. The ongoing conflict affects trade negotiations and policy implementations that directly impact

agribusiness.Therefore, political factors at this stage play an almost key role for the sale of Kernel products both in Ukraine and abroad. The company should focus its efforts on building solid political support both internally and externally.

Economic

Kernel faces inflationary pressures, fluctuating foreign exchange rates, and increased operational costs. The shift from Black Sea ports to rail routes to the EU has significantly elevated transportation expenses. Economic factors are forcing the company to look for new competitive markets and economic models of operational management.

Social

Global concern over food security has heightened Kernel's role as a vital supplier. The company’s capacity to meet demand during a crisis builds its reputation but requires enhanced operational efficiency.

Technological

However it may sound, technological factors, in addition to increasing Kernel's operational and economic efficiency, can also create an additional barrier to Russia's shadow fleet. Technological innovations in grain storage and logistics, such as blockchain for supply chain tracking, can provide Kernel a competitive edge in ensuring traceability and reliability.

Environmental

Climate changes pose long-term risks, including reduced crop yields and water scarcity. Even before the outbreak of full-scale war, environmental safety was among the company's key strategic goals. Kernel’s investments in sustainable farming practices are essential for mitigating these effects. That is why Kernel has been implementing the generation of electricity and heat from alternative sources. The full-scale invasion has only strengthened this direction as the company is actively implementing generation. This step is also important from the point of view of the company's energy security and potential entry into markets where carbon footprint is an important factor in the construction of customs duties.

Legal

Compliance with international trade laws and sanctions imposed due to the war adds complexity to Kernel's export operations. This is one of the key

obstacles to expansion into new markets, including the immediate European market, due to export quotas.

Factor	**Influence on Kernel**
Political	War-related trade policies, international support.
Economic	Inflation, foreign exchange risks, increased logistics costs.
Social	Elevated food security importance.
Technological	Advances in logistics and supply chain tracking.
Environmental	Climate change risks, sustainable farming practices.
Legal	Trade law compliance, sanctions management.

Table 3: PESTEL Analysis Summary

SWOT Analysis

The next step is the SWOT analysis, which combines the external factors of the previous paragraph with the company's internal factors that can either mitigate the impact and risks from external actors or build a stable foundation for the development of the company's internal strengths.

The summary of SWOT analysis is described in Scheme 3 below. From the side of strengths we can mention that Kernel operates across the entire agribusiness value chain, from grain production and storage to processing and export logistics. This integration provides operational control and cost efficiency. For example, Kernel’s ownership of large-scale storage facilities ensures reduced dependency on third-party providers. This gives the company power of vertical integration.

With a strong reputation in over 60 countries, Kernel has built long-term partnerships with global buyers. This network ensures consistent demand, even amidst geopolitical instability.

Thanks to investments Kernel has adopted modern farming and logistics technologies, such as precision agriculture, to enhance productivity and reduce

waste. This capability gives the company an edge in adapting to climate and supply chain challenges.

From financial reports we can see that despite the war, Kernel has maintained liquidity through a combination of cost-cutting measures and international financial support, enabling it to weather disruptions. This shows the high financial resilience of the company.

Heavy dependence on Black Sea ports became one of the biggest weaknesses of Kernel during the war time. Before the war, over 70% of Kernel's exports relied on Black Sea routes. The blockade of these ports has forced Kernel to reroute exports via less efficient and more costly alternatives. But the shift to rail and road transport to European markets has increased costs for Kernel by more than 50%. These higher costs reduce Kernel's competitiveness in global markets and become a weakness which leads to difficulty in competence.

Kernel has traditionally relied on European and North African markets, making it vulnerable to trade restrictions or reduced demand in these regions. And in case of logistics problems on sea far markets become difficult to achieve.

In the end with a significant share of revenue generated from exports, Kernel is exposed to fluctuations in foreign exchange rates, particularly the depreciation of the Ukrainian hryvnia.

Despite the difficult and unpredictable situation with war we can discuss some opportunities for Kernel. The war has prompted Kernel to explore markets in Asia, the Middle East, and Latin America. Such diversifying export destinations can reduce dependency on traditional buyers and mitigate geopolitical risks.

