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**Impacts of Covid-19 and Russian Invasion to Ukraine
on IT firms' Internationalization: a case study**

Master Thesis
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We have written this Master's Thesis independently. Any ideas or data taken from other authors or other sources have been fully referenced.

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1. Abstract

Based on studying the impacts of COVID-19 and Russian aggression towards Ukraine on IT firms' internationalization, we aim to find out how they could become more resilient against these types of events in the future. The pandemic and the conflict have had significant effects on global trade, causing disruptions in supply chains, border closures, and loss of revenue for many businesses. We collected the data from interviews with three IT companies and information regarding their responses to the COVID-19 pandemic, and the impact of sanctions imposed on Russia. The research highlights the importance of political sustainability and adaptability for IT businesses to survive in the face of disruptions and provides a baseline for future research to identify patterns that can help IT businesses to thrive in such circumstances. The study suggests that companies seeking international growth need to have local suppliers, self-reliance in supply chain capabilities, diversify suppliers and customers, embrace digitalization, and avoid long-term plans in unstable countries.

Keywords: Covid-19, pandemic, invasion, Russia, Ukraine, conflict, internationalization, firms.

Covid-19 ja Venemaa sissetungi mõju Ukrainasse ettevõtete rahvusvahelistumisele: juhtumiuuring

Abstrakt

Uuringu eesmärk on uurida IT ettevõtetele rahvusvahelistumisega seotud väljakutseid, mis tulenevad Covid-19 mõjudest ja Venemaa agressioonist Ukrainas, ning välja selgitada, kuidas ettevõtted saavad olla vastupidavad tulevastele VUCA sündmustele. Pandeemia ja konflikt on oluliselt mõjutanud rahvusvahelist kaubandust, põhjustades tarneahelate häireid, piiride sulgemist ja tulu kaotust paljudele ettevõtetele. Andmed koguti intervjuudest kolme IT-ettevõttega ning teabest nende reageerimise kohta Covid-19 pandeemiale ja sanktsioonide mõju kohta Venemaale. Uuring rõhutab poliitilise jätkusuutlikkuse ja kohanemisvõime olulisust IT-ettevõtete ellujäämiseks häirete olukorras ning pakub alustulemuste põhjal tulevaste uuringute jaoks mustrite tuvastamist, mis võivad aidata IT-ettevõtetel sellistes olukordades edukalt tegutseda. Uuringu tulemused viitavad sellele, et rahvusvahelist kasvu otsivatel ettevõtetel on vaja kohalikke tarnijaid, isevarustust tarneahela võimete osas, tarnijate ja klientide mitmekesistamist, digitaliseerimise omaksvõttu ning pikaajaliste plaanide vältimist ebastabiilsetes riikides.

Võtmesõnad: Covid-19, pandeemia, invasioon, Venemaa, Ukraina, konflikt, rahvusvahelistumine, firma, ettevõtte.

2. Introduction

In order to ensure that businesses can grow and be successful in a global market, internationalization is a crucial process that entails designing and developing goods and services in a way that allows them to be effectively consumed by people from different countries. (*Quick et al., n.d.*). In today's business landscape, which functions in an atmosphere characterized by volatility, uncertainty, complexity, and ambiguity (*VUCA*), corporations need to meticulously weigh the hazards that come with expanding globally (*Grzybowska & Tubis, 2022*). Remaining adaptable, innovative, and agile is crucial for effectively maneuvering through the intricacies of internationalization and building resilience. (*Sammarco et al., 2022*)

In 2019, the disease called coronavirus began to spread around the world. In 2020, this virus, also known as Covid-19 which led to widespread quarantines, border closures and the loss of jobs for many individuals. (*Svabova et al., 2022*). Moreover, a substantial drop in world trade has also impacted the globalization of businesses (*Dong & Truong, n.d.*). Companies lacking digital technology typically take a significant amount of time to recuperate from such crises (*Sammarco et al., 2022*).

