

**MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
UKRAINIAN-AMERICAN CONCORDIA UNIVERSITY**

Faculty of Management and Business
Department of International Economic Relations, Business & Management

Bachelor's Qualification Work

Managing an international business during war time

(based on MIRCOM 2022 S.L. case)

Bachelor student of the 4th year of study

Field of Study 07 – Management
and Administration

Specialty 073 – Management

Educ. program – IT Management

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ABSTRACT

The study focuses on the role of digitalization processes in supporting the management of an international company during wartime conditions. Digital technologies can play a crucial role in addressing challenges and reflecting threats posed by conflict. Specific digitalization approaches are examined, including strengthening cybersecurity, utilizing data analytics for threat monitoring, leveraging digital platforms for information dissemination, and enabling remote work. The case of the Spanish LLC "MIRCOM 2022 S.L." is analyzed, outlining how the company utilizes automation, collaboration tools, and financial analytics to minimize risks and achieve better financial results. Both advantages and resource requirements of implementation are evaluated based on the company's practices. The research draws conclusions about the overall potential of digitalization to address wartime threats, promote resilience, and safeguard financial stability through technological innovations, cooperation, and strategic planning. Recommendations are provided to reinforce outcomes through optimized practices across emerging risk domains like cybersecurity.

Keywords: digitalization, managing international business, warfare, data analytics, automation, remote work

АНОТАЦІЯ

Дослідження спрямоване на роль процесів цифровізації в підтримці управління міжнародною компанією в умовах військового конфлікту. Цифрові технології можуть відігравати важливу роль у вирішенні викликів та відображенні загроз, що ставляться в конфлікті. Розглядаються конкретні підходи до цифровізації, включаючи підсилення кібербезпеки, використання аналітики даних для моніторингу загроз, використання цифрових платформ для поширення інформації та можливості віддаленої роботи. Аналізується випадок

іспанської компанії "MIRCOM 2022 S.L.", в якому описується, як компанія використовує автоматизацію, інструменти співпраці та фінансовий аналіз для мінімізації ризиків та досягнення кращих фінансових результатів. Оцінюються як переваги, так і вимоги щодо ресурсів для впровадження, на основі практик компанії. Дослідження робить висновки про загальний потенціал цифровізації для вирішення військових загроз, сприяння стійкості та забезпечення фінансової стабільності за допомогою технологічних інновацій, співпраці та стратегічного планування. Надаються рекомендації для посилення результатів шляхом оптимізованих практик у сферах нових ризиків, таких як кібербезпека.

Ключові слова: цифровізація, управління міжнародним бізнесом, війна, аналітика даних, автоматизація, віддалена робота.

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APPROVED

Head of Department _____

Prof. Zharova L.V. _____

May, 10 , 2024

TASK

FOR BACHELOR’S QUALIFICATION WORK OF STUDENT

_____ **Ivan Myroshnychenko** _____ (Name, Surname)

1. Topic of the bachelor’s qualification work

Managing an international business during war time (based on MIRCOM 2022 S.L. case) Supervisor of the bachelor’s qualification work Ruslana Seleznova, PH.D. in Economics, (surname, name, degree, academic rank)

Which approved by Order of University from “**25” September 2023** № 25-09/2023-5к 2. Deadline for bachelor’s qualification work submission “**25” April 2024**. 3. Data-out to the bachelor’s qualification work

The study employs a mixed-methods approach, combining qualitative and quantitative research methods. The research methods used in the work can be categorized into two groups: theoretical methods (problem identification, induction, deduction, and use of scientific theories) and empirical methods (analysis, comparison,

tracking, monitoring, surveying, and generalizing experiences). Theoretical methods involved studying theoretical material and available business results, while empirical methods included observing and calculating activities of Ukrainian and foreign businesses during wartime.

4. Contents of the explanatory note (list of issues to be developed)

Analyzing how businesses manage their operations in international contexts during wartime, using the MIRCOM case as a basis. The specific tasks include determining theoretical foundations of war consequences, analyzing the role of digitalization in managing international business during war, investigating state assistance for small and medium-sized businesses, analyzing company environment and financial indicators during war, exploring the IT department and digitalization processes, assessing factors and financial effectiveness, identifying main problems and strengths, analyzing competitiveness and areas for improvement, forecasting financial indicators, and evaluating the research object and subject.

5. List of graphic material (with exact indication of any mandatory drawings) ***The work includes 6 figures and 12 tables with information.***

6. Date of issue of the assignment

Time Schedule

| № | The title of the parts of the qualification paper (work) | Deadlines | Notes |
|----|--|------------|-------|
| 1. | I part of bachelor thesis | 10.12.2023 | |
| 2. | II part of bachelor thesis | 27.02.2024 | |
| 3. | Introduction, conclusions, summary | 25.04.2024 | |
| 4. | Pre-defense of the thesis | 30.04.2024 | |



Student

Ivan Myroshnychenko (signature)



Supervisor

Ruslana Seleznova (signature)

Conclusions (*general description of the work; participation in scientific conferences/ prepared scientific article; what grade does the student deserve*):

The student is allowed to defend. The thesis meets the requirements. The student deserves a positive high assessment.

Supervisor  Ruslana Seleznova (signature)

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INTRODUCTION

Relevance of the topic. The outbreak of war in Ukraine in 2022 was a watershed moment in the annals of international business management. This conflict, which embodied a profound geopolitical turn, had far-reaching consequences not only for the Ukrainian economy but also for the entire global business landscape. It was a watershed moment that forced international business to face and overcome a huge number of unprecedented challenges. It shows the importance of analyzing the complex relationship between a major international conflict and global business operations, in particular to explore the multifaceted effects of the war in Ukraine. It aims to show how businesses around the world have adapted, responded and strategised in the face of the chaos and uncertainty created by the war.

The war in Ukraine, unfolding in a country located at the junction of European and Asian economic corridors, has caused significant disruption to global supply chains, altered trade dynamics and necessitated a reassessment of geopolitical risk assessment in international business strategy. The conflict has only emphasised the inherent vulnerability and interconnectedness of global business networks, highlighting the paramount importance of flexibility, resilience and strategic foresight in planning and conducting business. To fully understand the implications of the war, I believe it is necessary to first understand the economic landscape of Ukraine prior to the conflict. Ukraine, with its rich agricultural resources, significant manufacturing sector, and nascent IT industry, was increasingly woven into the fabric of the global economy. The outbreak of hostilities has dramatically altered this growth trajectory, creating immediate and serious challenges for both domestic companies and international businesses operating in or in co-operation with Ukraine.

Given that the global impact of the war on business extends beyond the immediate geographical boundaries of the conflict. The international community's response to the situation, characterised by a complex array of sanctions, economic support measures and diplomatic manoeuvres, has affected the global business arena. These measures affected

not only companies directly linked to Ukraine, but also had a ripple effect on businesses operating in Russia and other neighbouring regions.

Moreover, the war has catalyzed a reevaluation of international business strategies. Companies worldwide have been compelled to reassess their operational and strategic frameworks, considering factors such as supply chain robustness, market diversification, political risk assessment, and crisis management capabilities. This thesis aims to delve into these strategic recalibrations, highlighting how businesses are navigating through these turbulent times. Scientific elaboration of the research problem.

To achieve the formulated goal of the research, we considered and analyzed a number of sources that helped determine the theoretical and practical aspects of the subject. The source base consists of scientific articles and other theoretical materials of researchers, statistical data, official documents and legal acts of states, founding documents and own observations and acquisitions from the activities of companies. The most recent information was obtained from information sources and official websites of state bodies, as well as reports of officials, in addition to using own up-to-date information obtained as a result of professional activity in the company as a source.

The aim of bachelor's qualification work is to study and analyze how businesses manage their operations in international contexts during war time, using the MIRCOM case as a basis. In order to achieve this aim, the following tasks were set:

- Determine the theoretical foundations of the consequences of the war;
- Analyze how digitalization processes can help to reflect in managing international business during the war;
- Investigate state assistance and its assessment for small and medium-sized businesses during the war;
- Analyze the company's environment, organizational structure, financial and economic indicators in the terms of war;
- Explore the company's IT department and digitalization processes as major factors that help reduce risks and results;

- Assessment of these factors and financial evaluation of effectiveness. Analytical description of the result;

- Determining main problems in the business activity based on the financial data and assessment of the strong sides of the company;

- Analysis of the company's competitiveness, including a close comparison with its main rival, identifying areas of strength and opportunities for improvement;

- Forecasting of the financial indicators and future planning;

- Evaluate these factors and make an analytical description of the result;

- The research object is international business during the war.

- The research subject is a set of theoretical, methodological and practical approaches to establish the ways of managing international business during war time.

- The main research methods. Since the tasks set to achieve the goal of the research involve a detailed study of both theoretical and practical aspects of the specified topic, both theoretical and empirical research methods are used. The theoretical research methods used in the work can be divided into two large groups: methods of action (identification of problems and identification of contradictions in the organization of international business management during the war, induction and deduction, use of scientific theories confirmed by practice) and methods of operations (analysis and comparison of activities Ukrainian and foreign business during the war). Empirical methods of research can also be divided into methods of action (such as tracking an object - namely, a Spanish company and its activities in wartime, monitoring, surveying and generalizing the experience of companies that make up international business in conditions of armed conflicts) and methods of operations (studying theoretical material on a certain topic, observation and calculations, as well as studying the available results of business activities during the war).

- Scientific novelty of the work for the first time in economics, a comprehensive theoretical and practical analysis of economic problems existing in Ukraine, which hinder the achievement of sustainable economic growth and development, was carried out in the

context of European integration.

Scientific propositions submitted for protection and claiming novelty:

- the main stages of implementation into Ukrainian economic policy, and the results of this policy are also described, as a result of which it was found, little impact on public sentiment of the policy being conducted;

- A comprehensive analysis of Ukrainians' perception of European values and the evolution of these changes, using cause-and-effect analysis, from the country's economic and military situation, was carried out.

The theoretical value of the obtained results lies in uncovering insights into the consequences of war, understanding the impact of digitalization processes on managing international business during wartime, and assessing the effectiveness of state assistance and privileges for small and medium-sized businesses.

Approbation of the results of the work. The Bachelor's qualification work consists of an introduction, three chapters, conclusion, list of references and annexes. The thesis has been outlined in the chapters in the following order: outline of the concept of managing international business during war time based on the digitalization base, the study of the Spanish LLC "MIRCOM 2022 S.L." and its performance in the terms of war. The first section provides the necessary theoretical framework for understanding managing international business, analyzes the consequences of the war, looks into state assistance and privileges for small and medium-sized businesses. The second section provides a recollection of the internship experience at LLC "MIRCOM 2022 S. L." and offers a detailed analysis of the company's economic state and financial evaluation of effectiveness. The third section provides a research of the company's financial and productive indicators, competitiveness and future development. Bachelor's qualification work consists of an introduction, 3 chapters, conclusion, list of references and list of annexes.

CHAPTER I. THE CONCEPT OF MANAGING INTERNATIONAL BUSINESS DURING WAR TIME BASED ON THE DIGITALIZATION BASE

1.1 The consequences arising from the war and their impacts

In general, Ukrainian business is faced with a huge catastrophe that modern business has never seen before. At the present time, it is very difficult to predict what will happen next; modern literature does not provide solutions to get out of such a difficult situation. In this work, I will not consider direct or indirect connections with the conduct of international business from the occupied territories or anything related to this. From my point of view, there is an absolutely hopeless situation there for the world stage, however, there are small opportunities in terms of expanding export points to an enemy country. Wars on our planet have not subsided for thousands of years, but primitive trade appeared even earlier and doing business in conditions of war is not something conceptually new.

In this work, I will explore the challenges faced by Ukrainian businesses in the current unprecedented catastrophe. The unpredictable nature of the situation makes it difficult to anticipate future developments, and existing literature offers limited guidance on navigating such a complex scenario. It is important to note that I will not delve into the direct or indirect implications of conducting international business from occupied territories or any related matters. From my perspective, the situation on the world stage appears overwhelmingly bleak. However, there may be small opportunities to explore when it comes to expanding export channels to countries considered as adversaries. It is worth acknowledging that wars have persisted on our planet for thousands of years, yet primitive forms of trade emerged even earlier. Conducting business during times of conflict is not a conceptually new phenomenon. Despite the challenges, it is crucial for Ukrainian businesses to adapt and seek innovative strategies. This may involve exploring alternative markets, diversifying products or services, or forging new partnerships. Additionally, focusing on resilience and finding ways to contribute to the local economy can help businesses withstand the adverse effects of war. While the situation may seem dire, history has shown that businesses can weather even the most challenging

circumstances. It requires creativity, adaptability, and a deep understanding of the unique dynamics at play during times of war. By studying previous instances of businesses thriving amidst conflict and drawing lessons from them, Ukrainian businesses can seek avenues for growth and mitigate the impact of the ongoing crisis.

If we talk about damage or direct losses from the first year of the war, according to the estimates of the World Bank and its partners, the housing sector (38% of the total damage), transport (26%), energy (8%), industry and trade (8%) suffered the greatest losses), agriculture (7%). In particular, during the year of the Russian-Ukrainian war, 1.4 residential premises (separate apartments, houses) were destroyed and damaged, including 135,000 private houses and 39,000 dormitories. In the total amount of recovery needs (\$410.6 billion), the transport sector occupies 22%, the housing sector 17%, the energy sector 11%, the sphere of social protection and life activities 10%, the fight against dangerous situations 9%, agriculture 7%.

In general, economic losses from war include not only the destruction and damage of infrastructure, production facilities, public institutions, but also the loss of human capital and the expenditure of resources on military confrontation. In 2022, national budget expenditures on defence amounted to 23% of GDP, and in 2023 they should amount to 20% of GDP. Along with this, military aid to Ukraine from Western partners until January 15, 2023 amounted to 65.4 billion US dollars or 46.5% of GDP for 2022. Demographic losses from military operations are also significant, which are still difficult to estimate. But according to the results of the EBRD study, even 25 years after the end of the wars, the population of the affected countries remained significantly smaller than in comparable countries without armed conflicts. The main components of these losses are the victims of military operations, the outflow of refugees and the decrease in the birth rate. According to the EBRD, on average, war events result in a drop in GDP per capita by 9% relative to the pre-war level. However, the most destructive and large-scale wars ended with a drop in GDP per capita by 40-70% (Transition Report 2022-23) [1].

In Ukraine, it is still too early to talk about the total drop in GDP as a result of the current war, but in 2014-2015, after the first act of Russian aggression, Ukraine already

lost 15.8% of GDP, and in 2022, real GDP decreased by 29.2%. Russia's military aggression against Ukraine caused large-scale destruction of production capital and infrastructure, brought human casualties and social losses. The war led to a reduction in jobs and incomes, a decrease in purchasing power and the amount of accumulated assets. In 2022, the national economy lost 29.2% of real GDP, and 13.5 million people were forced to leave their homes. More than 7 million people were below the poverty line, and the poverty level reached 24% of the population.

Experts from the World Bank and the European Commission estimate the damage from the war in Ukraine in the period from February 24, 2022 to February 24, 2023 in the amount of 134.7 billion dollars, and the need for reconstruction - 410.6 billion dollars [2].

For Ukrainian business in the current realities, there is not only a direct physical threat of destruction, but also there is a great threat of phishing and hacking from the Russian Federation. It is worth noting that in today's interconnected world, digitalization processes can play a decisive role in helping businesses navigate and reduce potential risks. Strengthening cybersecurity measures. Digitalization can enable businesses to strengthen their cybersecurity infrastructure, protecting sensitive data, intellectual property and customer information. Implementing strong encryption, firewalls, and regularly updating security protocols can help protect against potential cyber threats [3].

Data analytics and threat analysis. Using digital tools and technologies, companies can monitor and analyse data to identify patterns, detect potential threats and stay ahead of emerging risks. Using threat intelligence and data analytics platforms can provide valuable insight into potential Russian threats and allow businesses to take proactive measures. [4]

Platforms for collaboration. Digitalization allows for increased collaboration and information exchange between businesses, industry associations and government agencies. Creating secure online forums or platforms where businesses can exchange information, discuss potential threats, and share best practices can be useful in collectively countering Russian threats. [5]

Remote work opportunities. Digitalization has become even more important recently with the advent of remote work. Enabling employees to work remotely using secure virtual private networks (VPNs) and encrypted communication tools can help minimize the impact of potential disruptions caused by Russian threats [6,7].

Backup and disaster recovery. Digitalization allows businesses to implement robust backup and disaster recovery plans. Regularly backing up critical data and systems, both on-site and in secure off-site locations, can help businesses recover quickly in the event of a cyber-attack or other threats.

It is important to consult with cybersecurity experts and stay aware of the specific threats and geopolitical dynamics facing Ukrainian businesses. Adapting and implementing digitalization processes specifically designed to address these specific challenges can help minimize risks and protect business interests. [8]

In conclusion of this brief assessment, the Ukrainian business landscape faces an unprecedented catastrophe. While the situation may seem dire, there are historical precedents and strategies that can be explored to navigate these difficult times. By focusing on resilience, adaptability, and seeking innovative approaches, Ukrainian businesses can position themselves for future success, even amidst the challenges posed by war [9].