Sustainable supply chain is very important nowadays. We can remember the scandal with the cocoa supply chain for Nestle where child labor was detected. Emerging technologies, such as blockchain for supply chain management, can offer Kernel an opportunity to enhance transparency and build trust with international buyers. Additionally increasing global focus on sustainable agriculture provides an opportunity for Kernel to invest in eco-friendly practices, gaining favor with environmentally conscious buyers.

Ukraine's agricultural sector has received significant international attention which may be considered as opportunities for Kernel because company can benefit from aid programs and funding opportunities to rebuild infrastructure and expand operations.

The main threat is the possibility that continued conflict poses risks to infrastructure, production, and export capabilities, further disrupting Kernel's operations and supply chains. In such a situation competitors such as Bunge and ADM have taken advantage of Ukraine's reduced export capacity, filling gaps in international markets. Kernel faces increasing pressure to maintain its market share. Next step changes in international trade policies, sanctions, or tariff impositions due to the geopolitical situation could restrict Kernel's access to key markets.

Despite all these problems Kernel should devote time to climate changes and how it impacts the agriculture sector. Adverse weather conditions, including droughts and floods, can negatively impact crop yields, reducing Kernel's production volumes and revenue.

Figure 13. SWOT Summary

To summarize, in addition to the extremely difficult challenges that agricultural companies have never faced before, Kernel also has certain opportunities in the current situation. Success will mainly depend on the

company's ability to quickly adapt, rebuild logistics and establish cooperation at the level of the state and international associations and governments.

4.3 Impact of War on Kernel's Operations

In general, recognized war-related losses for the company amounted to close to 521$ million. Despite this fact the company did not stop or collapse and maintained not only operational activities as it were possible but was active in social spendings and activities as for employee support as for country support.

The result of the 2022 financial year is dramatically different from previous years. Full scale war led to decreasing performance of the company which led to deterioration of financial results. Main problem for companies oriented to export their goods was logistic problems which had decreased the possibility to sell inventories at a peak of accumulated crops and oil. Performance results of the company are shown in the table below.

Key highlights	FY 2021	FY2022	y-o-y
Revenue, US$ million	5.595	5.332	(5%)
EBITDA, US$ million	806	220	(73%)
Net margin, %	9.2%	(0.8%)	(9.9pp)
Earnings per share, US$	6.1	(0.51)	
Operating profit before working capital changes, US$ million:	649	677	4%
change in working capital, US$ million	(44)	(794)	18x
Net cash generated by operating activities, US$ million	460	(305)	
Net cash used in investing activity, US$ million	(203)	(294)	45%
Net debt, US$ million	836	1.488	78%
Commodity inventories, US$ million	285	892	3.1x
Shareholders' equity, US$ million	1,946	1,683	(14%)
Number of employees, people	11,256	10,223	(9%)

Social spending, US$ million	3.9	26.3	6.7x

Table 4. Key Results of Kernel's Financial Years

Supply Chain Disruptions

The blockade of Black Sea ports disrupted Kernel's primary export routes, reducing export volumes by nearly **40% in 2022** compared to pre-war levels. Alternative transport routes, such as railways and land corridors to European ports, increased logistical complexity and costs by over **50%**. The damage to critical infrastructure, including silos and railways, has further compounded these challenges.

Export Barriers

Kernel faces reduced competitiveness in global markets due to higher transportation costs and delays. Previously established trade relationships have been strained, as international buyers diversify suppliers to mitigate risks associated with Ukrainian exports.

Financial Challenges

Rising operational costs, coupled with fluctuating foreign exchange rates, have strained Kernel's financial stability. Currency depreciation has eroded revenue from exports, while increased borrowing costs have added to the financial burden.

Aspect	Pre-War (%)	During War (%)
Black Sea Ports	70	30
Rail to EU	20	50
Other Routes	10	20

Table 5: Kernel's Supply Chain Before and During the War

4.4 Strategic Planning at Crisis Time

At the stage of the strategy proposal we decide to use a scenario planning tool. Special attention needs to be made to the fact that scenario planning tools are chosen opposite to forecasting. Scenario planning and forecasting are two distinct tools organizations use to prepare for the future, each with unique approaches and purposes.