Russian invasion came at a particularly inopportune moment for the global markets, as they were already grappling with the challenges of high food and energy prices, caused by a combination of factors such as disruptions in the supply chain due to the COVID-19 pandemic (*Ben Hassen & El Bilali, 2022*). Following this conflict, sanctions were implemented on Russia. In response, Russia has reduced the food and energy supply to numerous countries, especially in Europe. Several multinational companies have closed down their branches in Russia, including Mango, Nestle, Marriott, Adidas and McDonald's. (*Times, 2022*) In addition to the inflation forecast made by NIESR at the start of 2022, the conflict increased world inflation by approximately 2% in 2022 and 1% in 2023 (*Liadze et al., n.d.*).

Both Covid-19 and the Russia-Ukraine conflict can be considered global or international crises that have an undeniable impact on global affairs. Essentially, the impact of such events is usually researched as they emerge. Therefore, there are several studies that have investigated the impact of these global crises in different contexts, such as the business operations of various companies. To our knowledge, there is no study that analyzes the impact of these events on the

internationalization of IT firms as well as the resilience of IT companies to such events. Our research investigates the impact of these events on IT firms' globalization. It is crucial to examine the effects of these events in detail to expedite the removal of their consequences and enable IT companies to develop a more sustainable strategic approach toward similar situations in the future. Based on studying the impacts of COVID-19 and Russian aggression towards Ukraine on IT firms' internationalization, we aim to find out how they could become more resilient against these types of events in the future. The main goals of the thesis will be classified into two categories:

1. How Covid-19 has affected the internationalization of the firms:

We will examine how Covid-19 affects IT firms in the process of internationalization as well as how IT businesses are more resilient during this time and in which business areas coronavirus have negative effects on internationalization.

2. The effect of the continuing Russian-Ukrainian conflict on companies' internationalization:

Due to a lack of information and the freshness of the event, the effects of the Russian aggression towards Ukraine on corporate globalization are unclear. In this study, by conducting interviews, we want to evaluate the impact of this conflict on the IT firms' internationalization by using three firms as examples.

The remaining sections of this thesis are outlined as follows: Section 3 provides an overview of the current academic literature related to key concepts such as internationalization, the response of firms to the Covid-19 pandemic and the Russian invasion of Ukraine. The methodology employed for data collection and the research process is explained in Section 4. Section 5 presents the results obtained from the qualitative analysis conducted. Lastly, Section 6 concludes the thesis by summarizing the findings and discussing potential future implications.

Research classification code: S190 Management of enterprises

3. Literature Review

The literature review is divided into three sub-sections, with the initial section focusing on the overall definition of internationalization and resilience. Second, one of the main bodies of the literature review synthesizes and evaluates previous studies and findings related to the impacts of Covid-19 on firms. The final section would contain information and findings regarding the effect of Russia-Ukraine on the companies.

3.1. Internationalization and Resilience

Internationalization is the process of creating products that may be easily consumed across multiple countries. It focuses on a company's trajectory as it moves from a domestic market to an international market. It generally involves several entrance strategies that have a significant impact on the course of events as well as the cost of internationalization. It entails forging connections with local suppliers and clients while also adjusting to the distinct cultural, economic, and regulatory environments of each new market. In order to navigate the foreign business landscape, strategy is a crucial tool in the internationalization process. (Angulo-Ruiz et al., 2020). Most firms start the internationalization process by exporting their products or services to new markets. From there, they gradually step up their level of involvement by opening regional sales offices, joining forces in joint ventures or strategic alliances, and finally establishing fully owned subsidiaries abroad. According to internationalization theory, businesses gradually expand their global participation from close to their home country geographically and culturally before moving to more distant and diverse markets. The model asserts that internationalization is driven by experiential learning, which is acquired through experience and knowledge acquired in foreign markets. (Amdam, 2009) In the 1990s, a new type of business emerged that didn't follow the conventional pattern of internationalization. These companies served a global market from the outset and established connections with businesses in other countries. The Born Global business model suggests that some companies can quickly expand internationally right from the start (Cabral & SCHAEFER, 2016). Another theory called the Eclectic Paradigm, proposes that companies will expand internationally if they have a competitive advantage in ownership, are located in favorable locations, and if internalizing their operations is more profitable than exporting (Konig, 2003). The network model of internationalization describes the process of a company expanding globally as

creating and strengthening relationships with participants in a network on foreign markets (*Ratajczak-Mrozek, 2012*).