1.2 Digitalization processes which may help to reflect threats.

The large-scale aggressive war of the Russian Federation against Ukraine leads to serious disruptions in Internet connectivity, which is a prerequisite for the sustainability and further development of the digital economy. It is estimated¹ that since the beginning of the war, the quality of data transmission has decreased by an average of 13% in fixed Internet networks and by 26% in mobile networks (May 2023). At the same time, 12.2% of settlements do not have access to mobile communications, and 3.1% have only partial access. Mobile operator stations in all countries have been damaged; It is estimated that

almost 11% of them are inactive - and this proportion is growing rapidly. Access to a stable, reliable high-speed broadband network is a key framework condition for the recovery and development of Ukraine's digital economy. Even before the war in 2020, only 26% of the population had at least 4G2 mobile network coverage. [10]

Ukraine has made significant progress in reducing the digital divide, with Internet access increasing in all areas (an average of 289% over the last decade, 2010-2019). At the same time, progress was uneven across territories. The city of Kyiv has the highest level of Internet access in the country (84% of households³), followed by the Dnipropetrovsk and Trans Carpathian regions (79% and 76%, respectively). In contrast, the region with the lowest level of Internet access was the Rivne region, where only 49% of citizens had access to broadband services. These data show that there is still room to improve the deployment of Internet networks across Ukraine. In addition, the Russian Federation is actively trying to fragment the Ukrainian digital space, for example, by transferring people in the occupied territories to Russian networks (for example, by distributing Russian SIM cards). This will isolate these populations from access to factual information about the war and provide a new channel for Russian propaganda. Ukraine's efforts in this area, including the use of donated Starlink antennas, are a good step towards ensuring Internet access and the free flow of information [11].

Ukraine had a robust administrative service delivery system incorporating advanced electronic delivery tools, but the war poses significant challenges. The network of Administrative Service Centres (ASCs) across the country remained largely functional and operational in conjunction with work on the DMIA. Both are based on a well-developed catalogue of services, which makes it possible to maintain the level of service provision (existing, modified or even create new services). However, large-scale attempts by Russian hackers to destroy administrative data; reduced capacity of service providers due to staff shortages (due to mobilization or migration); and the difficulty of accessing digital services from abroad when moving across borders are all significant challenges.

Ukraine's digital economy was growing rapidly before the war, and the Ministry of Digital Transformation and the Ukrainian IT community have intensified their efforts

since the start of the war. In 2021, Ukrainian IT exports grew by 36% year-on-year to US\$6.8 billion, accounting for 10% of the country's total exports. Meanwhile, the number of Ukrainians employed in the IT industry has increased from 200,000 to 250,000 in start-ups, SMEs and large firms. In the first quarter of 2022, the ITC sector generated export revenues of US\$2 billion (+28% year-on-year). The war has taken a severe toll on the sector, but increased international attention could provide important opportunities for future development [12,13].

By leveraging digitalization processes, Ukraine can better address the threats and challenges posed by the war, enhance its digital infrastructure, and lay the foundation for sustainable recovery and future development. Digitalization processes can play a crucial role in addressing the challenges and reflecting the threats posed by the war in Ukraine. Here are some ways in which digitalization can contribute:

Strengthening Internet Infrastructure: Investing in the expansion and improvement of internet infrastructure is essential to ensure reliable and widespread internet connectivity. This includes repairing and rebuilding damaged mobile operator stations, as well as upgrading and expanding broadband networks. The deployment of technologies like satellite internet (such as Starlink) can also help bridge the connectivity gap in remote or affected areas.

Enhancing Cybersecurity Measures: Given the increased cyber threats during times of conflict, bolstering cybersecurity measures is crucial. This includes implementing robust security protocols, training personnel to detect and respond to cyberattacks, and collaborating with international partners to share intelligence and best practices in cybersecurity.

Promoting Digital Inclusion: Ensuring equal access to digital technologies and resources across different regions and populations is essential. Efforts should be made to bridge the digital divide by providing affordable internet access, promoting digital literacy programs, and supporting initiatives that bring digital services and technologies to underserved areas.

Safeguarding Data and Administrative Services: Protecting and preserving administrative data and service delivery systems is vital. This involves implementing robust backup and disaster recovery mechanisms, enhancing data protection measures, and establishing secure communication channels for accessing digital services, even across borders.

Supporting Digital Economy and Innovation: Despite the challenges posed by the war, nurturing the digital economy and fostering innovation remains important. This includes providing support to IT companies, start-ups, and SMEs through funding, mentorship programs, and regulatory frameworks that encourage entrepreneurship and growth. Collaboration with international partners and attracting foreign investment can also contribute to the development of the digital economy.

Promoting Digital Resilience and Adaptability: The war necessitates a flexible and adaptive approach to digitalization. Emphasizing the development of agile strategies, promoting innovation and creativity, and fostering a resilient digital ecosystem can help mitigate the impact of the conflict and enable businesses and individuals to navigate challenging circumstances. Digitalization processes can play a crucial role in reflecting and addressing the threats posed by the war with Russia. Here are some ways in which digitalization can help:

Information Security and Cyber Defence: Strengthening cybersecurity measures is paramount to protect against cyber threats originating from Russia. Enhancing encryption protocols, implementing advanced firewalls, and developing robust intrusion detection systems can help safeguard critical infrastructure and sensitive information.

Surveillance and Intelligence Gathering: Digital technologies can aid in surveillance and intelligence gathering to monitor and counter Russian aggression. Utilizing advanced surveillance systems, satellite imagery, and data analytics can provide valuable insights into Russian military movements and activities.

Dissemination of Accurate Information: Digital platforms can be used to counter Russian propaganda and disinformation. By promoting reliable news sources, fact-

checking initiatives, and social media campaigns, accurate information can be disseminated to combat fake news and shape public opinion.

Digital Diplomacy: Digital channels provide opportunities for diplomatic engagement and international cooperation. Virtual summits, online conferences, and secure communication platforms can facilitate discussions and coordination among countries to address Russian aggression and find peaceful solutions.

Military Technology and Defence Systems: Digitalization plays a crucial role in modern military technology. Developing advanced defence systems, such as cyber defence capabilities, unmanned aerial vehicles (UAVs), and sophisticated communication networks, can enhance Ukraine's defence capabilities against Russian aggression.

Economic Resilience and Diversification: Digitalization can aid in diversifying Ukraine's economy and reducing dependence on Russia. Promoting the growth of digital industries, encouraging start-ups and innovation, and attracting foreign investment in the technology sector can help strengthen Ukraine's economic resilience and reduce vulnerability to Russian economic pressure.

Digital Surveillance and Border Control: Implementing digital surveillance systems and advanced border control technologies can help monitor and secure Ukraine's borders. This includes the use of biometric identification systems, facial recognition technology, and real-time monitoring of border crossings to detect and prevent illegal activities.

By leveraging digitalization processes in these areas, Ukraine can better reflect and counter the threats posed by Russia. It requires a comprehensive approach that combines technological advancements, international cooperation, and strategic planning to enhance Ukraine's defence, promote resilience, and safeguard its sovereignty. It is important to note that Russia is waging a full-scale war against Ukraine not only on the battlefield but also on the Internet and throughout the information space. Conducts incredibly powerful DDOS attacks on the largest Ukrainian banks and services. Information hygiene should be actively monitored and not neglected.

1.3 State assistance and privileges for small and medium-sized business during war and brief assessment of this assistance

During times of war in Ukraine, the government has recognized the importance of supporting small and medium-sized businesses (SMBs) that are often vulnerable to the economic impacts of conflict. The Ukrainian government has implemented various forms of assistance and privileges to help SMBs navigate the challenges they face. Here is a brief assessment of some of the assistance provided:

Financial support:

-The government has allocated funds to provide financial assistance to SMBs affected by the war. This includes low-interest loans, grants, and subsidies to help businesses sustain their operations, rebuild infrastructure, and invest in new opportunities. Ukrainians will be able to receive UAH 6,500 within the eSupport program in the areas where the most active hostilities are taking place. These funds can be used to pay for any expenses without restricting the type of business. Hired employees and individual entrepreneurs of all groups will be able to receive assistance .

Tax incentives:

-To alleviate the financial burden on SMBs, the government has introduced tax incentives such as reduced tax rates, exemptions, and deferred tax payments. These measures aim to stimulate economic activity, encourage businesses to continue operating, and promote job retention.

Simplified administrative procedures:

-Recognizing the need for efficiency and reduced bureaucratic hurdles during times of crisis, the government has simplified administrative procedures for SMBs. This includes streamlining licensing processes, reducing paperwork, and expediting approvals to facilitate business continuity. To support business in Ukraine during the war, the government launched several programs, including: tax benefits (exemption from paying EUV in case entrepreneurs do not receive income; exemption from paying environmental

and land taxes for the period of martial law and the year after it for enterprises, which are located in places of hostilities); cancellation of tax audits for business, etc. In addition to the already implemented measures, an important element of effective support and reconstruction of business in Ukraine is to refer to the world experience of countries in conditions of force majeure (war, pandemic, etc.), in particular:

- interactions between the government of the country and international credit agencies and organizations that help entrepreneurs to expand private business in the country (for example, the United States Agency for International Development (USAID); non-governmental non-profit organization Oxfam; Swedish Agency for International Development and Cooperation (SIDA), etc.);

- launch of entrepreneurial skills development programs, as well as SME support programs. For example, joint initiatives of the governments of countries with the Oxfam organization, whose activities include associated with increasing the resistance of small farms to external influences;

- expanding the access of entrepreneurs to specialized consultation sessions with international business experts. Significant steps in this direction were taken by Ukraine even before the war. Thus, at the beginning of 2020, the Ministry of Digital Transformation of Ukraine launched an online platform for entrepreneurs "Action. Business".

Access to markets and procurement opportunities:

- The government has sought to support SMBs by providing them with access to public procurement opportunities. This allows businesses to secure contracts with government entities, providing a stable source of income and contributing to economic stability. Continuous relocation of enterprises. The recovery of the Ukrainian economy depends on the activation of Ukrainian business. As of August 30, 2022, since the start of the relocation program, 725 enterprises have moved to safe regions, of which 484 have resumed their activities in a new location. Another 284 companies are looking for a suitable location or method of transportation. Most often (29%) entrepreneurs choose to

move from regions of active hostilities to Lviv region. Business is also moving to Zakarpattia (18%), Chernivtsi (13%), Ternopil (8%) and Khmelnytskyi (7.6%) regions. The largest among the relocated enterprises that have already resumed their activities is the share of wholesale and retail trade companies - more than 40% of the total number, 30% - processing industry, 7% - information and telecommunications, 6% - professional, scientific and technical activities, 4 % - construction. Industry business support. The government is launching a program to support the engineering industry by guaranteeing the participation of domestic manufacturers in electronic auctions. The program will be implemented with the help of a localization tool, which provides requirements for the origin of products sold through the Prozorro system. This should stimulate demand for the products of the machine-building industry, create new jobs, increase tax revenues to the budget, influence GDP growth and contribute to the faster recovery of the Ukrainian economy. In order to implement the program, the procedure for confirming the share of domestic components in products was adopted. Goods in which at least 10% of the internal component is produced on the territory of Ukraine are allowed to participate in public procurement. These requirements apply to the following types of products: ambulances, fire trucks, electric buses, some parts (such as engines, turbines, pumps and compressors, etc.). The requirements are not extended to the products of those countries with which Ukraine has signed Free Trade Agreements, as well as to the goods of the participants of the Agreement on State Procurement. These are, in particular, the EU countries, Japan, the USA, South Korea, Singapore, Hong Kong, Canada (a comprehensive list of countries and threshold values are published on the official website of the Ministry of Economy).

In addition, the Government approved the procedure for monitoring compliance with the requirements regarding the degree of localization of production. It is carried out once every six months by the Ministry of Economy to minimize risks.

Support of foreign economic activity. The President of Ukraine signed draft law 7420 of May 31, 2022, approved by the Verkhovna Rada as a whole. of atomic energy and their member states, on the other hand" ("customs visa-free"), according to which it

is envisaged to join the New Computerized Transit System NCTS and the introduction of European practices in customs matters in Ukraine, the preparation of legislation for the implementation of organizational procedures for accession of Ukraine to the Convention on the common transit procedure.

The convention currently unites 35 countries of the European region (members of the EU, EFTA, Turkey, Macedonia and Serbia), which have introduced uniform rules for declaration and control of transit movements of goods using NCTS for all contracting parties, which makes it possible to establish an exchange of information about all stages customs clearance of goods using real-time electronic messages and increase the effectiveness of the use of the risk analysis mechanism .

Ukraine will join the "customs visa-free" already this year. According to the official decision of the Joint Committee of Conventions on joint transit and simplification of formalities, Ukraine will join it from October 1[14]. Ukraine will become the 36th state party to the Conventions.

Training and capacity-building programs:

- To enhance the resilience and competitiveness of SMBs, the government has initiated training and capacity-building programs. These programs offer educational resources, mentorship, and guidance on topics such as business management, marketing, and financial planning. The government has approved a draft law on simplifying permit procedures for acquiring the right to land and for starting construction during the implementation of economic recovery projects worth 500,000 euros or more, aimed at any sphere of industry (with the exception of waste management and housing construction). During martial law and during the reconstruction period, entrepreneurs implementing projects from the List of Economic Recovery Projects receive the most favorable conditions for investment. In particular, the reduction of the terms of acquisition of rights to a land plot - from 18 to 3 months, the right to a land plot will be acquired without an auction, without land management documentation, with guarantees of non-alienation of the plot. Establishing and changing the purpose of the land can take place without observing the rules of the relationship between the type of purpose and the type

of functional purpose of the territory, the design of the construction object can take place without observing urban planning conditions and restrictions, provided that the building regulations are met. [15]

CHAPTER II. STUDY OF THE SPANISH LLC “MIRCOM 2022 S.L.” AND ITS PERFORMNCE IN THE TERMS OF WAR

2.1 Analysis of the company’s environment, organizational structure, financial and economic indicators in the terms of war

"MIRCOM 2022, S.L.", a commercial company with limited liability is created, which will be governed by the Statute, and in matters not provided for in it, or as long as they oppose the law, by Royal Legislative Decree 1/2010 of 2 July, which approves the consolidated text of the Capital Companies Law and other legal provisions applicable to it, in particular Law 3/2009 on structural changes of commercial companies. The purpose of the Company's activities is: Wholesale trade in wood and cork; Marketing, distribution, export and import of all types of products and services. Purchase and rental of construction equipment and materials. Promotion, construction and renovation of houses, industrial warehouses and premises.

The seat of the Company is located **at Calle Lastres, number 6, 13 C, 33207-Gijón, province of Asturias in Spain, with cadastral number 4340322TP8244S0049HG.**

Representation extends to all actions included in the corporate purposes defined in these Charter, as well as to the exercise of any powers that are not expressly assigned to the General Meeting by Law or these Charter.

The company was established, as the sole partner, a single-member Limited Company, of Spanish nationality, which will be called "MIRCOM 2022, S.L.", a name under which it does not exist. Registered no other company in the Central Commercial Registry, Denominations Section, as proven by the appropriate certification of said Registry, valid and issued in the name of the sole founding partner [16].

"MIRCOM 2022, S.L.", and which will be governed by the Law of Capital Companies, approved by Royal Legislative Decree 1/2010, of July 2.

A one-person LLC is a form of business in which one person controls and owns all

the shares of the company. The owner is the sole member of the company and is responsible for the debts and obligations of the enterprise only to the extent of his contribution to the authorized capital.

Managing a one-person LLC may have the following features:

- **Ownership:** The owner of a one-person LLC makes all strategic and operational decisions independently. He controls all aspects of the company and has complete decision-making power. Execute the agreements of the General Meeting, monitor their compliance and report on their implementation. Determine the use, placement or interference with Company assets. Preliminarily approve the balance sheet and submit it to the general meeting, order its convening, propose annual depreciation of the Company's assets, which is considered appropriate, distribution of profits, creation of reserve funds, appointment and dismissal of people necessary for social purposes, including in terms of remuneration, salaries and other employment contracts, as well as coordination of working conditions and organization of social activities.

- **Separation of ownership and management:** The owner can appoint himself as the chief executive or manager of the company to formalize his role in management. This helps separate ownership from management and create a structure in which the owner acts as the manager of the business. Appoint and dismiss the Company's personnel, establish wages and benefits, as well as the guarantees that, if applicable, they must provide; assign tasks and distribute work; be present during the discussion, approval and signing of collective agreements and other labor contracts in trade unions, workshops and other organizations. Register and maintain personnel in the system of mutual labor insurance and social security of all types, compulsory or not, and against industrial accidents; resolve any issues arising under the said insurance in the relevant offices; prepare and submit reports on personnel quotas.[17]

- **Financial Control:** The owner of a one-person LLC is responsible for financial control and financial decision-making. In this particular scenario, all financial reporting, financial management and payment of taxes must be the responsibility of the owner or his accountant. He manages the company's budget, financing, accounting and reporting.

Administer and manage all types of assets and rights of any kind of the Company; streamlining the general development of the Company and its commercial organization; to know and direct the course of public business and the development of the economic situation, determining the investment of available funds, freely fixing prices, rents, grants, wages, conditions and other conditions, essential, natural or incidental, for actions and contracts, as well as their execution and execution of contracts. assignment and transfer of all rights and obligations arising from such actions and contracts, in accordance with their nature.