Forecasting relies on analyzing historical data and trends to make predictions about future events. It is typically applied to short- and medium-term planning and is most effective in relatively stable conditions. The focus of forecasting is to anticipate specific outcomes based on patterns observed in the past.

In contrast, scenario planning is not focused on predicting a single future outcome but rather explores a range of potential future scenarios. It is commonly employed for long-term planning, especially in uncertain or rapidly changing environments. This approach involves constructing detailed narratives or models of various plausible future situations.

In summary, forecasting is quantitative, aiming to determine "what is likely to happen," whereas scenario planning is qualitative, focusing on "what could happen." Scenario planning proves particularly valuable in situations where the future is unpredictable, and historical data may not reliably indicate future possibilities.

Before using the scenario planning tool and making a strategy proposal, we first need to explain that strategic planning in peacetime and strategic planning in wartime have fundamental differences. The application of classical approaches to strategic management during wartime is 100% likely to lead to the company's collapse in the short term. Therefore, the key point is to recognize that strategizing takes place in conditions different from those described in the classical literature.

Moreover, it should be noted that there is no practical guide to wartime strategies for companies in the grain (and other) markets. The uniqueness of Ukraine's situation allows us to look at the practical aspect of the problem and draw conclusions to provide a framework for companies in similar situations.

The differences between strategic planning during stable times and in crisis situations are significant, as they are shaped by the external environment, decision-making urgency, and the types of challenges faced. For objectives of

this capstone different approaches for strategy planning were analyzed and summarized in table down. It should be noted that the proposed model of steps can be used as a framework not only for grain market companies.

Below are the differences in peacetime and wartime strategic planning. These differences are critical for understanding the entire management of the company - from owners and beneficiaries to middle managers - because in crisis situations, some decisions are made in the field without time for meetings of supervisory boards or senior management.

Category	**Stable Times**	**Crisis Situations**
Objectives	Strategic planning focuses on **long-term growth, market expansion, and efficiency improvements**. The goal is to capitalize on predictable trends and competitive advantages.	The primary objective is **survival and resilience**. Plans aim to address immediate threats, ensure operational continuity, and minimize damage to the organization's assets and reputation
Time Horizon	Planning typically spans **3 to 10 years**, focusing on future opportunities, innovation, and gradual growth.	Planning shifts to **short-term (weeks to months)** priorities. Decisions focus on immediate problem-solving, with flexibility for rapid adjustments.
Approach	A **proactive approach** is taken, with detailed analysis and deliberate decision-making. Plans are typically formal, structured, and involve broad stakeholder input.	A **reactive approach** dominates, requiring agility and rapid decision-making. The process is often less structured and involves fewer people to avoid delays.
Focus Areas	Focus is on **innovation, expansion, and optimization**.	The focus shifts to **risk mitigation and resource allocation**. Key priorities

	Organizations invest in R&D, explore new markets, and improve internal efficiencies.	include cash flow management, supply chain stabilization, and safeguarding critical operations.
Risk Management	Risks are assessed methodically, often focusing on **long-term or hypothetical scenarios**. Contingency plans are created but rarely activated.	Risk management becomes **central**. Organizations actively respond to **real-time threats**, prioritize resilience, and frequently revise risk assessments.
Stakeholder Involvement	A wide range of stakeholders, including employees, customers, and shareholders, are involved to ensure alignment with the company's vision and values.	Decision-making is often **centralized**, with key leadership taking charge to act quickly. Broader stakeholder involvement is limited to avoid delays.
Decision-Making Style	Decisions are typically **data-driven and strategic**, relying on comprehensive market research, forecasts, and scenario planning.	Decision-making is **adaptive and intuitive**, often relying on incomplete data. Leaders must prioritize speed over precision.
Communication	Communication is **predictable, measured, and transparent**. Regular updates are provided to stakeholders about long-term plans and achievements.	Communication becomes **frequent, immediate, and focused on reassurance**. Misinformation is actively managed to maintain trust and confidence.
Resource Allocation	Resources are allocated for **growth-oriented investments** such as R&D,	Resources are prioritized for **core operations and critical needs**, such as liquidity,

	infrastructure, and employee development.	supply chain continuity, and workforce safety.
Flexibility	Plans are typically **rigid** and follow structured goals, with periodic reviews for adjustments.	Plans must be **highly flexible** to adapt to rapidly changing circumstances. Contingencies are frequently activated and revised.