Among the major variables affecting how a company internationalizes are:

Opportunities: When choosing to go global, one of the most important considerations is the attractiveness of foreign markets, including their size, potential for growth, and the degree to which they are competitive.

Internal resources: The company's internal resources, such as its financial stability, managerial expertise, and technological prowess, play a significant role in determining the pace and scope of internationalization.

External environment: Disparities in language, culture, and governmental, legal, and regulatory systems can have a significant impact on how well a company is capable of growing internationally.

Competition: Competitors' actions in other markets may have an impact on a company's choice to enter new markets as well as the specific entry strategies it selects.

Companies that successfully manage the internationalization process can benefit from significant growth opportunities and competitive advantages. However, it requires careful planning, investment, and adaptation to the particular characteristics of each foreign market. (*Quick et al., n.d.*)

As the current business world operates in the VUCA (volatility, uncertainty, complexity, and ambiguity) environment or reality, companies must carefully consider the risks associated with going global, including changing currency exchange rates, unpredictable governmental behavior, and cultural misunderstandings (*Taskan et al., 2022*). Companies find it difficult to make predictions about the future. (*Grzybowska & Tubis, 2022*) There are four principal components that make up the VUCA business environment:

Volatility - which is characterized by quick changes. Even though you are fully informed of changes, managing them can be difficult because they happen so rapidly.

Uncertainty - when there is uncertainty, it is very difficult to anticipate what will happen in the future. It's a lack of sureness regarding market adjustments.

Complexity - It is the confusion that involves different types of issues and factors which are interconnected. Complexity is challenging to comprehend since there is no connection between cause and effect. During this time, a change at any stage could have unintended effects on other aspects.

Ambiguity - Since the changes are so recent, there isn't much knowledge available regarding them. Due to a lack of information regarding these changes, managers and business owners are unsure of how to act in this circumstance and what is waiting for them (*Minciu et al., 2019*).

Because the data that was studied has changed over time, challenges frequently occur during the implementation phase, which is thought of as a solution to the issue, and it is important to find answers to problems as soon as possible. There isn't a model that each director in his organization can use in the VUCA world. But each organization should have a strategy to provide its customers with high-quality products and to adopt new technology developments as quickly as possible to be competitive in the market (*Millar et al., 2018*). The ability to quickly respond and be flexible enables businesses to adjust to VUCA circumstances, which results in some degree of creativity (*Popova et al., 2018*). Managers play a key role in surviving and being competitive in a VUCA world. The demands, concerns, and expectations of both employees and customers should be understood and analyzed by company managers. In addition, other employees need to be analytically oriented in order to comprehend the problem and offer some ideas. Internal communication within the company should be very well coordinated and easy so that ideas and thoughts related to the solution of the problem can be quickly conveyed to the company director. To identify changes throughout time, both the internal and external business environments must be continuously analyzed. (*Minciu et al., 2019*)

Market conditions are continually changing and becoming more unpredictable than before, that's why a company's workers should decide more intuitively based on experience in order to solve problems that they face at this time (*Nowacka & Rzemieniak, 2022*). In the VUCA business environment, it has been proven that consulting and negotiating with members of the teams while making decisions leads to more effective results. The lack of alternatives to business models and decision-making techniques is one of the factors that lead to the failure of organizations. (*Minciu et al., 2020*) Among the difficulties that a firm faces in its internationalization process, the lack of market knowledge stands for the most critical constraint. In fact, the largest barrier to international expansion, according to the results of the EU Observatory of European SMEs 2006/2007 survey, is a lack of understanding of foreign

markets. However, international business research has focused mostly on knowledge rather than the lack of it, despite this knowledge vulnerability. (*Figueira-de-Lemos et al., 2011*)