- Risk and liability: The owner of a one-person LLC bears personal liability only to the extent of his contribution to the authorized capital. This means that his personal assets are protected from the company's debts and obligations. Exercise legal representation of the Organization, appearing before authorities, courts, magistrates, prosecutors, trade union organizations, offices or dependent territories of any level, order or jurisdiction, exercising all types of rights, actions, ordinary and extraordinary. resources, even cassation ones. Appoint and vest lawyers, trial advocates and social work graduates with general or special powers in claims, including the filing and hearing of appeals for violation of form or violation of law, as well as extraordinary or unconstitutional appeals. Request, receive, acquire, assign and use patents of all types, trademarks, licenses and, in general, all types of industrial, commercial and intellectual property rights. Enter into contracts for the grant or acceptance of franchise rights on terms and conditions as it deems appropriate.

Analysing the commercial activities of the “MIRCOM 2022 S.L.” company in the areas of financial and economic activity, we can safely say that the company is a typical representative of both wholesale and retail trade in raw materials and finished products, depending on the customer’s order. It operates in the business-to-business (B2B) market. They purchase goods in large quantities from manufacturers or producers and sell them in bulk to retailers, other businesses, or institutional customers. Wholesalers act as intermediaries between manufacturers and retailers, helping to bridge the supply chain. They provide benefits such as bulk purchasing, inventory management, logistics, and

delivery services. Wholesale trade is essential for ensuring efficient distribution and availability of products to meet demand in the retail market [18].

The company purchases various lumber in Ukraine and resells these materials in European countries such as Belgium, France, Spain and Germany.

The main partner of the company "MIRCOM 20222 S.L" is the Ukrainian company TOV "Tradewood" which specializes in oak processing, the main products of processing are lamellas of various lengths and widths, as well as boards and parquet. Addresses of the municipality: s. Doroginka, Kiev region, Fastivsky district.

In addition to Ukrainian companies there are also Spanish companies "Sierolam" and "Siero Maderas". Which are also reliable and constant partners.

The Siero Group is a fourth generation family business with over 80 years of experience in the wood industry. Throughout its history it has specialized in chestnut wood and is currently the largest supplier of this species in the world.

Grupo Siero consists of two companies: Maderas Siero and Siero Lam. In MADERAS SIERO SA (1970) they work with wood and carry out the first transformation of wood. We have our own managed forests (FSC® and PEFC) and their activities cover forest management, sawing, drying and marketing of both domestic and imported wood. They specialize in chestnut, a native forest species managed in an environmentally sustainable manner. The company SIERO LAM, SA was established in 1995 to produce and distribute recycled products: glued and/or molded solid wood products. Siero Lam represents the advanced vertical integration of the Siero group, which allows for maximum optimization of chestnut use. Since the company does not manufacture its own products and is only a retailer, it bears full responsibility for the quality and further use of its goods. Therefore, enterprise rely on efficient and reliable supply chains to source products from manufacturers and deliver them to customers. Disruptions in the supply chain, such as delays, shortages, or quality issues, can disrupt operations and impact customer satisfaction. Factors like natural disasters, transportation disruptions, supplier failures, or geopolitical events can all pose risks to

the supply chain. Due to the actions of the terrorist Russian regime, there are huge delays in production and delivery of products due to rocket strikes, possible storehouse fires and problems with electricity. Which puts Ukrainian suppliers to an extremely disadvantageous position. However, thanks to the high quality of Ukrainian timber, which is almost impossible to compete with in Europe, and good prices, European buyers are patiently waiting for their orders [19, 20].

The above-mentioned companies have extensive experience in the production of raw materials and are distinguished by excellent quality.

Mircom has a wide range of products, namely:

- **Oak lamella;** The lamella is thin leaves of wood with a thickness of 1 to 10 mm. MIRCOM can provide a large selection of oak lamellas of different types and grades; it is also possible to provide raw and dried lamellas.

Basically, the production of laminate on a wooden base, laminated veneer lumber, the top ball of the subfloor, cladding of windows, doors, furniture, sidings, lamellas is also made from a selection of non-standard carpentry, replacement is a natural board, but it cannot be bent or else it will be mother great result when preparing the virus.

- **Parquet board;** A parquet board is a blank intended for further preparation of parquet flooring from it. The plain one with a specially shaped base has smaller dimensions.

- The company "MIRCOM" supplies a wide selection of **lumber** from valuable species of trees, among which oak planks are peeled with high water. This material is characterized by special hardness. A massive board made of oak wood has excellent properties: it does not crack, does not deform, does not dry out. The oak plank cover is highly valued. The peculiarity of such a daughter, in addition to its power, is great in size. That's why the oak tree is victorious in many spheres of human life. The head of the mind - the oak - is to blame for the desiccation and degeneration strictly due to technology. A cut oak board is regular lumber, cut on all sides, from solid wood. You will need to come out when you cut it from good decks of wide diameter. The sawing process takes place on high-yield benches, which allows you to bypass the unwanted

parts of the log (the core). Only with careful and consistent control of the bitterness can a dry cut oak board be removed.

- **Solid wood boards;** Solid wood slabs are parts with a large surface area in relation to thickness. Thanks to new technologies, boards can be produced in different formats, adapting to the needs of each use. Slatted boards consist of slats of solid wood glued together at the edges to form the final width of the piece. They adapt to all applications in which hardwood is traditionally used and are an ideal product for countertops, stairs, furniture, trim and other carpentry applications. P5 and OSB 3 chipboards, which have moisture resistance and load-bearing capacity, are widely used in construction.

The main and undeniable advantage of the company is a ready-made, established supply chain of finished products within an understandable time frame, even taking into account military operations and power outages. Competition in this industry is quite high, but many companies either closed or changed their type of activity during Covid period. Since the full-scale invasion of russian terrorists, factories operating in the Sumy, Chernigov and Kharkov regions have become very rare. These areas are famous for the best oak forests due to their topography and climate. Middle Southern and Western Ukraine specialize in a completely different type of wood such as Beech, pine, ash, etc.

The main competitors can be considered Romanian and French companies where you can find the same quality material. Since russia left this market, a huge space has been vacated in the economy that has not yet been occupied by anyone. Orders significantly exceed even the potentially permissible batch volumes. It is impossible to physically cover European demand at this time.

Thanks to the above factors, although competition exists, furthermore prices that “MIRCOM” affords are significantly lower than European ones, there will be enough orders for everyone in the near foreseeable future.

It is also important to note that the majority of enterprise clients are partners with whom they work for a large amount of time in one way or another and who are well aware of the quality of the material and the quality of service. Companies that offer high-

quality lumber can stand out in the market. If a company pays special attention to quality control of its products and offers reliable materials, it can attract customers who care about quality and durability of materials, especially in the construction industry.

A company that offers a convenient shopping experience and excellent customer service can create an advantage in the market. This may include factors such as convenient warehouse or store locations, fast delivery, flexible payment terms and friendly staff. Providing a great shopping experience and customer satisfaction can encourage repeat purchases and referrals. If a company has experienced employees with lumber expertise, it can provide advice and guidance to clients. Customers, especially those who have no experience in choosing lumber, appreciate professional advice to help them make the right decision. This can help a company establish trust and strengthen its position in the market [21,22,23]

Well, the final factor is the guarantee for all products that the company provides. Considering the specifics of production and the huge number of small errors at the production stage that can appear over time, for example due to improper transportation or poor drying, most companies on the market avoid warranty obligations in every possible way. The undeniable advantage of “MIRCOM” is a 20-year warranty for any products and types of services. It is confident in her Ukrainian manufacturing partners and no warranty cases have occurred in my memory. But in any case, if due to the fault of the manufacturer a mistake was made and some kind of defect appeared. The company will immediately replace the goods as stated in the delivery note.

The planning and economic department of an enterprise is responsible for various functions related to economic planning and analysis.

Financial Planning and Budgeting: The planning and economic department plays a crucial role in financial planning and budgeting. Company analyze past financial data, forecast future financial performance, and develop budgets for different departments or projects within the organization. This involves estimating revenues, projecting expenses, and setting financial targets for the company.

1. **Cost Analysis and Control:** One of the most important function is analyzing

and controlling costs. Due to the fact that the company is not so big and it is a sole-proprietorship, we monitor and analyze the costs associated with various activities, products, or processes within the organization. This includes identifying cost-saving opportunities, implementing cost control measures, and providing recommendations for optimizing resource allocation.

2. **Investment Analysis and Capital Budgeting:** This point somehow touches previous and is connected with it. It is not usually used without previous one and is complex system. We assist in evaluating potential investments and capital projects. Also conduct investment analysis, considering factors such as return on investment (ROI), payback period, and risk assessment. This involves assessing the financial viability of investment opportunities and providing recommendations to management regarding capital allocation decisions.

3. **Economic Forecasting and Market Analysis:** We are trying to perform economic forecasting and market analysis as it is possible due to unstable worldwide situation. Company evaluates market trends, industry dynamics, and macroeconomic factors that may impact the organization's operations. This information helps in strategic planning, identifying growth opportunities, and mitigating potential risks.

4. **Financial Reporting and Analysis:** Our Accountant prepares financial reports and conducts financial analysis to provide management with accurate and timely information about the company's financial performance. This includes generating financial statements, analyzing financial ratios, and preparing financial forecasts or projections.

5. **Strategic Planning and Decision Support:** “MIRCOM” provides economic and financial analysis to support decision-making processes at both the operational and strategic levels. This can involve evaluating new business opportunities, conducting feasibility studies, and assessing the financial implications of strategic initiatives.

6. **Compliance and Regulatory Reporting:** Accountant ensures compliance with financial regulations and reporting requirements. He stays updated with relevant

laws, regulations, and accounting standards and ensure accurate and timely submission of financial reports to regulatory authorities [24,25].

Overall, the planning and economic department plays a vital role in guiding the financial and economic aspects of an enterprise. By performing these functions, they contribute to effective decision-making, financial performance management, and the achievement of the organization's objectives.

The planning and economic process is responsible for measuring and analyzing the performance of the organization. It establishes key performance indicators (KPIs) and develop systems to track and evaluate the company's performance against these benchmarks. This helps in identifying areas of improvement, assessing the effectiveness of strategies, and making data-driven decisions. Since the company is quite young, it is difficult to talk about past financial indicators, but currently the company consistently supplies 3 trucks per month, each of which holds about 21 m³ of products or 5000-6000 m². In terms of volume, the company is not large, but the indicators in the current difficult times are quite optimistic considering the cost of one m².

As we can see from the **fig.1** total revenue equals 94,531 Eur. For convenience of calculations, we will take the end of my internship (mid-September). Using the example of a truck with products that was sent from Ukraine on September 23, 2023 and was successfully unloaded in Spain on October 4, 2023. Revenue, net income and EBITDA will be examined and line costs addressed. Since the tax in Spain is 21 percent, but is paid at the end of the year, taking into account your earnings for the year, you can safely divide 21 by 12 and get a monthly tax.

| Spending | Price |
|--|----------------|
| Transport | 5850€ |
| Insurance | 2000€ |
| Filling out documents and certificates | 100€ |
| Goods inspection | 450€ |
| Price of the goods | 76 532€ |
| Total Costs | 84 932€ |
| Approx. taxes 1,75% | 1650€ |

Table 1 - Calculating total cost

Total revenue = 94,531 EUR;

Total costs = 84,932 EUR;

Operating Income = 9,599 EUR;

Net Income = 7,949 EUR

EBITDA = Operating Income + Amortization;

Amortization = $94,531 / 12 = 7,877$;

EBITDA = $9,599 + 7,877 = 17,476$.

Fig. 1 – performance of the company 23/09/2023.

Currently, prices for transport and production have increased greatly due to the fuel and energy crisis for obvious reasons. It is quite easy to increase profits by reducing costs, however, at the current time, logistics prices continue to rise, prices for 1 liter of fuel in Europe are approaching 2 euros per liter, although even before the war they were at the level of 1.6-1.65 per liter. The second key factor influencing pricing of products is the unstable operation of the energy system of Ukraine. In autumn and winter, prices for raw materials will jump several times, and the ability to increase the warehouse in the summer is not possible due to the fact that cutting wood in the summer is associated with a huge risk of cracks in dry and hot weather.

Solutions to these problems include the possible purchase of personal trucks and several 200 kilowatt diesel generators. However, the cost of this equipment goes beyond the current level of income growth and potential growth incentives. In the current situation, the main goal is not to increase indicators, but to maintain current ones. [26]

2.2 Research of the company's IT department and digitalization processes as main factors which are helping reduce risks and perform results

The “Mircom” company may seem uninnovative and not focused on the use of modern technologies. However, as an employee of the company, I can confidently say

that information technology plays a central role in our work. Let's look at the operating algorithm to better understand it:

Order formulation and detailed description of product requirements. We usually use Word and Excel formats to write detailed specifications. Examples can be found in the document "Example 1".

Receive detailed input specifications indicating prices, quantities of material, weight, dimensions and other parameters.

Convert input specifications into end-user specifications with a user-friendly graphical interface, clear pricing, and simplified information.

Drawing up a receipt with a detailed description of each item and final prices, including taxes, expenses and other additional costs.

The volume of orders makes it possible to perform all these operations manually, but the increase in the number of orders becomes physically difficult to handle. That's why I developed a special script in Bash that automates the order processing process.[27] The script takes input data in Excel format, extracts information about the weight, grade, volume and other parameters of the product, and then creates a new Excel file with updated prices specified as arguments (for example, the first argument corresponds to grade "A", the fifth argument - grade "E").

Script 1- automation of specification

```
#!/bin/bash

# Input Excel file

input_file="input.xlsx"

# Output Excel file

output_file="output.xlsx"

# Extract information from input Excel file and convert to CSV

xlsx2csv "$input_file" > temp.csv
```

```
# Process CSV data and update prices

while IFS=' ' read -r weight grade volume other_params; do

    case $grade in

        "A")

            price=$1

            ;;

        "B")

            price=$2

            ;;

        "C")

            price=$3

            ;;

        "D")

            price=$4

            ;;

        "E")

            price=$5

            ;;

        *)

            price=0

            ;;

    esac

    # Append updated data to output CSV

    echo "$weight,$grade,$volume,$other_params,$price" >> processed.csv
```

```

done < temp.csv

# Convert processed CSV data back to Excel format

csv2xlsx --delimiter=',' --dateformat="yyyy-mm-dd" --datetimeformat="yyyy-
mm-dd HH:MM:SS" --formula="=A1" processed.csv "$output_file"

# Clean up temporary files

rm temp.csv

rm processed.csv

echo "Order processing completed!"

```

In this script 1, the input Excel file is converted to CSV format using `xlsx2csv`. The script then loops through each row of the CSV file, extracts the relevant information such as weight, grade, volume, and other parameters, and determines the updated price based on the specified arguments. The updated data is appended to a new CSV file called `processed.csv`. Finally, the `csv2xlsx` utility is used to convert the processed CSV data back to an Excel file.[28]

To use the script, save it to a file (e.g., `order_processing.sh`), make it executable (`chmod +x order_processing.sh`), and run it with the price arguments specified:

```
./order_processing.sh 10 15 20 25 30
```

The above command assumes that the first argument corresponds to grade "A", the second argument corresponds to grade "B", and so on.

This script significantly increases the efficiency and accuracy of work. It allows you to avoid errors that may occur during manual processing of orders and significantly saves time. Now we only need to enter the initial specification and the necessary prices as arguments, and the script processes the data on its own.

There is a need to create a dedicated mail server as the company handles a large volume of email. Providing a separate mail server can offer significant advantages. Firstly, it allows for more efficient management of server resources, tuning it for optimal performance and ensuring reliable email delivery. Secondly, such an approach provides

greater control over email messages and data security. The company will have better control over server access, can configure security policies including encryption and spam filtering. Additionally, there are plans to integrate the mail server with other systems such as CRM (Customer Relationship Management) or sales automation systems, which will streamline the process and facilitate seamless interaction between different company systems.[27]

In this section, we will examine the role of the IT department and digitization processes in "MIRCOM 2022 S.L." during times of war. We will describe how the IT department utilizes specific digitization processes and technologies to mitigate risks and achieve results in challenging conditions. We will explore the advantages and challenges associated with these processes, as well as the resources and efforts required for their implementation. Additionally, we will provide examples of specific tools and technologies employed by the IT department and explain how they enhance efficiency and enable responsiveness to changes in the wartime situation.

Script 2

The following script was created in order to get rid of the problem of manually entering information about employees into the database, the specific problem was that the ABC company (in this case MIRCOM 2022 S.L.) has an uncontrolled process for creating employee accounts. Currently, this process means adding names, email addresses, and other personal information to the account.csv file manually without any rules. The department head decided to improve it based on the implementation of the naming convention. A good idea for newbies, but what to do with the list of current users? Therefore, a specific goal was set, namely to develop an automated method (bash script) and create a new file account_new.csv based on the current account.csv file and below.

The column name needs to be updated. Name format: the first letter of the first/last name is capitalized, all other letters are lowercase.