Table 6. Differences between strategic planning during stable and in crisis time (sourced by author)

As we conclude from information above, strategic planning during stable times emphasizes **growth and long-term competitiveness**, while planning in crises is geared toward **survival, resilience, and immediate problem-solving**. Understanding these differences allows organizations to prepare for both situations effectively and pivot strategies as needed.

5. Recommendations

5.1 Short-Term Strategies: Operational Adjustments

Kernel Holding S.A. must prioritize immediate operational changes to navigate the challenges posed by the ongoing war. These strategies are designed to stabilize operations and maintain market presence amidst disruption.

1. **Optimize Alternative Transport Routes**
   With Black Sea ports under blockade, Kernel must maximize the efficiency of alternative transport routes such as railways and land corridors to European ports. Investments in logistics optimization, such as advanced scheduling systems and partnerships with rail operators, can reduce costs and transit times.
2. **Strengthen Financial Resilience**
   Kernel should focus on short-term financial stability through measures such as hedging against currency fluctuations and renegotiating credit terms with international financial institutions. Securing emergency funding or grants from global organizations supporting Ukraine's agricultural sector is also critical.
3. **Enhance Local Storage Capacity**
   Increasing on-site grain storage facilities can mitigate risks associated with delayed exports. Kernel can explore modular storage solutions, which are quicker to deploy, to accommodate excess production.
4. **Protect Workforce Stability**
   Retaining and supporting employees during the war is vital. Kernel should implement welfare programs, including housing assistance and mental health support, to ensure workforce stability.

Focus Area	Actions
Logistics Optimization	Enhance rail and road routes; reduce transit delays.
Financial Stability	Hedge currencies; renegotiate credit terms.
Storage Capacity	Expand modular grain storage facilities.
Workforce Support	Welfare programs for employees.

Table 7: Short-Term Strategies

5.2 Mid-Term Strategies: Expansion into Alternative Markets and Partnerships

Over the next 2-5 years, Kernel must leverage its operational strengths to expand into new markets and develop strategic partnerships. These actions will enable Kernel to build resilience and diversify revenue streams.

1. **Explore New Export Markets**
   Kernel should reduce reliance on traditional European and North African buyers by targeting markets in Asia, the Middle East, and South America. This diversification can mitigate risks posed by geopolitical instability in certain regions.
2. **Develop Strategic Partnerships**
   Partnerships with global agribusiness firms, logistics providers, and international trade organizations can enhance Kernel's operational capacity. Collaborative ventures can provide access to advanced technologies, shared infrastructure, and improved market access.
3. **Invest in Digitalization and Traceability**
   Implementing blockchain technology for supply chain traceability will meet growing global demand for transparency in agricultural products. This investment can boost Kernel's credibility with international buyers.
4. **Expand Processing Capabilities**
   Increasing the capacity of processing facilities for value-added products like sunflower oil will allow Kernel to generate higher margins and reduce exposure to commodity price fluctuations.

Focus Area	Actions
Market Diversification	Target Asian, Middle Eastern, and South American buyers.
Strategic Partnerships	Collaborate with global agribusiness firms and NGOs.
Digitalization	Adopt blockchain for supply chain traceability.
Value-Added Processing	Expand production of sunflower oil and other products.

Table 8: Mid-Term Strategies

5.3 Long-Term Vision: Strategic Growth Pathways and Sustainable Practices

Kernel's long-term strategies (5-10 years) must focus on sustainability, innovation, and global competitiveness to ensure resilience and growth beyond the war.