During unexpected events, companies' reactions to these events depend on their resilience. The level of resilience that a company possesses can greatly impact how it reacts and adapts to unexpected events. Companies and other groups face a variety of difficulties when they encounter devastating occurrences like material limitations and price volatility. The ability of a company to withstand and rebound from unanticipated or unfavorable events, such as economic downturns, natural catastrophes, cyberattacks, or pandemics, is called to as company resilience (*Santoro et al., 2021*). Organizations that have greater levels of resilience are better able to adjust to changing conditions, minimize disruption to their operations, and keep their productivity and profitability. The capacity for innovation is a crucial factor in a company's ability to withstand challenges (*Calzada Olvera et al., 2022*). By using resilience strategies, these difficulties can be surmounted. These strategies could take a variety of forms, such as altering the supply chain, looking for substitute suppliers, altering the manufacturing procedures, or changing product designs (*Masik & Grabkowska, 2020*). In order to adjust to the circumstance and reduce the negative effects on their operations, businesses must essentially be innovative and flexible in their approach. By doing this, they can strengthen their resilience and become more ready for upcoming challenges (*Nkundabanyanga et al., 2019*). The basic idea of resilience has developed over the years into the capacity to not only manage to situations but also to be capable of preparing for recoveries in the immediate term by employing the organization's resources effectively and efficiently. (*Sammarco et al., 2022*)

Resilience can be classified into two main types:

The capacity of a system to continue operating in the face of external shocks or disruptions is referred to as static resilience. Utilizing resources wisely during periods of scarcity or disaster is known as static economic resilience. This may involve changing production procedures or allocating resources in order to guarantee that the most fundamental requirements are satisfied. It's critical to realize that resilience involves more than just getting back to normal after a shock or disruption. It also involves altering and adapting to new situations. For static economic resilience, it might be necessary to find innovative ways to

create goods and services or to identify alternative sources of resources. (Adekola & Clelland, 2020)

Dynamic economic resilience is an essential concept in the field of economics that refers to the ability of an economic system to adapt and recover from disruptions, shocks, or crises. In order to repair and rebuild damaged economic infrastructure and increase future output, this type of resilience necessitates the effective allocation and distribution of resources over time. Some resources that could be used for current consumption must be sacrificed in order to allocate resources for restoring future productivity. This means that even in uncertain economic times, individuals, households, and businesses must save money and make investments in order to rebuild and keep their economic capacity. In order to develop and grow long-term, economic systems must invest in infrastructure, human capital, and technology. (Adekola & Clelland, 2020)

There are several essential components to resilience, such as:

- Strong leadership: In challenging times, effective leadership is essential for crisis management and team development.
- Risk management: By employing efficient risk management processes, businesses can anticipate and minimize operational and reputational risks.
- Flexibility and adaptability: Businesses that are resilient are quick to adjust to new circumstances, such as shifting market conditions, rising risks, and emerging technologies.
- Planning for business continuity is essential for ensuring that crucial operations and procedures can continue in the event of disruptions. (Dormady et al., 2019)

Overall, business resilience is crucial for sustainability and long-term success because it allows organizations to overcome obstacles and become stronger and more competitive. (Calzada Olvera et al., 2022)

In conclusion, internationalization allows firms to access new markets, technology, resources, and skills, which can enhance their productivity, innovation, and profitability. On the other hand, resilience enables firms to adapt to changing circumstances, minimize disruption, and recover quickly from setbacks. Overall, building resilience has become a

crucial strategy for firms seeking to withstand economic and political shocks and sustain their long-term growth. The key to successfully navigating the complexities of internationalization and building resilience is to remain adaptable, innovative, and agile.