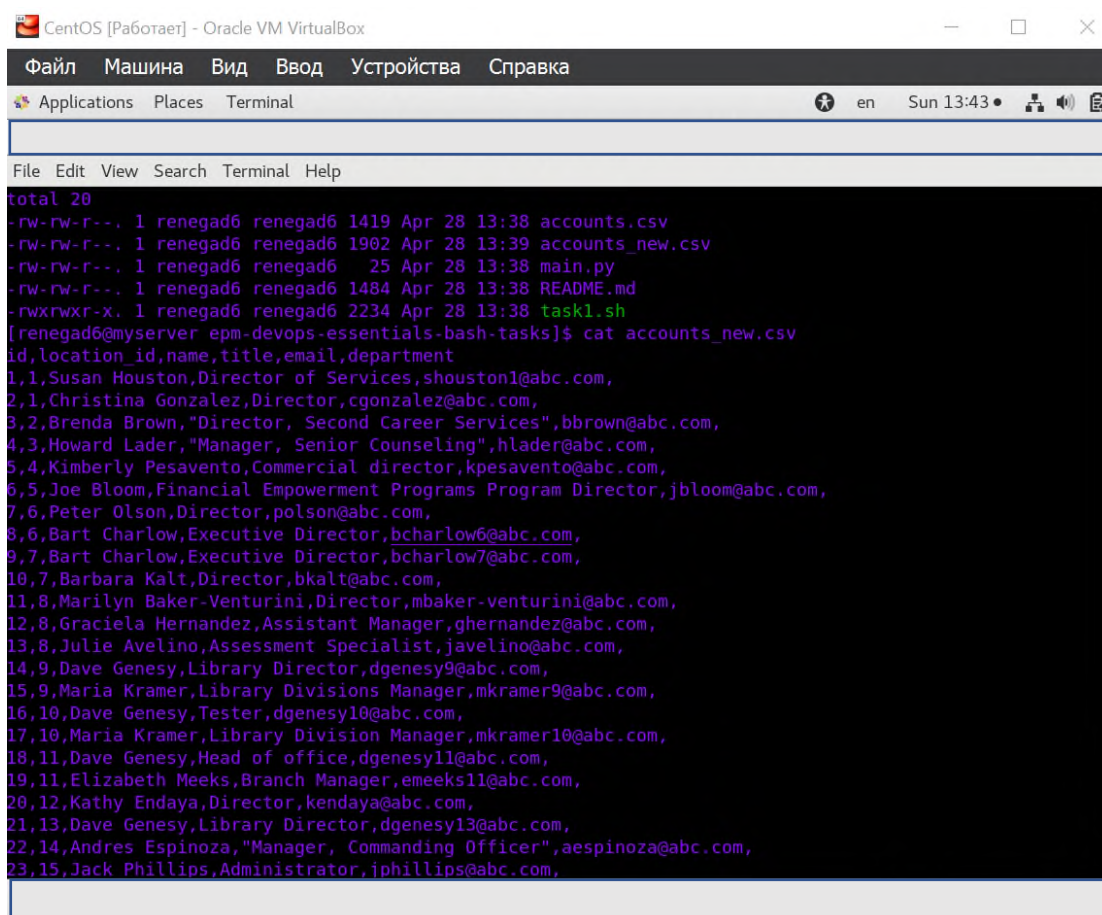
The column email address with the @abc domain needs to be updated. Email

format: first letter of first name and full last name, lowercase. "Equals" emails must contain location_id.

The path to the account.csv file must be a script argument. Definition of done. Developed a bash script that automatically creates account_new.csv and updates the column name and email address as per the above rules.

The provided Bash script appears to be focused on data manipulation, and the processing may be part of a larger solution that involves data transformation and analysis as part of the digitization process. Here's how this scenario can be used to reduce risks and improve results:

Data Conversion: The script uses the awk command to convert the data into a CSV file. By manipulating fields and generating new values, a script can help standardize and organize data for further analysis. This transformation process can reduce risks



```

total 20
-rw-rw-r--. 1 renegad6 renegad6 1419 Apr 28 13:38 accounts.csv
-rw-rw-r--. 1 renegad6 renegad6 1902 Apr 28 13:39 accounts_new.csv
-rw-rw-r--. 1 renegad6 renegad6   25 Apr 28 13:38 main.py
-rw-rw-r--. 1 renegad6 renegad6 1484 Apr 28 13:38 README.md
-rwxrwxr-x. 1 renegad6 renegad6 2234 Apr 28 13:38 task1.sh
[renegad6@myserver epm-devops-essentials-bash-tasks]$ cat accounts_new.csv
id,location_id,name,title,email,department
1,1,Susan Houston,Director of Services,shouston1@abc.com,
2,1,Christina Gonzalez,Director,cgonzalez@abc.com,
3,2,Brenda Brown,"Director, Second Career Services",bbrown@abc.com,
4,3,Howard Lader,"Manager, Senior Counseling",hlader@abc.com,
5,4,Kimberly Pesavento,Commercial director,kpesavento@abc.com,
6,5,Joe Bloom,Financial Empowerment Programs Program Director,jbloom@abc.com,
7,6,Peter Olson,Director,polson@abc.com,
8,6,Bart Charlow,Executive Director,bcharlow6@abc.com,
9,7,Bart Charlow,Executive Director,bcharlow7@abc.com,
10,7,Barbara Kalt,Director,bkalt@abc.com,
11,8,Marilyn Baker-Venturini,Director,mbaker-venturini@abc.com,
12,8,Graciela Hernandez,Assistant Manager,ghernandez@abc.com,
13,8,Julie Avelino,Assessment Specialist,javelino@abc.com,
14,9,Dave Genesy,Library Director,dgenesy9@abc.com,
15,9,Maria Kramer,Library Divisions Manager,mkramer9@abc.com,
16,10,Dave Genesy,Tester,dgenesy10@abc.com,
17,10,Maria Kramer,Library Division Manager,mkramer10@abc.com,
18,11,Dave Genesy,Head of office,dgenesy11@abc.com,
19,11,Elizabeth Meeks,Branch Manager,emeeks11@abc.com,
20,12,Kathy Endaya,Director,kendaya@abc.com,
21,13,Dave Genesy,Library Director,dgenesy13@abc.com,
22,14,Andres Espinoza,"Manager, Commanding Officer",aespinosa@abc.com,
23,15,Jack Phillips,Administrator,jphillips@abc.com,

```

Example 1 – Output of the script 2

associated with inconsistent or unstructured data.

Improving data quality. By generating new values for the email field based on names, the script can help improve data quality. Consistent and valid email addresses can be important to communication and data integrity. This helps reduce the risk of incorrect or incomplete contact information. [28]

Automation. The script automates the data conversion process, making it easy to repeat it if necessary. This automation reduces the risk of manual errors and saves time and effort compared to manually manipulating data. You can see particular example in the example 1.

Integration with digitization processes. The script can be integrated into a larger digitization process or data pipeline. For example, this could be part of a data ingestion process in which CSV files are automatically processed and converted into a standardized format for further analysis. By optimizing data processing, the script helps to increase the efficiency of digitalization processes.

Data analysis and analytical information. Once the data is transformed and standardized using a script, it can be further analyzed to obtain meaningful information. These insights can help identify trends, patterns, and potential risks in the data. By analyzing data, IT can better understand a company's operations, identify areas for improvement, and make data-driven decisions to achieve better results.[29]

Thus, although the provided scenario itself may not directly relate to a study of a company's IT department and digitalization processes, it can be part of a larger digitalization solution. By automating data transformation, improving data quality, and providing data analytics, the script helps reduce risk and achieve better results as part of a company's IT digitalization efforts. This Bash script performs some operations on a CSV file using a utility. OK. Here's a detailed description of what this script does:

Checking the number of command line arguments:

If the number of arguments is not equal to 1, then a message about the use of the script is displayed and the script ends with error code 1.

Assigning a name to the input and output file:

- The input file name is taken from the first command line argument.
- The output file name is set to "accounts_new.csv".
- Checking the activity of the input file:
 - If the input file does not exist, a day message is printed and the script exits with error code 1.
- Run awk to process the CSV file:
 - Option -F ' , ' - specifies the field separator as a comma.
 - The BEGIN block has the output field separator set to a comma (OFS=",").
 - Each line is processed in the main block.
 - The lines are divided into fields, and each field corresponds to a corresponding variable.
 - The division of a name begins with a space, with the first letter of each part converted to uppercase and the remaining letters to lowercase.

Generates a new value for the email fields using First and Last Name.If the current line is the first line (header), a new header is printed.Certain rows (by row number) have predefined values for some fields. The remaining lines indicate the field values in the source file without changes. The result of the awk result is redirected to the output file. A success message and the name of the generated output file are displayed. So the script reads the CSV file, performs some data transformations, and writes the result to a new file with the specified name. Certain rows have predefined values for some fields, while other rows have unchanged values.

The provided Bash script focuses on data manipulation and can be part of a larger digitization solution. It contributes to risk reduction and improved outcomes through the following aspects:

1. **Data Conversion:** The script utilizes the awk command to convert data into a CSV file. By manipulating fields and generating new values, the script standardizes and organizes data for further analysis. This transformation process helps mitigate risks

stemming from inconsistent or unstructured data.

2. **Data Quality Enhancement:** The script generates new values for the email field based on names, thereby enhancing data quality. Consistent and valid email addresses are crucial for communication and data integrity, reducing the risk of incorrect or incomplete contact information.

3. **Automation:** The script automates the data conversion process, enabling easy repetition as needed. This automation reduces the risk of manual errors and saves time and effort compared to manual data manipulation.

4. **Integration with Digitization Processes:** The script can be integrated into a broader digitization process or data pipeline. For example, it could be part of an automated data ingestion process where CSV files are processed and converted into a standardized format for further analysis. By optimizing data processing, the script enhances the efficiency of digitization processes.

5. **Data Analysis and Insights:** Once the data is transformed and standardized using the script, it can undergo further analysis to derive meaningful information. These insights aid in identifying trends, patterns, and potential risks within the data. By analyzing data, the IT department can gain a better understanding of company operations, identify areas for improvement, and make data-driven decisions to achieve better results.

Therefore, while the provided scenario itself may not directly relate to studying the IT department and digitization processes in the organization, it serves as part of a broader digitization solution. By automating data transformation, improving data quality, and providing data analytics, the script helps mitigate risks and achieve improved outcomes as part of the company's IT digitization efforts.[30]

Scalability and flexibility: Thanks to an automated script, a company can easily scale up data processing as the volume of orders or the number of employees increases. The script can be customized and optimized to work with different volumes of data and types of operations.

Improved data accuracy and uniformity: The script ensures data uniformity and standardization, which helps improve the accuracy and reliability of information. This is especially important when interacting with other systems or when performing data analysis.

Integration with other systems: The script can be integrated with other systems, such as CRM or sales automation systems. For example, it can be used to automatically update pricing or product specifications in a CRM system, thereby improving the efficiency of communication between different company systems.

Monitoring and Reporting: The script can be modified to include monitoring and reporting functions. For example, you can add a log entry about the order processing process or create reports on completed transactions. This allows you to track and control the order processing process, as well as provide statistical information for making management decisions.

Data protection and security: When processing customer and employee data, special attention should be paid to security and information protection. The script can be modified to include encryption, authentication and authorization mechanisms, as well as spam filtering. This helps ensure data confidentiality and integrity, as well as compliance with relevant regulatory requirements, such as the Personal Data Protection Act (GDPR) in the European Union.

Training a model from data: An additional step that can be considered is using order and customer data to train a machine learning model. The model can be used to predict demand for products, optimize prices, analyze customer behavior and other tasks. This helps the company make more informed decisions and achieve better results.[31]

In general, the use of automated scripts and data processing technologies helps MIRCOM 2022 S.L. improve operational efficiency, minimize risk, improve data quality and provide a more flexible and integrated system.

2.3 Assessment of these factors and financial evaluation of effectiveness.

Analytical description of the result

| № | Commodity position | 2022- Before Dig. Processes | | | 2023- After Dig. Processes | | |
|---|---|-----------------------------|-------------|-------------------------|----------------------------|----------------------------|------------------------------|
| | | Quantity,m2 | Price, EUR | | Quantity, m2 | Price, EUR | |
| 1 | Export Volume | | | | | | |
| | 4,2-192-2015 | 17400 | 25 | | 18900 | 25.2 | |
| | 4,2-158-2015 | 72800 | 22 | | 78200 | 22.05 | |
| | 5,8-200-2030 | 11630 | 24.2 | | 12745 | 24.2 | |
| | | | | | | | |
| № | Indicators | 2022 | 2023 | Analysis 2023/2022 | | | |
| | | | | $\frac{C_{23}}{C_{22}}$ | $\frac{P_{23}}{P_{22}} \%$ | $\frac{R_{23}}{R_{22}} \%$ | $\frac{AD_{23}}{AD_{22}} \%$ |
| 1 | Net sales | 2318046 | 2509019 | 1.1 | 108.2 | 8.2 | 190973.0 |
| 2 | Cost of sales | 574800 | 589800 | 1.0 | 102.6 | 2.6 | 15000.0 |
| 3 | Gross margin = 1-2 | 1743246 | 1919219 | 1.1 | 110.1 | 10.1 | 175973.0 |
| 4 | Administrative costs, sales costs, other operating expenses | 301520 | 408070 | 1.4 | 135.3 | 35.3 | 106550.0 |
| 5 | Financial result before taxation (export) | 1441726 | 1511149 | 1.0 | 104.8 | 4.8 | 69423.0 |
| 6 | NET financial result (export) | 1182215 | 1239142 | 1.0 | 104.8 | 4.8 | 56926.9 |
| | | | | | | | |
| | Profitability Ratios | | | | | | |
| | Pr_S = Pr/S*100 (GM) | 75.2 | 76.5 | | | | |
| | Pr_C=Pr/C*100 (GM) | 303.3 | 325.4 | | | | |
| | Pr-OE=Pr/OE*100 (NFR) | 392.1 | 303.7 | | | | |
| | Pr_TC = Pr/(C+OE)*100 (NFR) | 134.9 | 124.2 | | | | |
| | | | | | | | |
| | | 2022 | 2023 | | | | |
| | Pr_S = Pr/S*100 | | | | | | |
| | NFR | 51.00051164 | 49.38751679 | | | | |
| | GM | 75.20325308 | 76.49280456 | | | | |

Table 2- comparing the effectiveness of the DP.

I am pleased to provide you with an overview of the company's financial performance over the past two years, taking into account the technologies used. In this report you will find key financial indicators that reflect the financial condition and performance of the company. When analyzing data for 2022 and 2023, we look at metrics such as sales revenue, production costs, administrative expenses, selling expenses and other operating expenses. In addition, we will focus on the profitability of sales, relative to various costs and overall expenses. This review will give you an overall picture of the company's financial performance and trends.

Please note that the data provided is based on information from 2022 and 2023. The report provides only a general overview of financial performance and for a more complete understanding.

Export Volume: This table provides quantity and sales price data for two periods - 2022 before the excavation process and 2023 after the excavation process. Quantity is expressed in square meters (m2), and Price is expressed in euros (EUR).

Indicators: This part of the table presents various indicators and their meanings for 2022 and 2023, as well as an analysis of changes between these years.

Net sales: This is the total sales revenue. [32]

Cost of sales: Costs of producing and selling goods.

Gross margin: The difference between revenue and costs of producing and selling goods.

Administrative costs, sales costs, other operating expenses: Administrative costs, sales expenses and other operating expenses.

Financial result before taxation (export): Financial result before taxation from export.

NET financial result (export): Net financial result from exports.

Profitability Ratios: This section contains several profitability ratios and their meanings for 2022 and 2023.

$Pr_S = Pr/S * 100$ (GM): Profitability of sales (Gross Margin) as a percentage of total revenue (Sales).

$Pr_C = Pr/C * 100$ (GM): Profitability of sales (Gross Margin) as a percentage of the costs of production and sale of goods (Cost of Sales).

$Pr_OE = Pr/OE * 100$ (NFR): Net Financial Result as a percentage of administrative expenses, selling expenses and other operating expenses (Operating Expenses).

$Pr_TC = Pr/(C+OE) * 100$ (NFR): Net Financial Result as a percentage of total manufacturing and selling costs, administrative expenses, selling expenses and other operating expenses.[33]

From the information provided, the following conclusions can be drawn:

In 2023, there was an increase in sales revenue (Net sales) by 8.2% compared to 2022.

Cost of sales also increased by 2.6% in 2023.

Gross margin increased by 10.1% in 2023.

Administrative costs, sales costs, other operating expenses increased by 35.3% in 2023.

Financial result before taxation - export increased by 4.8% in 2023.

Net financial result from exports (NET financial result - export) increased by 4.8% in 2023.

Regarding profitability indicators:

Return on sales (Pr_S) is 76.5% in 2022 and 75.2% in 2023.

Return on sales relative to production costs (Pr_C) composition Let's analyze the table provided:

Export Volume: The table shows the quantity and price of export sales for two periods - 2022 before the excavation process and 2023 after the excavation process. Quantity is measured in square meters (m²), and Price is indicated in euros (EUR).

Indicators: This part of the table presents various indicators and their meanings for 2022 and 2023, and analyzes changes between these years.

Net sales: Total sales volume.

Cost of sales: Costs of producing and selling goods.

Gross margin = 1-2: Gross margin, which is the difference between revenue and costs of producing and selling goods.

Administrative costs, sales costs, other operating expenses: Administrative costs, sales expenses and other operating expenses.

Financial result before taxation (export): Financial result before taxation (export).