1. **Adopt Climate-Resilient Agriculture**
   Kernel should invest in sustainable farming practices, including crop rotation, reduced chemical use, and precision agriculture. These methods will improve soil health, enhance crop yields, and align with global sustainability goals.
2. **Develop Renewable Energy Infrastructure**
   Investing in renewable energy sources, such as solar and biomass, can reduce operational costs and lower Kernel's carbon footprint. This transition will also enhance compliance with emerging global environmental regulations.
3. **Establish Regional Trade Hubs**
   Creating permanent regional trade hubs in Europe, the Middle East, and Asia can provide Kernel with logistical advantages and ensure uninterrupted market access during crises.
4. **Focus on Research and Development (R&D)**
   Kernel must establish an R&D division dedicated to innovation in agriculture, processing, and logistics. Areas of focus could include drought-resistant crops, automated harvesting systems, and advanced storage solutions.
5. **Build a Global Brand**
   Establishing Kernel as a trusted global supplier of sustainable and high-quality agricultural products will create long-term demand and market recognition.

Focus Area	Actions
Sustainable Agriculture	Invest in precision farming and eco-friendly methods.

Renewable Energy	Adopt solar and biomass energy solutions.
Regional Trade Hubs	Establish hubs in Europe, Asia, and the Middle East.
Research and Development	Focus on agricultural and logistics innovation.
Global Branding	Position Kernel as a leader in sustainable agriculture.

Table 9: Long-Term Strategies

Our recommendations address Kernel's immediate challenges, mid-term needs for diversification and partnerships, and long-term vision for sustainable growth. By adopting these strategies, Kernel can strengthen its resilience during the ongoing conflict and emerge as a globally competitive agribusiness leader.

5.4. Practical implementation

As follows from the research conducted during the work on the capstone, the main problem for the entire grain market of Ukraine, as well as for Kernel, was the logistics problem. This problem had a chain reaction effect on the financial component of delivery, and as a result, grain prices. In addition, the blockade of ports led to a distortion of supply and demand in the markets, which also had a significant impact on the price supply in the global markets.

Thus, the logistics problem is a key issue (although the destruction of logistics points has a negative impact on the company's fixed assets, these assets are logistics hubs), the impact of which extends further to all aspects of the company's operations and, as a result, to the price supply of grain on the global market. Therefore, we have separately worked out the steps that are recommended to be taken by the company to reduce the cost of exports. This will allow the company to retain its sales markets and key customers, as well as continue to compete for a share in new markets. Kernel can reduce export costs by implementing the following strategies, tailored to its specific operational and geopolitical challenges:

1. Optimize Alternative Transport Routes

- **Efficient Use of Rail and Road Transport:** Kernel can partner with logistics providers to streamline rail and road freight to European markets. Implementing advanced route optimization software can minimize transit times and costs.
- **Regional Export Hubs:** Establishing regional hubs near borders with high export potential (e.g., Poland and Romania) can reduce the distance goods travel before reaching international buyers.

2. Collaborate with International Organizations

- **Subsidies and Aid Programs:** Leverage financial assistance and subsidies from organizations like the European Union and the United Nations, which are supporting Ukrainian export businesses during the conflict.
- **Shared Infrastructure Investments:** Collaborate with global agribusinesses or governments to develop shared rail or port facilities, distributing costs across multiple stakeholders.

3. Invest in Logistics Innovations

- **Bulk Transport Mechanisms:** Transitioning to bulk transport systems such as grain containers or specialized wagons can lower per-unit transport costs.
- **Blockchain for Logistics Efficiency:** Using blockchain to optimize supply chain visibility can reduce inefficiencies, saving costs on delays and errors.

4. Diversify Export Markets

- **Closer Markets:** Targeting closer markets like the Middle East and Turkey reduces transportation costs compared to traditional European or North African destinations.
- **Multi-Modal Shipping:** Combining rail with shorter sea routes (e.g., via ports in Romania) can optimize costs compared to full overland transport.

5. Scale Up On-Site Storage

- **Expanded Local Storage:** Increasing storage capacity at production sites reduces the need for rushed transportation, allowing Kernel to export during periods of lower logistics costs.
- **Mobile Storage Units:** Deploying modular storage units near rail hubs or temporary trade routes can reduce the need for repeated short-distance transport.

6. Negotiate Favorable Freight Rates

- **Bulk Freight Agreements:** Negotiate long-term contracts with freight providers for bulk transportation to secure lower rates.
- **Government Facilitation:** Work with the Ukrainian government to lobby for reduced rail tariffs or prioritized grain shipments during peak export seasons.