3.2. Firms' reaction to Covid-19

Investors prefer to defer their investments when there is market uncertainty, which results in the loss of lucrative projects. Due to heightened external risks during these times, managers frequently raise their cash holdings. The investments are consumed by increased cash holding, which lowers the speed of sustainable development for global companies. Customers' health and safety demands are more important than their contract demands. It resulted in a decrease in demand. Companies' revenue is reduced as a result of these elements, which impacts their performance. Multiple risk management tools are implemented by companies to reduce the risks during these types of events. (*Zagashvili, 2018*)

According to research, regions with faster economic growth than other regions experience stronger effects from the speed of operations that arise from uncertainty. This means that the effect of these kinds of events on the internationalization of corporations depends on the regions in which those companies are based. For example, firms in countries with severe quarantine policies, as well as other international corporations with market share in these regions, have been more negatively impacted by Covid-19. (*Shen et al., 2020*)

The coronavirus infection started to proliferate globally in 2019. This virus, also known as Covid-19, caused widespread quarantines in 2020, which resulted in border closures and the loss of many people's employment. Many countries implemented lockdowns and restrictions on physical activity to halt the virus's spread. Due to this, many companies were forced to close their physical locations, which led to a loss of revenue and increased costs for remote work. Many consumers have reduced their non-essential spending, which has affected the sales of companies that rely on consumer spending (*Svabova et al., 2022*).

The pandemic has disrupted global supply chains, resulting in a shortage of the raw materials and other components that companies need to produce their products. This has led to rising costs and decreasing output for companies. Firms have had to increase their expenditures in health and safety in order to protect their employees and customers from the

virus. This involves setting up social isolation prevention techniques, disinfecting work environments, and providing personal safety equipment. These limitations lead to company failure or economic decline (Khan et al., 2021). Due to the closure of their places of work, people's purchasing power decreased. It has been challenging to supply firms and export products due to state border closures and other restrictions brought on by the virus. Consequently, there was a significant decline in world trade that same year. The economic catastrophe also impacted the globalization of businesses. The world is in a precarious situation due to the long-term pressure of the Covid -19 epidemic in every sector, including energy and food (Kruczkiewicz et al., 2021).

Covid 19 has a number of impacts on international trade. It has been found that Covid -19 does not seriously influence demands among importers, whereas it has a negative impact on export items in the exporting countries. In countries that export commodities, the high rates of Covid-19 cases and deaths result in reduced product volume and export supply. The second effect is a decline in global demand in importing nations. The majority of people start saving money for the future when they lose their jobs, whether permanently or perhaps temporarily. These procedures have decreased purchasing power. Due to supply chain disruption, negative production shocks may result in lower productivity in surrounding countries. It has more impact on economies that depend heavily on international trade (Dong & Truong, n.d.).

A considerable fall was shown in business performance in the initial quarter of 2020 in sectors like transportation and tourism. Production, operation, and sales of these industries were negatively affected by the pandemic. It is reflected in the decrease in the return rate. (Shen et al., 2020) The least impacted industries were those in the banking and finance, delivery service, real estate, and consumer goods industries. Some industries, including transportation, entertainment, and restaurant work, are affected by vaccination. Because a vaccination certificate is mandatory to use the services of all restaurants, airline companies, and other service sectors. The importance of health to many people has led to the growth of fresh food and homemade goods. Another factor influencing the shift in consumer behavior is a sense of family and community as well as a desire to support 'local'. As a result, export items' purchasing power has declined. This led to a reduction in the share of other foreign firms in international markets. (Martinez-Azua et al., 2021)

Since July 2020, the negative impacts of Covid-19 on the trade of importing and exporting countries have become insignificant. This finding indicates that the negative effects of Covid -19 on global trade were somewhat minimized after the pandemic's initial wave. (*Hayakawa & Mukunoki, 2021*) The increase in vaccination rates among exporters from low-income countries greatly raises their exports. On the other hand, while vaccination rates increased in importers or high-income exporters, no considerable improvements in trade were found. The majority of low-income nations, where vaccines are most required due to labor-intensive industries, couldn't obtain vaccines in 2021. (*Hayakawa, 2022*) For international companies, diversifying input sourcing to include both domestic and foreign markets and "dual sourcing" of the same inputs from suppliers in other nations ought to help stop the spread of negative shocks in value chains. The unfavorable consequences can also be reduced by enhancing inventory control and granting exceptions to lockdown regulations for essential input manufacturers. (*Hayakawa & Mukunoki, 2021*) The resilience of companies against these types of events also depends on how governments support their firms. Only the USA and India (among the largest countries) had an improvement in their mineral fuel trade balance, while it decreased for the UAE, Russia, Saudi Arabia, Iran, and the Kingdom of Saudi Arabia. (*Coquide et al., 2022*)