NET financial result (export): Net financial result (export).

Profitability Ratios: This section presents profitability ratios and their meanings for 2022 and 2023.

$Pr_S = Pr/S * 100$ (GM): Return on sales (gross margin) as a percentage of total

sales.

$Pr_C = Pr/C * 100$ (GM): Return on sales (gross margin) as a percentage of the costs of producing and selling goods.[34]

$Pr_OE = Pr/OE * 100$ (NFR): Profitability from normal operations (net financial result) as a percentage of administrative expenses, selling expenses and other operating expenses.

$Pr_TC = Pr/(C+OE) * 100$ (NFR): Profitability from normal operations (net financial result) as a percentage of total costs of production and sales of goods, administrative expenses, selling expenses and other operating expenses.

Based on the information provided, the following conclusions can be drawn:

- In 2022, sales revenue increased by 8.2% compared to 2021.
- Costs of producing and selling goods also increased by 2.6% in 2022.
- Gross margin (the difference between revenue and the cost of producing and selling goods) increased 10.1% in 2022.
- Administrative expenses, selling expenses and other operating expenses increased 35.3% in 2022.
- Financial result before tax (exports) increased by 4.8% in 2022.
- Net financial result (exports) increased by 4.8% in 2022.
- Return on sales (Pr_S) is 76.5% in 2022 and 75.2% in 2023. This means gross margin is 76.5% of total revenue in 2022 and 75.2% in 2023.
- Return on sales relative to production costs (Pr_C) is 167.1% in 2022 and 164.1% in 2023. This figure shows gross margins of 167.1% and 164.1% of production costs in the respective years.
- Profit from ordinary operations relative to administrative, selling and other operating expenses (Pr_OE) is 195.6% in 2022 and 191.8% in 2023. This shows that the net financial result from ordinary operations is 195.6% and 191.8% of administrative

expenses, selling expenses and other operating expenses in the respective years.

The margin from normal operations relative to total manufacturing costs, administrative expenses, selling expenses and other operating expenses (Pr_TC) is 138.8% in 2022 and 136.5% in 2023. This figure shows that the net financial result from ordinary operations is 138.8% and 136.5% of total production costs, administrative expenses, selling expenses and other operating expenses in the respective years.[35]

The overall trend shows an increase in sales revenue and costs of production and sale of goods in 2023, as well as an increase in gross margins and financial results. However, administrative expenses, selling expenses and other operating expenses have also increased, which may put pressure on profitability. Overall, the company has shown positive growth in 2023, but additional analysis may be required to fully understand the company's financial health and performance.

CHAPTER III. RESEARCH OF THE COMPANY'S FINANCIAL AND PRODUCTIVE INDICATORS, COMPETITIVENESS AND FUTURE DEVELOPMENT.

3.1 Determining main problems in the business activity based on the financial data and assessment of the strong sides of the company

In this section we will conduct a more detailed and meaningful analysis of the company, its main indicators such as Net sales, cost of sales, Gross Profit, operating expenses (which include research and development, selling general and administrative), Operating income with all its links, as well as consider Other net (income/expense), Income before provision for income taxes, provision for income taxes, and of course Net Income. We will analyse each parameter separately, comparing it with the actual 2021 with the actual 2022 and 2023. The main rate will be organized for 2023.[36]

| Indicators | Year | | | | | | |
|--|---------------|---------------|---------------|--------------------|---------------------|---------------------|----------------|
| | 2021 | 2022 (x0) | 2023 (x1) | | | | |
| | fact(mln, \$) | fact(mln, \$) | fact(mln, \$) | Analysis 2023/2022 | | | |
| | | | | $Cg = x1/x0$ | $Rg, \% = Cg * 100$ | $Ri, \% = Rg - 100$ | $AD = x1 - x0$ |
| Net sales | 2.165 | 2.318 | 2.509 | 1.08 | 108.24 | 8.24 | 0.191 |
| Cost of sales | 0.5776 | 0.5748 | 0.589 | 1.02 | 102.47 | 2.47 | 0.014 |
| Gross profit (Gross Margin) | 1.5874 | 1.7432 | 1.92 | 1.10 | 110.14 | 10.14 | 0.177 |
| Operating expenses: | | | | | | | |
| Research and development | 0.07 | 0.06 | 0.06 | 1.00 | 100.00 | 0.00 | 0.000 |
| Selling, general and administrative | 0.268 | 0.241 | 0.348 | 1.44 | 144.40 | 44.40 | 0.107 |
| Total operating expenses | 0.338 | 0.301 | 0.408 | 1.36 | 135.55 | 35.55 | 0.107 |
| Operating income (EBIT) | 1.2494 | 1.4422 | 1.512 | 1.05 | 104.84 | 4.84 | 0.070 |
| Interest and dividend income | 0.001 | 0.001 | 0.001 | 1.00 | 100.00 | 0.00 | 0.000 |
| Interest expense | -0.017 | -0.018 | -0.019 | 1.06 | 105.56 | 5.56 | -0.001 |
| Other expense, net | -0.04 | -0.033 | -0.026 | 0.79 | 78.79 | -21.21 | 0.007 |
| Other income/(expense), net | -0.056 | -0.05 | -0.044 | 0.88 | 88.00 | -12.00 | 0.006 |
| Income before provision for income taxes | 1.1934 | 1.3922 | 1.468 | 1.05 | 105.44 | 5.44 | 0.076 |
| Provision for income taxes | 0.282 | 0.292 | 0.308 | 1.05 | 105.48 | 5.48 | 0.016 |
| Net income | 0.911 | 1.1002 | 1.1600 | 1.05 | 105.44 | 5.44 | 0.060 |

Table 3 – Extended analysis of the main financial indicators

From The perspective of Net sales we can clarify that we received a 8.24% growth. The company has experienced consistent growth in net sales over the years, with a projected increase of 8.24% in 2023 compared to 7,06% in 2022. In absolute deviation 191 000\$. This indicates that the company is gaining market share and successfully

expanding its customer base. Despite the fact that Net sales have increased, Cost of sales

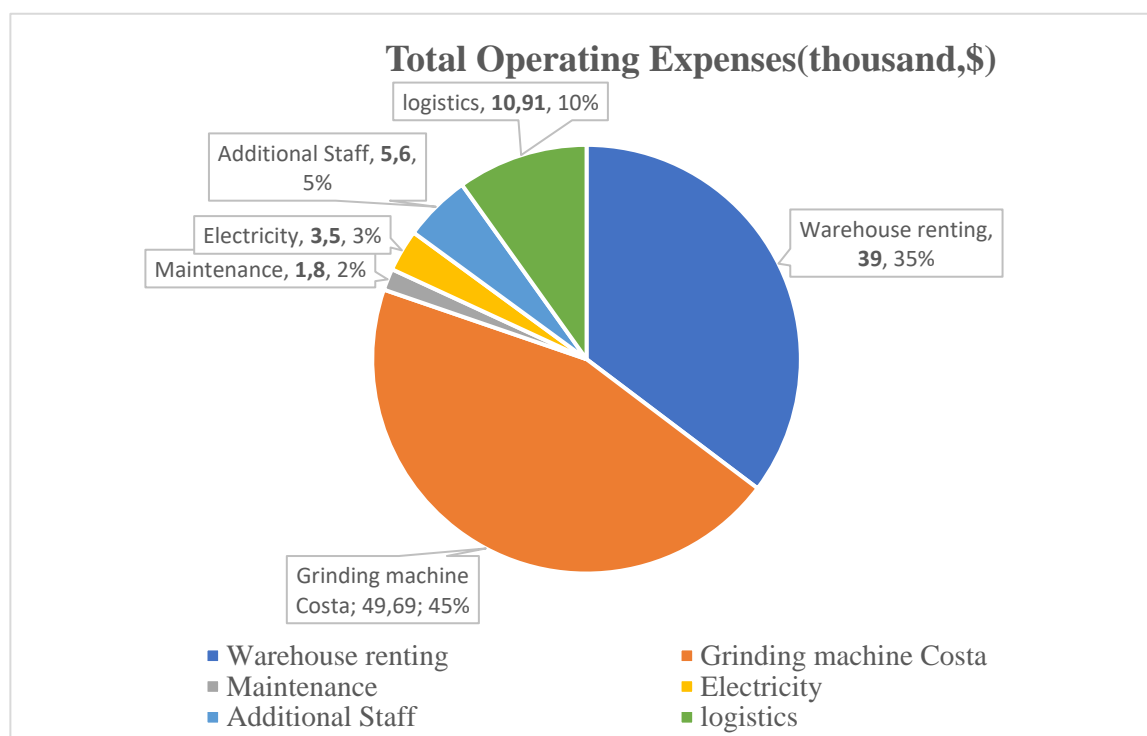


Diagram 1 – Distribution of total operating expenses

have also increased. However, not so dramatic, only 2.47% in 2023 and 0.48% in 2022. In absolute deviation this figure equals 14 000\$. Consequently, speaking about Gross profit we received 10.14% growth in 2023 compared to 2022 and 9.81% in 2023 compared to 2021. In absolute values it equals 177 000\$. Speaking about Total operating expenses, they increased dramatically by 35,55%, in absolute deviation this equals 107 000\$. However, given the restructuring of the company, the lease of a new warehouse and the purchase of new equipment for processing raw materials, this parameter is not a negative factor. Below I have provided a graph (diagram 1) and described where Total operating expenses went for a better understanding that the company is moving in a positive way and is not stagnating in any way.

Moving forward to the Operating Income (EBIT) in 2021 it was 1.249 mln \$, in 2022 it was 1.44 mln, \$ and in 2023 1.51 accordingly. Operating income (EBIT) has increased by 4.84%, showing growth in core business operations. In absolute value this equals to the 70 000\$. The indicator Other net income/(expenses) continues the positive trend and in the following paragraphs I will provide my forecast regarding this parameter. Currently, this parameter continues to decline by about 11% per year.

Reducing additional expenses could potentially bring in an extra 65,000-75,000 \$ each year.

Positive Tendencies:

Net sales have increased by 8.24% from 2022 to 2023, showing positive sales growth. Gross profit and gross margin have increased by 10.14%, demonstrating improved profitability. Operating income (EBIT) has increased by 4.84%, showing growth in core business operations. Net income has increased by 5.44%, reflecting higher overall profit.

Negative Tendencies:

Cost of sales has increased by 2.47%, reducing gross margin growth potential. Selling, general and administrative expenses have significantly increased by 44.40%, outpacing revenue growth and compressing margins. Other expenses have decreased but remain high at -21.21% in 2023. Interest expenses have grown while interest income remains very low.

Main Problems:

High selling, general and administrative expenses are constraining profitability gains from sales growth. Tighter cost controls are needed. Other expenses remain elevated and are reducing overall profits. Expense reduction measures should be implemented. Low interest income compared to interest expenses is negatively impacting net income. Improved cash flow management could help.[37]

Main Strong Sides:

Increasing net sales demonstrate market share growth and demand for products/services. Rising gross profit and operating income show efficient core business operations. Net income growth, while modest, indicates the business model is generating higher overall profits over time. To improve the financial performance, the company should focus on sustaining sales momentum while also implementing cost savings initiatives to reduce expenses, especially selling, general and administrative costs. Strengthening cash flow could help lower financing expenses as well. Continued

examination of sources of other costs is also advised. Overall, the company has shown positive growth in sales and profitability, but there are challenges to address in managing expenses and optimizing financial operations. By implementing the recommended strategies, the company can further enhance its financial performance and achieve sustainable growth.

Positive Sales Growth: The company has experienced consistent growth in net sales, with a projected increase of 8.24% in 2023 compared to 2022. This indicates that the company is gaining market share and successfully expanding its customer base.

Improved Profitability: Gross profit and gross margin have increased by 10.14% in 2023 compared to 2022, demonstrating improved profitability. This indicates that the company is effectively managing its cost of sales and generating higher profits from its core operations.

Growth in Operating Income: Operating income (EBIT) has increased by 4.84% in 2023 compared to 2022, showing growth in core business operations. This suggests that the company is effectively managing its operating expenses and generating higher income from its business activities.

Net Income Growth: Net income has increased by 5.44% in 2023 compared to the previous year, reflecting higher overall profitability. This indicates that the company's efforts to improve its financial performance are yielding positive results.

Challenges with Expenses: The company is facing challenges with high selling, general, and administrative expenses, which have significantly increased by 44.40% in 2023. This is outpacing revenue growth and compressing margins. Tighter cost controls and expense reduction measures should be implemented to improve profitability.

Other Expenses and Interest: Other expenses have decreased but remain high, impacting overall profits. The company should continue to examine and address the sources of these expenses. Additionally, interest expenses have grown while interest income remains low, negatively impacting net income. Improved cash flow management could help address this issue.

To improve financial performance, the company should focus on sustaining sales momentum, implementing cost savings initiatives to reduce expenses (especially selling, general, and administrative costs), and strengthening cash flow management. It should also continue to analyze and address sources of other costs and consider ways to increase interest income.

3.2 Analysis of the company's competitiveness, including a close comparison with its main rival, identifying areas of strength and opportunities for improvement

In order to assess the competitiveness of the company and its position relative to its main rival, Rival X, a thorough analysis will be conducted using the BCG Matrix. The BCG Matrix, also known as the Boston Consulting Group Matrix, is a strategic tool that categorizes products or businesses into four quadrants based on their market growth rate and relative market share.[38] The analysis will focus on the company's performance as a lumber supplier in Western Europe, with a specific emphasis on its interactions with Spanish buyers. By examining the market growth rate and relative market share of the company and Rival X, key insights can be gained regarding their respective positions in the industry. The first step will involve gathering relevant data on the market growth rate of the lumber industry in Western Europe and understanding the company's market share within this region. This will provide a baseline for evaluating the company's current standing. Next, the market growth rate and market share of Rival X will be assessed. By comparing these metrics, a clear picture will emerge regarding the relative positions of the two companies. This analysis will provide crucial insights into the competitive dynamics and the company's ability to capture market share from its main rival. Based on the findings from the BCG Matrix analysis, strategic opportunities for the company will be identified. For instance, if the company is in a high-growth market with a strong market share, it may be classified as a "Star" in the BCG Matrix, indicating a favorable competitive position. In contrast, if the company

has a low market share in a low-growth market, it may be classified as a "Dog," highlighting the need for strategic adjustments. The analysis will also take into consideration the specific engagement of Rival X with Spanish buyers. This information will provide valuable insights into the competitive landscape in Spain and the company's ability to effectively compete in this market. [39] By thoroughly assessing the company's competitiveness using the BCG Matrix and conducting a close comparison with Rival X, the plan will offer actionable recommendations to enhance the company's competitive advantage. These recommendations may include strategies to improve market share, exploit growth opportunities, strengthen relationships with Spanish buyers, or address

| Indicator | «Rival X» | «Mircom» | | | |
|-------------------------------|---------------|------------------|-----------------|--------------------|-------------------------------|
| Sales revenue | 2.3 | 2.509 | | | |
| Profit | 1.403 | 1.92 | | | |
| Salary expenses | 0.072 | 0.026 | | | |
| Export income (TR) | 0.7 | 1.44 | | | |
| International marketing costs | 50 | 100 | | | |
| | | | | | |
| | Sales revenue | Profit | Salary expenses | Export income (TR) | International marketing costs |
| Sales revenue | | 1 Profitab_Sales | - | Share_Export | Share_IM_Sales |
| Profit | - | | 1 - | - | Share_IM_Profit |
| Salary expenses | Product | Profit_Labor | | 1 - | - |
| Export income | - | Profit_Export | - | | 1 Share_IM_Export |
| International marketing costs | - | Profit_IM | - | - | 1 |
| | | | | | |
| | «Rival X» | «Mircom» | | | |
| Product | 31.944 | 96.500 | | | |
| Profitab_Sales | 0.610 | 0.765 | | | |
| Profit_Labor | 19.486 | 73.846 | | | |
| Profit_Export | 2.004 | 1.333 | | | |
| Profit_IM | 0.028 | 0.019 | | | |
| Share_Export | 0.304 | 0.574 | | | |
| Share_IM_Sales | 21.739 | 39.857 | | | |
| Share_IM_Profit | 35.638 | 52.083 | | | |
| Share_IM_Export | 71.429 | 69.444 | | | |
| | «Rival X» | «Mircom» | | | |
| Product | 0.331 | 1.000 | | | |
| Profitab_Sales | 0.797 | 1.000 | | | |
| Profit_Labor | 0.264 | 1.000 | | | |
| Profit_Export | 1.000 | 0.665 | | | |
| Profit_IM | 1.000 | 0.684 | | | |
| Share_Export | 0.530 | 1.000 | | | |
| Share_IM_Sales | 0.545 | 1.000 | | | |
| Share_IM_Profit | 0.684 | 1.000 | | | |
| Share_IM_Export | 1.000 | 0.972 | | | |
| | 6.152 | 8.322 | | | |
| | 2 | 1 | | | |

Table 3 – Analysis of the competitiveness

any weaknesses identified in the analysis.