7. Leverage Technology

- **Digital Freight Platforms:** Use digital platforms that match freight loads with available transport capacity at competitive rates.
- **AI-Powered Route Optimization:** Adopt AI tools for real-time adjustments in routing to minimize delays and unnecessary mileage.

8. Establish Strategic Partnerships

- **Collaborate with Neighboring Countries:** Partner with neighboring nations for mutual support in improving cross-border transportation infrastructure.
- **Logistics Joint Ventures:** Form joint ventures with logistics companies to gain cost-sharing advantages and priority access to resources.

9. Streamline Internal Processes

- **Consolidation of Shipments:** Combine smaller shipments into larger, consolidated loads to maximize transport efficiency.
- **Export Timing Optimization:** Align export schedules with low-cost freight periods to minimize seasonal price spikes.

10. Government and Policy Advocacy

- Advocate for improved infrastructure and subsidies from the Ukrainian government to offset the high costs of alternative transport routes.
- Engage in diplomatic efforts to secure smoother cross-border trade agreements and reduced bureaucratic costs in transit.

Implementation Plan

To ensure effectiveness, Kernel should prioritize:

- **Short-Term:** Optimize current rail routes and negotiate better freight rates.
- **Mid-Term:** Expand modular storage near borders and develop partnerships for shared logistics.

- **Long-Term:** Invest in advanced logistics technologies and establish regional hubs.

By adopting these strategies, Kernel can achieve a sustainable reduction in export costs while maintaining competitive market access.

Conclusion

The capstone has explored the profound impact of the war in Ukraine on Kernel Holding S.A., offering a comprehensive analysis of its challenges, opportunities, and strategic responses. The study underscores the importance of resilience and adaptability in navigating unprecedented disruptions. Kernel's vertical integration, established market relationships, and technological investments form a strong foundation for addressing immediate challenges, including supply chain disruptions, export barriers, and financial constraints.

Summary of Findings

In summary, according to provided research and findings we can conclude that in the short term, Kernel must focus on optimizing alternative export routes, expanding storage capacity, and securing financial stability. Mid-term strategies involve exploring new markets, forming strategic partnerships, and enhancing digital capabilities to strengthen its competitive position. In the long term, investments in sustainability, renewable energy, and R&D will ensure Kernel's continued growth and alignment with global trends in agriculture.

The findings also highlight broader implications for Ukraine's agribusiness sector and global food security, emphasizing the need for international cooperation, infrastructure rebuilding, and policy support.

Future Research Directions

Future research should study long-term factors for Kernel stability and development and delve deeper into the role of international aid, technological innovation, and post-war recovery efforts in shaping the resilience of Ukraine's grain market and its key players.

References

- Food and Agriculture Organization. (2020). *The future of food and agriculture – Trends and challenges*. FAO.
- Food and Agriculture Organization. (2022). *Impact of the war in Ukraine on global food markets*. FAO.
- Gürel, E., & Tat, M. (2017). SWOT analysis: A theoretical review. *Journal of International Social Research*, 10(51), 994-1006. https://doi.org/10.17719/jisr.2017.1832
- Kernel Holding S.A. (2021). *Annual report and consolidated financial statements for the year ended 30 June 2021*. Retrieved from https://www.kernel.ua
- Kernel Holding S.A. (2022). *Operational updates: Adapting to the conflict in Ukraine*. Retrieved from https://www.kernel.ua
- OECD. (2021). *Climate impacts on agricultural productivity*. OECD Publishing.
- OECD & FAO. (2021). *OECD-FAO Agricultural Outlook 2021-2030*. OECD Publishing.
- Perera, R. (2017). The PESTLE analysis. *Nerdynaut*. Retrieved from https://www.nerdynaut.com/pestle-analysis
- Porter, M. E. (2008). *The five competitive forces that shape strategy*. Harvard Business Review.
- World Bank. (2022). *The state of global food security and nutrition*. World Bank Group.
- XE. (n.d.). *US Dollar to Ukrainian Hryvnia exchange rate chart*. Retrieved December 2, 2024, from https://www.xe.com/currencycharts/?from=USD&to=UAH&view=5Y