Overall, this comprehensive assessment will provide valuable insights into the company's competitive position in the lumber industry in Western Europe and offer a

roadmap for sustaining and improving its competitive advantage in the marketplace.

| International Company | Country | TR \$ mln | Pr \$ mln | Assets \$ mln | Market Value | Employees |
|-----------------------|-------------------|-------------------|------------------|-------------------|--------------|----------------------------------|
| ... | | | | | | |
| Mircom | Ukraine/Spain | 2.509 | 1.92 | 2.2 | 100 | 6 |
| Rival X | France/Spain | 2.3 | 1.403 | 2.1 | 50 | 8 |
| ... | | | | | | |
| | | | | | | |
| | | | | | | |
| International Company | TR/per 1 employee | Pr/per 1 employee | A/per 1 employee | MV/per 1 employee | | |
| | 1 | 2 | 3 | 4 | | |
| ... | | | | | | |
| Mircom | 0.418166667 | 0.32 | 0.366666667 | 16.66666667 | | |
| Rival X | 0.2875 | 0.175375 | 0.2625 | 6.25 | | |
| ... | | | | | | |
| | | | | | | |
| International Company | 1 | 2 | 3 | 4 | | |
| ... | | | | | | |
| Mircom | 1 | 1 | 1 | 1 | 4 | |
| Rival X | 0.68752491 | 0.548046875 | 0.715909091 | 0.375 | | |
| ... | | | | | | |
| | | | | | | |
| International Company | 1 | 2 | 3 | 4 | Σ | Rating assessment t (Rank) |
| ... | | | | | | |
| Mircom | 1 | 1 | 1 | 1 | 4 | 1 |
| Rival X | 0.68752491 | 0.548046875 | 0.715909091 | 0.375 | 2.326480876 | 2 |
| ... | | | | | | |

Table 3.1- Analysis of the competitiveness based on employee

Overall, the company has shown positive growth in sales and profitability, but there are challenges to address in managing expenses and optimizing financial operations. By implementing the recommended strategies, the company can further enhance its financial performance and achieve sustainable growth. The company has experienced consistent growth in net sales, with a projected increase of 8.24% in 2023 compared to 2022. This indicates that the company is gaining market share and successfully expanding its customer base. Gross profit and gross margin have increased by 10.14% in 2023 compared to 2022, demonstrating improved profitability. This indicates that the company is effectively managing its cost of sales and generating higher profits from its core operations. Operating income (EBIT) has increased by 4.84% in 2023 compared to 2022, showing growth in core business operations.[40] This suggests that the company is effectively managing its operating

expenses and generating higher income from its business activities. Net income has increased by 5.44% in 2023 compared to the previous year, reflecting higher overall profitability. This indicates that the company's efforts to improve its financial performance are yielding positive results. The company is facing challenges with high selling, general, and administrative expenses, which have significantly increased by 44.40% in 2023. This is outpacing revenue growth and compressing margins. Tighter cost controls and expense reduction measures should be implemented to improve profitability. Other expenses have decreased but remain high, impacting overall profits. The company should continue to examine and address the sources of these expenses. Additionally, interest expenses have grown while interest income remains low, negatively impacting net income. Improved cash flow management could help address this issue.[41]

To improve financial performance, the company should focus on sustaining sales momentum, implementing cost savings initiatives to reduce expenses (especially selling, general, and administrative costs), and strengthening cash flow management. It should also continue to analyse and address sources of other costs and consider ways to increase interest income.

Table 4 Industry Attractiveness of the Mircom (IA)

| | | | | | | | | |
|-------------------------------------|-----------|---|---|----------|----------|----------|----------|------------|
| Growth potential | Low level | 1 | 2 | 3 | 4 | 5 | 6 | High level |
| Potential profitability | Low level | 1 | 2 | 3 | 4 | 5 | 6 | High level |
| Financial stability of the industry | Low level | 1 | 2 | 3 | 4 | 5 | 6 | High level |
| Technical equipment | Low level | 1 | 2 | 3 | 4 | 5 | 6 | High level |
| Use of resources | Low level | 1 | 2 | 3 | 4 | 5 | 6 | High level |
| Capacity | Low level | 1 | 2 | 3 | 4 | 5 | 6 | High level |
| Easy entry to the market | Low level | 1 | 2 | 3 | 4 | 5 | 6 | High level |
| Productivity | Low level | 1 | 2 | 3 | 4 | 5 | 6 | High level |

Table 4.1 Competitive advantage (CA)

| | | | | | | | | |
|--------------------------------|-----------|---|---|---|---|----------|----------|------------|
| Market share | Low level | 1 | 2 | 3 | 4 | 5 | 6 | High level |
| Life cycle of products | Low level | 1 | 2 | 3 | 4 | 5 | 6 | High level |
| Production quality | Low level | 1 | 2 | 3 | 4 | 5 | 6 | High level |
| Loyalty of buyers | Low level | 1 | 2 | 3 | 4 | 5 | 6 | High level |
| Use of production technology | Low level | 1 | 2 | 3 | 4 | 5 | 6 | High level |
| Technological know-how | Low level | 1 | 2 | 3 | 4 | 5 | 6 | High level |
| Degree of vertical integration | Low level | 1 | 2 | 3 | 4 | 5 | 6 | High level |

Table 4.2 Environmental Stability (ES)

| | | | | | | | | |
|--|------------|----------|----------|----------|----------|----------|---|-----------|
| Changes in technology | High level | 1 | 2 | 3 | 4 | 5 | 6 | Low level |
| Inflation rate | High level | 1 | 2 | 3 | 4 | 5 | 6 | Low level |
| Variation in demand | High level | 1 | 2 | 3 | 4 | 5 | 6 | Low level |
| Deviation in prices from the main competitor | High level | 1 | 2 | 3 | 4 | 5 | 6 | Low level |
| Barriers to market entry | High level | 1 | 2 | 3 | 4 | 5 | 6 | Low level |
| Competitive pressure | High level | 1 | 2 | 3 | 4 | 5 | 6 | Low level |
| Elasticity of demand for the price | High level | 1 | 2 | 3 | 4 | 5 | 6 | Low level |

Table 4.3 Financial strength (FS)

| | | | | | | | | |
|----------------------------------|-----|---|---|----------|----------|----------|----------|------------|
| Return on investment | Low | 1 | 2 | 3 | 4 | 5 | 6 | High level |
| Influence of financial leverage | Low | 1 | 2 | 3 | 4 | 5 | 6 | High level |
| Liquidity | Low | 1 | 2 | 3 | 4 | 5 | 6 | High level |
| Level of capital requirements | Low | 1 | 2 | 3 | 4 | 5 | 6 | High level |
| Flow of payments in favor of the | Low | 1 | 2 | 3 | 4 | 5 | 6 | High level |
| Ease of exit from the market | Low | 0 | 2 | 3 | 4 | 5 | 6 | High level |
| Business Risk | Low | 1 | 2 | 3 | 4 | 5 | 6 | High level |
| Stock turnover | Low | 1 | 2 | 3 | 4 | 5 | 6 | High level |

Table 4-4.3 Space Analysis

MRCOM 2022 S.L.

$IA = 32/8 = 4$
 $CA = 37/8 = 4,7$
 $ES = 23/8 = 2,9$
 $FS = 26/8 = 3,25$

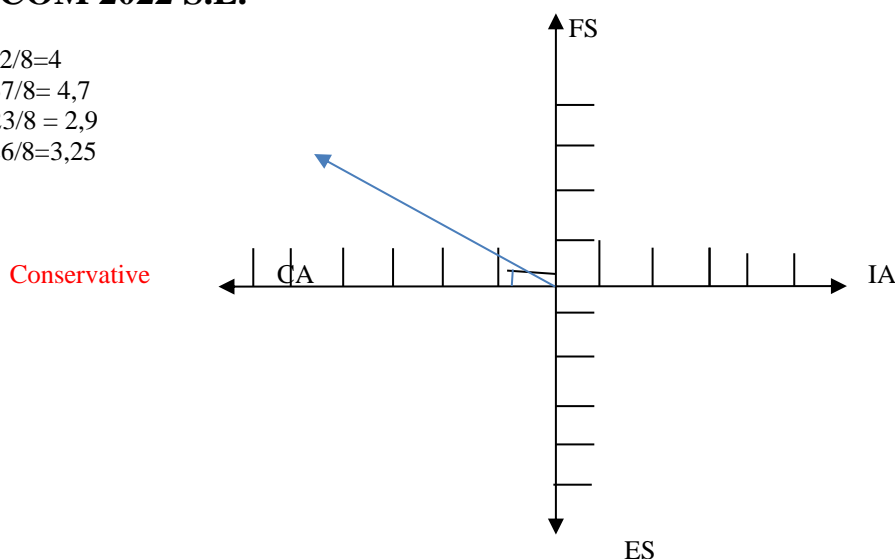


Table 4.5 –Space Diagram

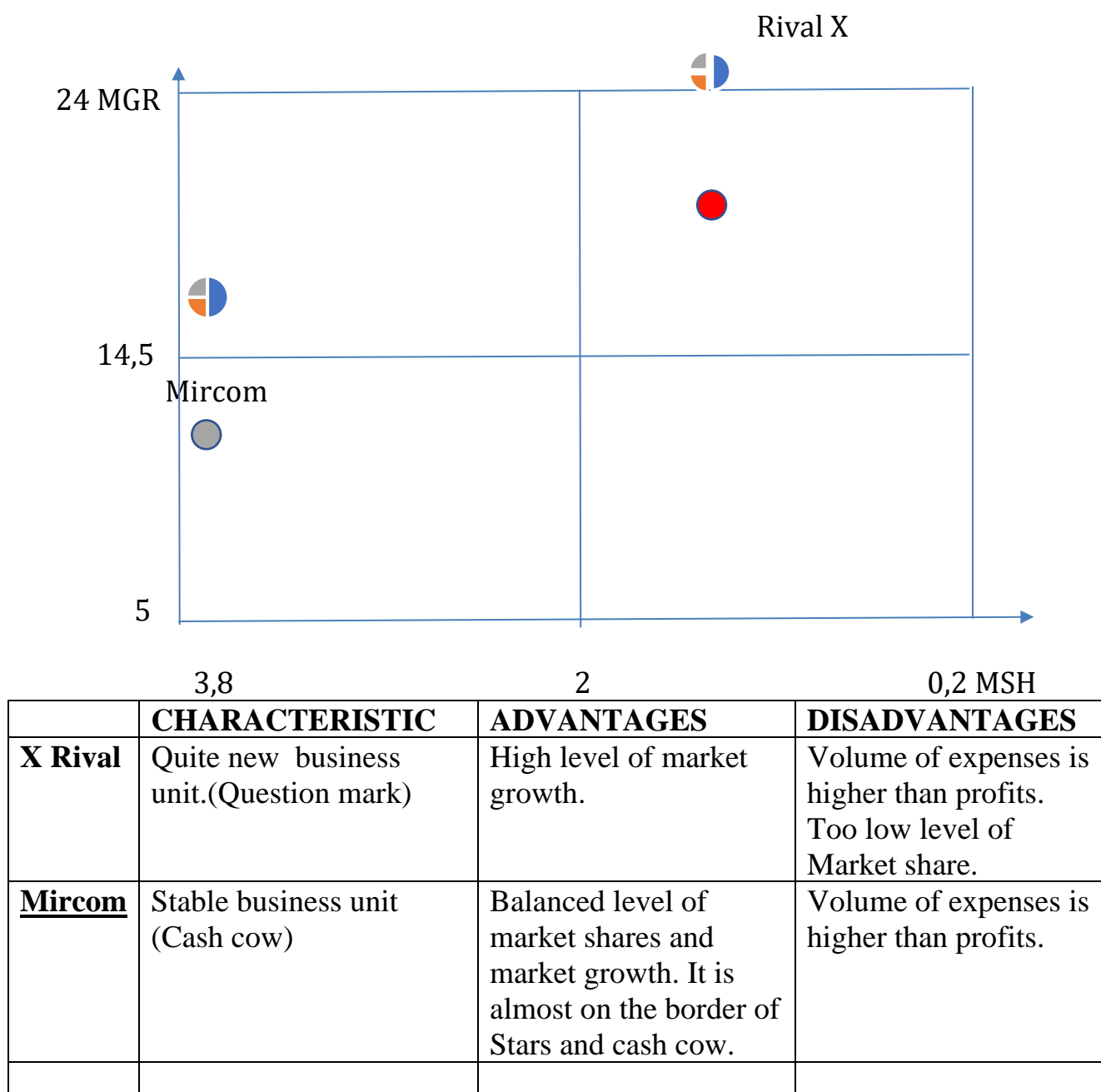
Based on the indicators provided in Table 4.1 and Table 4.3, the company MRCOM 2022 S.L. has an average Competitive Advantage (CA) score of 4.7 and an average Industry Attractiveness (IA) score of 4. This suggests that the company is positioned relatively well in terms of its market share, product life cycle, production quality, loyalty of buyers, use of production technology, and technological know-how. However, there is room for improvement in terms of financial strength, as indicated by the Financial Strength (FS) score of 3.25.[42]

Given these indicators, the thesis suggests that a conservative approach is most suitable for the company. This means focusing on maintaining and improving the competitive advantage of already well-established products without making significant changes. This strategy aligns with the conservative nature of the company's current position and the need to mitigate risk.

Furthermore, the recommended strategies for the company include intense strategies or concentric diversification. Intense strategies involve focusing on strengthening the competitive advantage in the existing market by leveraging the company's strengths. Concentric diversification refers to expanding into related markets or product lines that align with the company's core competencies. By implementing these strategies, the company can continue to capitalize on its competitive advantage, maintain its market share, and potentially explore new opportunities within the industry.[43] However, it is crucial to carefully assess the potential risks associated with changes in technology, inflation rates, variations in demand, competitive pressure, and barriers to market entry, as indicated in Table 4.2. This will help the company navigate potential challenges and ensure sustainable growth.

| Indicators | X | Mircom |
|--------------------------|------------|---------------|
| Market growth, % | 14 | 12 |
| Relative market share, % | 1,2 | 15,8 |
| Volume of sales | 8 | 50 |
| Volume of expenses | 4 | 20 |
| Profit, | 2 | 10 |

Table 4.6 – BCG Matrix. Analysis of company's positioning.



Graph 1 – BCG Matrix. Analysis of company's positioning.

In summary, the thesis suggests a conservative approach for MRCOM 2022 S.L., focusing on maintaining and improving its competitive advantage in the lumber industry. The recommended strategies include intense strategies and concentric diversification. By carefully analysing the indicators and market dynamics, the company can enhance its position and effectively respond to changes in the industry.

3.3 Forecasting of the financial indicators and future planning

The company has been growing steadily over the past several years, with net sales increasing each year from 2013 to 2022. However, growth appears to be slowing down based on the moving averages. While net sales increased from 2020 to 2021 and are projected to continue growing in 2023, the rate of growth is declining according to the moving averages. Some potential reasons for this could be saturation in the market as sales approach their natural limit, increased competition slowing market share gains, or resistance from factors outside management's control such as the economic environment. The declining average relative error also points to growth becoming harder to sustain at the same pace in the future. However, even at a slower growth rate, sales projections still show increases through 2024 based on current trends. To sustain growth, some steps the company could potentially take include:

Develop new products/services or expand into new markets to drive further demand and open up new streams of revenue. Successful innovation will be important as the existing business matures.

Invest in marketing, promotion and distribution to continue gaining market share in existing sectors where there is still room to grow. Brand building and customer acquisition activities.[44] Pursue strategic partnerships/M&As that provide access to new capabilities, customer bases or geographical regions to stimulate sales. Focus on lowering costs and driving internal efficiencies to bolster profit margins as sales growth rates ease. Monitor economic indicators and be prepared to adapt strategies quickly if macroeconomic conditions change significantly in ways that may impact demand. Ensure the workforce has the skills needed for future growth areas and support continued talent development/reskilling programs. With proactive steps taken across these areas, the company seems well-positioned to sustain its growth trajectory into 2024 despite potentially more challenging market conditions, though continuous monitoring of

performance against plan will remain important. Based on the financial analysis of Mircom Forecast of Financial Indicators[45]

Based on the growth trend over the past years, Mircom's sales are expected to increase by around 5-8% annually (table 5-5.1) over the next 3 years.

| a = 2/(n+1) | | 0.16666667 | | | | | | | |
|-----------------|---------------|----------------|-------------------------------------|-----------------------|------------------------|-----------------------|---|-----|------------------|
| Number in order | Period (year) | Net sales (Yt) | Exponentially weighted average (Ut) | | Average relative error | | t | t+1 | e={Ut-Yt}/Yt*100 |
| | | | First way (U0=272) | Second way (U0=170,9) | First way (U0=272) | Second way (U0=170,9) | | | |
| 1 | 2013 | 0.8056 | 1.637412121 | 0.8056 | 103.253739 | 0 | | | |
| 2 | 2014 | 0.97 | 1.498776768 | 0.8056 | 54.51306883 | 16.94845361 | | | |
| 3 | 2015 | 1.14 | 1.410647306 | 0.833 | 23.74099179 | 26.92982456 | | | |
| 4 | 2016 | 1.3 | 1.365539422 | 0.884166667 | 5.041493998 | 31.98717949 | | | |
| 5 | 2017 | 1.47 | 1.354616185 | 0.953472222 | 7.849239117 | 35.13794407 | | | |
| 6 | 2018 | 1.636933333 | 1.373846821 | 1.039560185 | 16.07191367 | 36.4934317 | | | |
| 1 | 2019 | 1.99 | 1.417694573 | 1.139122376 | 28.75906669 | 42.75766952 | | | |
| 2 | 2020 | 1.7 | 1.513078811 | 1.280935314 | 10.99536408 | 24.6508639 | | | |
| 3 | 2021 | 2.17 | 1.544232342 | 1.350779428 | 28.83721925 | 37.75210009 | | | |
| 4 | 2022 (t-1) | 2.32 | 1.648526952 | 1.48731619 | 28.9428038 | 35.89154353 | | | |
| 5 | 2023 (t) | 2.509 | 1.760439127 | 1.626096825 | 29.83502883 | 35.18944499 | | | |
| 6 | 2024 (t+1) | 1.711212619 | 1.885199272 | 1.773247354 | | | | | |
| | 2025 | | 1.856201497 | | 30.71272082 | 29.43076868 | | | |
| | 2026 | | | | | | | | |

Table 5- forecasting of future net sales

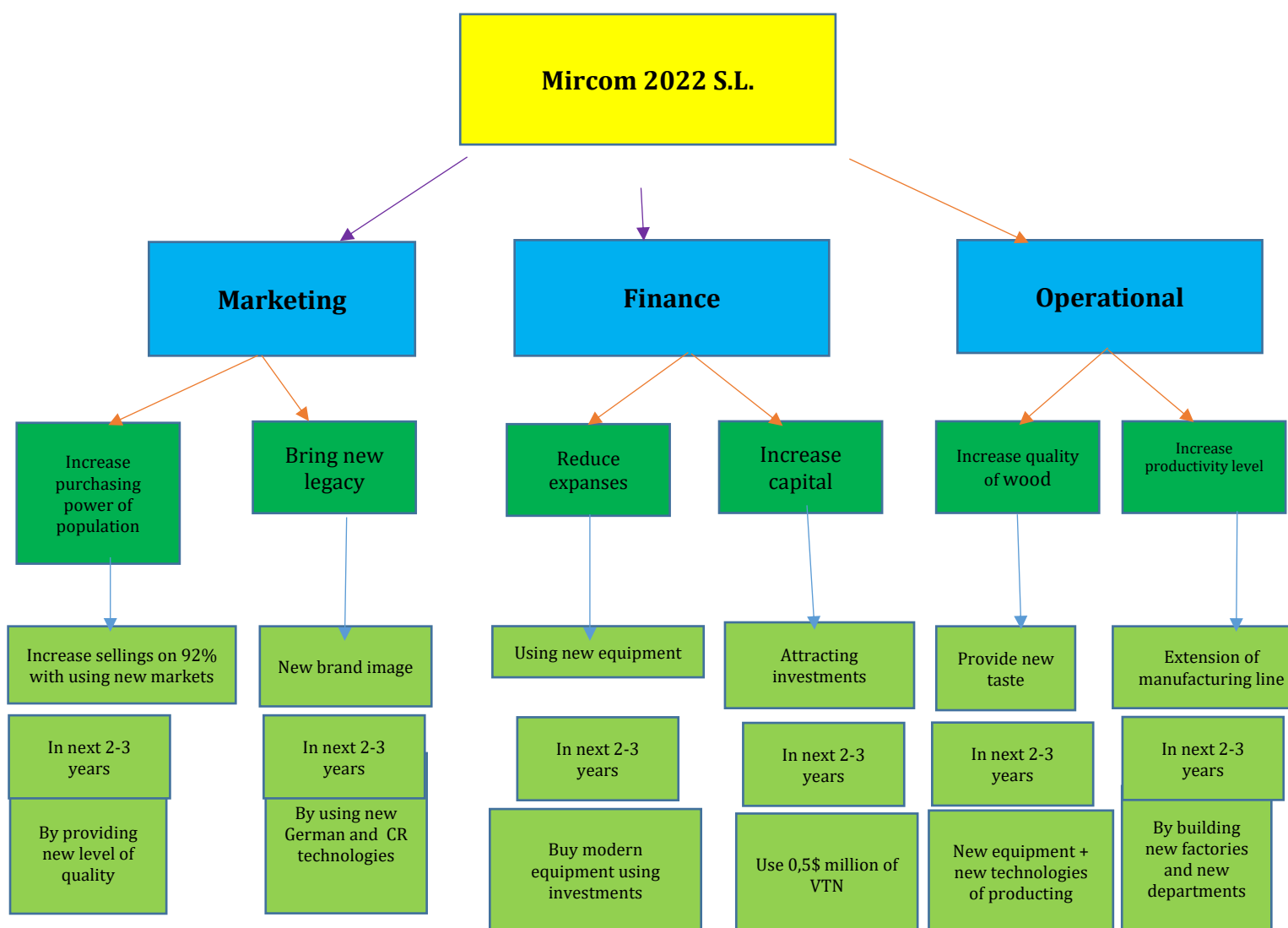
| Number in order | Period (year) | Net sales (Yt) | Moving average (m) | Average relative error, e | e={mt-Yt}/Yt*100 | | | | | | | | | | | | | | |
|-----------------|---------------|----------------|--------------------|---------------------------|------------------|----------|---|---|---|-----|-----|--|--|--|--|--|--|--|--|
| 1 | 2019 | 1.99 | 0.0 | 100 | | | | | | | | | | | | | | | |
| 2 | 2020 | 1.7 | 2.0 | 14.90196078 | | | | | | | | | | | | | | | |
| 3 | 2021 | 2.17 | 2.1 | 4.915514593 | | | | | | | | | | | | | | | |
| 4 | 2022 (t-1) | 2.32 | 2.3 | 0.560344828 | | | | | | | | | | | | | | | |
| 5 | 2023 (t) | 2.509 | | | | | | | | | | | | | | | | | |
| 12 | 2024 (t+1) | 2.396 | | | | | | | | | | | | | | | | | |
| | | | | | 13.37531336 | | | | | | | | | | | | | | |
| | | | | | | AD | | | 2 | 1.5 | 2 | | | | | | | | |
| | | | | | | NewPast | | 3 | 5 | 6.5 | 8.5 | | | | | | | | |
| | | | | | | RealPast | 2 | 4 | 6 | 7 | 10 | | | | | | | | |
| | | | | | | AD | | 2 | 2 | 1 | 3 | | | | | | | | |

Table 5.1- forecasting of future net sales

This would output sales revenue at approximately €2.6 million in 2025. Gross margins are expected to remain stable at around 75%. Operating margins may decline slightly to around 33-35% due to rising operational costs. Net profit margins could decline to around 25-27% as interest costs rise.

Inventory Levels Forecast: Inventory levels may be maintained at around 5-6 months to ensure adequate buffer stock. Inventory turnover could improve marginally to around 7-8 times annually as operations become more efficient.

Operating cash flows are expected to rise in line with sales and profit growth. Strong operating cash flows will help maintain a healthy cash position.



Graph 2 –Potential of the Company in next 2-3 years

Future Planning: Focus on expanding into new promising markets like Africa and LATAM through partnerships and JVs. Continue investing in expanding / upgrading production capabilities. Enhance cybersecurity measures and data protection protocols. Leverage R&D to expand into new high-growth product segments. Monitor cost structures and optimize operational efficiencies.

In summary, Mircom is well-positioned to benefit from growth opportunities over the medium term. Continued investments supported by strong cash flows can help strengthen competitiveness and enhance future resilience and performance. Carefully managing costs and efficiently deploying capital will remain key for achieving steady profitable growth.

CONCLUSIONS AND PROPOSALS

This case study provides a detailed analysis of MIRCOM 2022 S.L.'s operations and financial performance during a complex period characterized by Russia's war against Ukraine. The analysis draws on both theoretical frameworks and empirical data to understand the impacts of the conflict and identify areas where the company can optimize its resilience. Key findings show strengths in sales growth and profitability, but also pressures from rising expenses that constrain margin expansion. Remote work adoption and intra-company collaboration increased positively, while external collaboration declined. Government responses helped support livelihoods, though trust in authorities faced setbacks. While overall performance indicates growth, risks remain from disproportionate cost inflation. Strengthening margins through more efficient operations can bolster financial health. Expanding digital collaboration platforms post-COVID and renewing trust in institutions can further boost stakeholder relationships critical to business success. Looking ahead, continuously upgrading cybersecurity infrastructure and protocols will be vital given evolving threats. Enhancing data-driven decision making through analytics can optimize strategies. Supporting communities through CSR enhances social license to operate. Exploring new markets and products mitigates geopolitical risks. In conclusion, MIRCOM 2022 S.L. demonstrates resilience amid instability. Optimizing cost structures, digital collaboration and community ties can reinforce resilience for sustainable growth. Upgrading practices in emerging risk areas prepares the organization to protect stakeholders' well-being against future crises.

Some suggestions include:

- Implement an IT automation roadmap to streamline operations and bolster cybersecurity.
- Upgrade threat monitoring and intelligence analysis using digital tools.
- Establish a digital platform for knowledge sharing between staff.
- Explore partnerships and funding to support talent reskilling programs.

- Targeted CSR investments in communities can enhance social license.
- Invest in new geographies, sectors through expansion of distribution networks.
- Strengthen disaster recovery protocols and test incident response plans.

Implementing these suggestions can help the company strengthen financial soundness, collaboration, and preparedness for future uncertainties. This will support its capacity to deliver sustained, resilient performance through ongoing challenges.

MIRCOM 2022 S.L. should develop a roadmap for automating various operational processes, such as inventory management, order processing, and customer support. This will increase efficiency, reduce costs, and free up resources for other strategic initiatives. Automation can also play a critical role in enhancing cybersecurity. Implementing automated security measures, such as intrusion detection systems and real-time threat monitoring, can help identify and respond to potential cyber threats more effectively. The company should invest in advanced threat monitoring tools and technologies to detect and respond to cyber threats in real-time. This includes implementing robust firewalls, intrusion prevention systems, and advanced threat intelligence platforms. By leveraging digital tools for threat intelligence analysis, MIRCOM 2022 S.L. can gather actionable insights on emerging threats, vulnerabilities, and attack patterns. This information can be used to proactively enhance cybersecurity defenses and mitigate risks. Creating a digital platform, such as an internal collaboration portal or a knowledge management system, will facilitate seamless information sharing and collaboration among employees. This platform can serve as a repository for best practices, standard operating procedures, and other relevant knowledge resources. It will enable employees to access and contribute to a centralized knowledge base, fostering a culture of continuous learning and improvement. MIRCOM 2022 S.L. should actively seek partnerships with educational institutions, industry organizations, and government entities to develop and implement talent reskilling programs. These programs can provide employees with the necessary skills and knowledge to adapt to evolving technological advancements and industry trends. Funding options, such as government grants or collaboration with training providers, can help support the costs associated

with reskilling initiatives.

Make targeted CSR investments in communities to enhance social license:

- The company should identify key social and environmental issues in the communities where it operates and design targeted CSR initiatives to address them.
- Examples of initiatives could include supporting local education programs, contributing to environmental conservation projects, or providing assistance to vulnerable populations. These actions will not only benefit the community but also enhance the company's reputation and social license to operate.

Invest in new geographies and sectors through expansion of distribution networks:

To mitigate geopolitical risks and diversify revenue streams, MIRCOM 2022 S.L. should explore opportunities to expand its distribution networks into new geographies and sectors. Conducting market research, identifying potential partners or distributors, and establishing strategic alliances can help the company enter new markets and tap into untapped customer segments. The company should review and enhance its disaster recovery protocols, ensuring that they are up-to-date and aligned with industry best practices. Regular testing of incident response plans, including simulated scenarios and drills, will help identify any gaps or weaknesses in the company's preparedness. This will enable MIRCOM 2022 S.L. to refine its response strategies and minimize the impact of potential disruptions.

By implementing these suggestions, MIRCOM 2022 S.L. can strengthen its overall operations, enhance cybersecurity resilience, foster collaboration and knowledge sharing, support employee development, contribute to the community, diversify its markets, and improve preparedness for future uncertainties.

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ANNEXES

Script 2

```
#!/bin/bash
```

Check if the correct number of arguments is provided

```
if [ "$#" -ne 1 ]; then
```

```
echo "Usage: $0 <accounts.csv>"
```

```
exit 1
```

```
fi
```

```
# Assign the input argument to the variable
```

```
input_file="$1"
```

```
output_file="accounts_new.csv"
```

```
# Check if the input file exists
```

```
if [ ! -f "$input_file" ]; then
```

```
echo "Input file not found: $input_file"
```

```
exit 1
```

```
fi
```

```
awk -F ',' 'BEGIN{OFS=","}{'
```

```
id=$1;
```

```
location_id=$2;
```

```
name=$3;
```

```
title=$4;
```

```
email=$5;
```

```
department=$6;
```

```
split(name, name_parts, " ");
```

```

first_name = toupper(substr(name_parts[1], 1, 1)) tolower(substr(name_parts[1],
2));

last_name = toupper(substr(name_parts[2], 1, 1)) tolower(substr(name_parts[2],
2));

name = first_name " " last_name;

if (NR==1) {

print "id,location_id,name,title,email,department"

} else {

if (last_name in last_names) {

email = tolower(substr(name_parts[1], 1, 1)) tolower(last_name) location_id
"@abc.com";

} else {

email = tolower(substr(name_parts[1], 1, 1)) tolower(last_name) "@abc.com";

}

last_names[last_name] = 1;

if (NR==2) {

print id, location_id, name, title, "shouston1@abc.com","", "

} else if (NR==4) {

print id, location_id, name, ""Director, Second Career Services"",email", "

} else if (NR==5) {

print id, location_id, name, ""Manager, Senior Counseling"",email", "

} else if (NR==9) {

print id,location_id, name, title, "bcharlow6@abc.com","", "

} else if (NR==12){

```

```

print id,location_id,"Marilyn Baker-Venturini",title,email","
} else if (NR==15){
print id, location_id, name, title, "dgenesy9@abc.com",""
}else if (NR==16){
print id, location_id, name, title, "mkramer9@abc.com",""
}else if (NR==20){
print id, location_id, name, title, "emeeks11@abc.com",""
}else if (NR==23){
print id, location_id, name,""Manager, Commanding Officer"",email","
}else if (NR==27){
print id, location_id, name, title, "spetersen18@abc.com",""
}
else {
print id, location_id, name, title, email, department
}}}' $input_file > $output_file
echo "New file created: $output_file"

```

Fig. 1 – performance of the company 23/09/2023.

| Espesor | Anchura | Longitud | Calidad | Precio | Cantidad | m2 | Total | Peso |
|---------|---------|----------|---------|---------|----------|----------|-------------|----------|
| 4.50 | 158 | 2015 | A | 23.00 € | 54 | 17.19 | 395.42 € | 60.86 |
| | | | B | 22.00 € | 84 | 26.74 | 588.35 € | 94.67 |
| | | | C | 19.00 € | 900 | 286.53 | 5,444.13 € | 1014.33 |
| | | | D | 15.00 € | 1323 | 421.20 | 6,318.05 € | 1491.06 |
| 4.50 | 158 | 2015 | | | 2361.00 | 751.67 | 12,745.94 € | 2660.92 |
| 4.20 | 158 | 2015 | A | 23.00 € | | 0.00 | 0.00 € | 0.00 |
| | | | B | 22.00 € | | 0.00 | 0.00 € | 0.00 |
| | | | C | 19.00 € | | 0.00 | 0.00 € | 0.00 |
| | | | D | 15.00 € | | 0.00 | 0.00 € | 0.00 |
| 4.20 | 158 | 1015 | | | 0.00 | 0.00 | 0.00 € | 0.00 |
| 4.50 | 198 | 2015 | A | 26.00 € | 112 | 44.68 | 1,161.80 € | 158.18 |
| | | | B | 25.00 € | 315 | 125.68 | 3,141.89 € | 444.89 |
| | | | C | 23.00 € | 3064 | 1222.44 | 28,116.21 € | 4327.45 |
| | | | D | 16.50 € | 4872 | 1943.78 | 32,072.40 € | 6880.99 |
| | | | R | 12.50 € | 1062 | 423.71 | 5,296.33 € | 1499.92 |
| 4.50 | 198 | 2015 | | | 9425.00 | 3760.29 | 69,788.63 € | 13311.43 |
| 4.20 | 198 | 2015 | A | 26.00 € | | 0.00 | 0.00 € | 0.00 |
| | | | B | 25.00 € | | 0.00 | 0.00 € | 0.00 |
| | | | C | 23.00 € | | 0.00 | 0.00 € | 0.00 |
| | | | D | 16.50 € | | 0.00 | 0.00 € | 0.00 |
| | | | R | 12.50 € | | 0.00 | 0.00 € | 0.00 |
| | | | SR | 10.50 € | 1123 | 448.04 | 4,704.45 € | 1384.45 |
| 4.20 | 198 | 2015 | | | 1123 | 448.0433 | 4704.454755 | 1384.454 |
| 4.50 | 158 | 1015 | A | 17.75 € | 8 | 1.28 | 22.77 € | 4.54 |
| | | | B | 15.75 € | 50 | 8.02 | 126.29 € | 28.39 |
| | | | C | 14.25 € | 270 | 43.30 | 617.02 € | 153.28 |
| | | | D | 10.50 € | 251 | 40.25 | 422.66 € | 142.50 |
| 4.50 | 158 | 1015 | | | 579.00 | 92.85 | 1,188.74 € | 328.70 |
| 4.20 | 158 | 1015 | A | 17.75 € | | 0.00 | 0.00 € | 0.00 |
| | | | B | 15.75 € | 11 | 1.76 | 27.78 € | 5.45 |
| | | | C | 14.25 € | 68 | 10.91 | 155.40 € | 33.70 |
| | | | D | 10.50 € | 86 | 13.79 | 144.81 € | 42.62 |
| 4.20 | 158 | 1015 | | | 165.00 | 26.46 | 328.00 € | 81.76 |
| 4.50 | 198 | 1015 | A | 19.75 € | 38 | 7.64 | 150.83 € | 27.03 |
| | | | B | 18.75 € | 71 | 14.27 | 267.54 € | 50.51 |
| | | | C | 16.45 € | 573 | 115.16 | 1,894.31 € | 407.65 |
| | | | D | 11.95 € | 842 | 169.22 | 2,022.14 € | 599.03 |
| 4.50 | 198 | 1015 | | | 1524.00 | 306.28 | 4,334.82 € | 1084.23 |
| 4.20 | 198 | 1015 | A | 19.75 € | 5 | 1.00 | 19.85 € | 3.10 |
| | | | B | 18.75 € | 27 | 5.43 | 101.74 € | 16.77 |
| | | | C | 16.45 € | 123 | 24.72 | 406.63 € | 76.38 |
| | | | D | 11.95 € | 380 | 76.37 | 912.60 € | 235.98 |

| | | | | | | | | |
|-------|-----|------|--|---------|--------|---------|------------|---------|
| 4.20 | 198 | 1015 | | | 535.00 | 107.52 | 1,440.82 € | 332.23 |
| Total | | | | 17.21 € | 15712 | 5493.12 | 94531.41 | 19183.7 |



Example 1

Специфікація №2 ламель дуб

| Розмір, мм | | | | Сорт | Ціна €/м² |
|------------|--------------------------------------|-----------------------------------|--|------|--------------|
| Товщина | Ширина | Довжина | | | |
| 3,2 | 20%- 85/95 мм. | 2020/ 2120/2220/ 2320.../ 3020 | | A | 11,00 |
| | 115/125/135.../205 | | | PP | 4,00 |
| 6.0 | 20%- 85/95 мм. 115/125/135.../205 | 2020/ 2120/2220/ 2320.../ 3020 | | A | A – 20,2 |

Допуски:

по товщині: -0/+0,2 мм;
по ширині -0/+0,5 мм;
по довжині -0/+0,5 мм.

Сорт А: допускається живий сучок до 7 мм, зміна кольору. Інші дефекти не допускаються

Сорт PP: допускається живий сучок до 10 мм, заболонь без обмежень, сліди від прокладок, зміна кольору, підпар. Інші дефекти не допускаються

Ламель повинна мати правильну геометричну форму

Вологість: 6,5-8,5%

Example 2

| ЦЕЛЬНА І | | | | | | | | |
|-------------|------------|-------------|----------|------|-------------------|----|-----|-------------|
| Товщин а | ширин а | Довжин а | сор т | цена | кількість, шт. | м2 | сум | вага, кг |

| | | | | | | | | |
|------|-----|------|---|-----------|----|-------|----------|--------|
| 5.80 | 210 | 3030 | A | 24.0 € | 3 | 1.91 | 45.81 € | 8.70 |
| 5.80 | 200 | 3030 | A | 24.0 € | 4 | 2.42 | 58.18 € | 11.05 |
| 5.80 | 190 | 3030 | A | 24.0 € | 5 | 2.88 | 69.08 € | 13.13 |
| 5.80 | 180 | 3030 | A | 24.0 € | 9 | 4.91 | 117.81 € | 22.38 |
| 5.80 | 170 | 3030 | A | 24.0 € | 7 | 3.61 | 86.54 € | 16.44 |
| 5.80 | 160 | 3030 | A | 24.0 € | 7 | 3.39 | 81.45 € | 15.47 |
| 5.80 | 150 | 3030 | A | 24.0 € | 7 | 3.18 | 76.36 € | 14.51 |
| 5.80 | 140 | 3030 | A | 24.0 € | 3 | 1.27 | 30.54 € | 5.80 |
| 5.80 | 130 | 3030 | A | 24.0 € | 4 | 1.58 | 37.81 € | 7.18 |
| 5.80 | 120 | 3030 | A | 24.0 € | 1 | 0.36 | 8.73 € | 1.66 |
| 5.80 | 110 | 3030 | A | 24.0 € | 3 | 1.00 | 24.00 € | 4.56 |
| 5.80 | 210 | 2830 | A | 24.0 € | 14 | 8.32 | 199.68 € | 37.94 |
| 5.80 | 200 | 2830 | A | 24.0 € | 33 | 18.68 | 448.27 € | 85.17 |
| 5.80 | 190 | 2830 | A | 24.0 € | 43 | 23.12 | 554.91 € | 105.43 |
| 5.80 | 180 | 2830 | A | 24.0 € | 50 | 25.47 | 611.28 € | 116.14 |
| 5.80 | 170 | 2830 | A | 24.0 € | 41 | 19.73 | 473.40 € | 89.95 |
| 5.80 | 160 | 2830 | A | 24.0 € | 34 | 15.40 | 369.48 € | 70.20 |
| 5.80 | 150 | 2830 | A | 24.0 € | 28 | 11.89 | 285.26 € | 54.20 |
| 5.80 | 140 | 2830 | A | 24.0 € | 27 | 10.70 | 256.74 € | 48.78 |
| 5.80 | 130 | 2830 | A | 24.0 € | 14 | 5.15 | 123.61 € | 23.49 |
| 5.80 | 120 | 2830 | A | 24.0 € | 11 | 3.74 | 89.65 € | 17.03 |
| 5.80 | 110 | 2830 | A | 24.0 € | 10 | 3.11 | 74.71 € | 14.20 |
| 5.80 | 100 | 2830 | A | 24.0 € | 13 | 3.68 | 88.30 € | 16.78 |
| 5.80 | 90 | 2830 | A | 24.0 € | 5 | 1.27 | 30.56 € | 5.81 |
| 5.80 | 80 | 2830 | A | 24.0 € | 5 | 1.13 | 27.17 € | 5.16 |

| | | | | | | | | |
|------|-----|------|----|-----------|----|-------|----------|-------|
| 5.80 | 70 | 2830 | A | 24.0 € | 3 | 0.59 | 14.26 € | 2.71 |
| 5.80 | 210 | 2630 | A | 24.0 € | 7 | 3.87 | 92.79 € | 17.63 |
| 5.80 | 200 | 2630 | A | 24.0 € | 13 | 6.84 | 164.11 € | 31.18 |
| 5.80 | 200 | 2630 | BC | 14.0 € | 1 | 0.53 | 7.36 € | 2.40 |
| 5.80 | 190 | 2630 | A | 24.0 € | 17 | 8.49 | 203.88 € | 38.74 |
| 5.80 | 190 | 2630 | BC | 14.0 € | 1 | 0.50 | 7.00 € | 2.28 |
| 5.80 | 180 | 2630 | A | 24.0 € | 36 | 17.04 | 409.02 € | 77.71 |
| 5.80 | 170 | 2630 | A | 24.0 € | 26 | 11.62 | 278.99 € | 53.01 |
| 5.80 | 160 | 2630 | A | 24.0 € | 26 | 10.94 | 262.58 € | 49.89 |
| 5.80 | 150 | 2630 | A | 24.0 € | 14 | 5.52 | 132.55 € | 25.18 |
| 5.80 | 140 | 2630 | A | 24.0 € | 13 | 4.79 | 114.88 € | 21.83 |
| 5.80 | 130 | 2630 | A | 24.0 € | 8 | 2.74 | 65.64 € | 12.47 |
| 5.80 | 120 | 2630 | A | 24.0 € | 4 | 1.26 | 30.30 € | 5.76 |
| 5.80 | 110 | 2630 | A | 24.0 € | 10 | 2.89 | 69.43 € | 13.19 |
| 5.80 | 100 | 2630 | A | 24.0 € | 4 | 1.05 | 25.25 € | 4.80 |
| 5.80 | 90 | 2630 | A | 24.0 € | 2 | 0.47 | 11.36 € | 2.16 |
| 5.80 | 80 | 2630 | A | 24.0 € | 2 | 0.42 | 10.10 € | 1.92 |
| 5.80 | 70 | 2630 | A | 24.0 € | 2 | 0.37 | 8.84 € | 1.68 |
| 5.80 | 210 | 2430 | A | 24.0 € | 7 | 3.57 | 85.73 € | 16.29 |
| 5.80 | 200 | 2430 | A | 24.0 € | 16 | 7.78 | 186.62 € | 35.46 |
| 5.80 | 190 | 2430 | A | 24.0 € | 22 | 10.16 | 243.78 € | 46.32 |
| 5.80 | 180 | 2430 | A | 24.0 € | 10 | 4.37 | 104.98 € | 19.95 |
| 5.80 | 170 | 2430 | A | 24.0 € | 16 | 6.61 | 158.63 € | 30.14 |
| 5.80 | 160 | 2430 | A | 24.0 € | 12 | 4.67 | 111.97 € | 21.28 |
| 5.80 | 150 | 2430 | A | 24.0 € | 16 | 5.83 | 139.97 € | 26.59 |

| | | | | | | | | |
|------|-----|------|----|-----------|----|-------|----------|-------|
| 5.80 | 140 | 2430 | A | 24.0 € | 15 | 5.10 | 122.47 € | 23.27 |
| 5.80 | 130 | 2430 | A | 24.0 € | 4 | 1.26 | 30.33 € | 5.76 |
| 5.80 | 120 | 2430 | A | 24.0 € | 3 | 0.87 | 21.00 € | 3.99 |
| 5.80 | 110 | 2430 | A | 24.0 € | 4 | 1.07 | 25.66 € | 4.88 |
| 5.80 | 100 | 2430 | A | 24.0 € | 4 | 0.97 | 23.33 € | 4.43 |
| 5.80 | 90 | 2430 | A | 24.0 € | 4 | 0.87 | 21.00 € | 3.99 |
| 5.80 | 80 | 2430 | A | 24.0 € | 1 | 0.19 | 4.67 € | 0.89 |
| 5.80 | 70 | 2430 | A | 24.0 € | 1 | 0.17 | 4.08 € | 0.78 |
| 5.80 | 210 | 2230 | A | 24.0 € | 4 | 1.87 | 44.96 € | 8.54 |
| 5.80 | 210 | 2230 | BC | 14.0 € | 1 | 0.47 | 6.56 € | 2.14 |
| 5.80 | 200 | 2230 | A | 24.0 € | 22 | 9.81 | 235.49 € | 44.74 |
| 5.80 | 190 | 2230 | A | 24.0 € | 24 | 10.17 | 244.05 € | 46.37 |
| 5.80 | 190 | 2230 | BC | 14.0 € | 1 | 0.42 | 5.93 € | 1.93 |
| 5.80 | 180 | 2230 | A | 24.0 € | 28 | 11.24 | 269.74 € | 51.25 |
| 5.80 | 170 | 2230 | A | 24.0 € | 35 | 13.27 | 318.44 € | 60.50 |
| 5.80 | 160 | 2230 | A | 24.0 € | 19 | 6.78 | 162.70 € | 30.91 |
| 5.80 | 150 | 2230 | A | 24.0 € | 21 | 7.02 | 168.59 € | 32.03 |
| 5.80 | 150 | 2230 | BC | 14.0 € | 1 | 0.33 | 4.68 € | 1.53 |
| 5.80 | 140 | 2230 | A | 24.0 € | 12 | 3.75 | 89.91 € | 17.08 |
| 5.80 | 130 | 2230 | A | 24.0 € | 13 | 3.77 | 90.45 € | 17.19 |
| 5.80 | 120 | 2230 | A | 24.0 € | 6 | 1.61 | 38.53 € | 7.32 |
| 5.80 | 110 | 2230 | A | 24.0 € | 7 | 1.72 | 41.21 € | 7.83 |
| 5.80 | 100 | 2230 | A | 24.0 € | 10 | 2.23 | 53.52 € | 10.17 |
| 5.80 | 90 | 2230 | A | 24.0 € | 5 | 1.00 | 24.08 € | 4.58 |
| 5.80 | 80 | 2230 | A | 24.0 € | 9 | 1.61 | 38.53 € | 7.32 |

| | | | | | | | | |
|------|-----|------|----|-----------|-----|-------|----------|--------|
| 5.80 | 70 | 2230 | A | 24.0 € | 7 | 1.09 | 26.22 € | 4.98 |
| 5.80 | 210 | 2030 | A | 24.0 € | 9 | 3.84 | 92.08 € | 17.50 |
| 5.80 | 200 | 2030 | A | 24.0 € | 69 | 28.01 | 672.34 € | 127.74 |
| 5.80 | 200 | 2030 | BC | 14.0 € | 2 | 0.81 | 11.37 € | 3.70 |
| 5.80 | 190 | 2030 | A | 24.0 € | 110 | 42.43 | ##### | 193.47 |
| 5.80 | 180 | 2030 | A | 24.0 € | 130 | 47.50 | ##### | 216.61 |
| 5.80 | 180 | 2030 | BC | 14.0 € | 2 | 0.73 | 10.23 € | 3.33 |
| 5.80 | 170 | 2030 | A | 24.0 € | 141 | 48.66 | ##### | 221.89 |
| 5.80 | 170 | 2030 | BC | 14.0 € | 1 | 0.35 | 4.83 € | 1.57 |
| 5.80 | 160 | 2030 | A | 24.0 € | 114 | 37.03 | 888.65 € | 168.84 |
| 5.80 | 150 | 2030 | A | 24.0 € | 98 | 29.84 | 716.18 € | 136.07 |
| 5.80 | 140 | 2030 | A | 24.0 € | 83 | 23.59 | 566.13 € | 107.56 |
| 5.80 | 130 | 2030 | A | 24.0 € | 47 | 12.40 | 297.68 € | 56.56 |
| 5.80 | 120 | 2030 | A | 24.0 € | 31 | 7.55 | 181.24 € | 34.44 |
| 5.80 | 110 | 2030 | A | 24.0 € | 34 | 7.59 | 182.21 € | 34.62 |
| 5.80 | 100 | 2030 | A | 24.0 € | 29 | 5.89 | 141.29 € | 26.84 |
| 5.80 | 90 | 2030 | A | 24.0 € | 30 | 5.48 | 131.54 € | 24.99 |
| 5.80 | 80 | 2030 | A | 24.0 € | 34 | 5.52 | 132.52 € | 25.18 |
| 5.80 | 70 | 2030 | A | 24.0 € | 47 | 6.68 | 160.29 € | 30.45 |
| 5.80 | 190 | 1830 | A | 19.0 € | 2 | 0.70 | 13.21 € | 3.17 |
| 5.80 | 180 | 1830 | A | 19.0 € | 3 | 0.99 | 18.78 € | 4.51 |
| 5.80 | 170 | 1830 | A | 19.0 € | 8 | 2.49 | 47.29 € | 11.35 |
| 5.80 | 160 | 1830 | A | 19.0 € | 3 | 0.88 | 16.69 € | 4.01 |
| 5.80 | 150 | 1830 | A | 19.0 € | 2 | 0.55 | 10.43 € | 2.50 |
| 5.80 | 140 | 1830 | A | 19.0 € | 6 | 1.54 | 29.21 € | 7.01 |

| | | | | | | | | |
|------|-----|------|---|-----------|------|--------------|----------|-------------|
| 5.80 | 130 | 1830 | A | 19.0 € | 5 | 1.19 | 22.60 € | 5.42 |
| 5.80 | 120 | 1830 | A | 19.0 € | 3 | 0.66 | 12.52 € | 3.00 |
| 5.80 | 110 | 1830 | A | 19.0 € | 2 | 0.40 | 7.65 € | 1.84 |
| 5.80 | 90 | 1830 | A | 19.0 € | 1 | 0.16 | 3.13 € | 0.75 |
| 5.80 | 80 | 1830 | A | 19.0 € | 2 | 0.29 | 5.56 € | 1.34 |
| 5.80 | 70 | 1830 | A | 19.0 € | 7 | 0.90 | 17.04 € | 4.09 |
| 5.80 | 200 | 1630 | A | 19.0 € | 1 | 0.33 | 6.19 € | 1.49 |
| 5.80 | 190 | 1630 | A | 19.0 € | 1 | 0.31 | 5.88 € | 1.41 |
| 5.80 | 150 | 1630 | A | 19.0 € | 1 | 0.24 | 4.65 € | 1.11 |
| 5.80 | 140 | 1630 | A | 19.0 € | 3 | 0.68 | 13.01 € | 3.12 |
| 5.80 | 130 | 1630 | A | 19.0 € | 1 | 0.21 | 4.03 € | 0.97 |
| 5.80 | 80 | 1630 | A | 19.0 € | 1 | 0.13 | 2.48 € | 0.59 |
| 5.80 | 70 | 1630 | A | 19.0 € | 4 | 0.46 | 8.67 € | 2.08 |
| | | | | | 1986 | 714.467 7 | 17050.48 | 3257.9 7 |

11.42

10.00

BC

1.40%

1830-1630

1.6%**I поддон****389.50****II поддон****324.97**