In contrast to the negative effects on non-essential, durable products for a very long time, the coronavirus has positively impacted the globalization of businesses that manufacture medical products, especially vaccinations, and masks. (*Hayakawa & Mukunoki, 2021*) Financial support and free trade agreements, which have a good impact on Vietnam's exports, are two positive outcomes of the government's response. Vietnam lost more exports as a direct result of COVID-19 last year than it benefitted from the pandemic. However, in the initial nine months of 2021, Vietnam's exports dramatically increased. Vietnam has established stimulus packages that include cash aid for laid-off workers and weaker sections of the society, business support, and bolstering emergency health response capabilities like vaccination programs and testing potential in order to hasten the country's economic recovery in the wake of the pandemic (*Dong & Truong, n.d.*).

Another study that included eight cases from Estonia, suggests that managers should be prepared for failures and learn from them, also, to understand that it's too early to decide the

success of the pandemic, and lastly that the policymakers should provide more support to industries that were severely impacted by the pandemic. (*Vissak, 2022*)

The Covid-19 pandemic had a significant effect on how companies were digitally transforming. Companies that adopted radical shifts in their business models outperformed those that adopted a conservative strategy. As a consequence, the trend toward digitalization was noticeably accelerated. Many businesses were forced to modify their work processes and strategic objectives as a result of Covid-19. During the period from October 2020 to January 2021, global sales plummeted by 27%, which had an adverse effect on internationalization. However, 34% of businesses chose to rely more on the internet and digital platforms in reaction to the difficulties brought on by the pandemic, further accelerating the trend toward digitalization. (*Quick et al., n.d.*)

In reaction to the disruption produced by the supply chain as well as the economic and financial difficulties brought on by Covid-19, companies were forced to make considerable modifications to their operations. Innovative technologies are crucial to a company's ability to remain resilient in the face of disruptive events. It is proved that international firms are more resilient during these crises when they use digital technologies in their sales, supply chains, or other procedures. To conclude, the COVID-19 pandemic has significantly affected the global economy and international trade. Due to market uncertainty, investors tend to defer their investments, resulting in the loss of lucrative projects, and managers increase their cash holdings, which lowers the speed of sustainable development. The pandemic has disrupted global supply chains, resulting in a shortage of raw materials and other. Although, it usually takes a long time for companies without any digital technology to recover from such events, businesses who swiftly adopted the required technologies during this period were better able to survive on the global market (*Sammarco et al., 2022*). The COVID-19 epidemic has presented specific hurdles for software developers. Their productivity and general well-being have been impacted by a combination of stress, isolation, business closures, and a lack of childcare options, and fitness facilities. Productivity and well-being have decreased during the epidemic because working remotely under these conditions is very different from working remotely in general (*Ralph et al., 2020*). The COVID-19 pandemic has accelerated the adoption of remote work, revealing that technical processes and tools can work seamlessly in a virtual setting.

However, without physical social interactions, practitioners find it difficult to work together efficiently. Despite this challenge, there is a positive attitude towards remote work, and professionals prefer a hybrid model that combines remote work and physical interaction in the future. As such, IT companies should be prepared to offer a flexible work environment that accommodates the needs and preferences of their employees (*Ågren et al., 2022*).

The other study results show that the move to remote work was effective since professionals are now using internet technologies that they had previously been reluctant to use. Despite a little decline in output, the transition has also increased flexibility. (*Schmidtner et al., 2021*). According to another study, agile software development teams that included both on-site and distributed team members had a decrease in pointless meetings, an uptick in productivity as a result of remote work, and improved communication. This communication was further improved when all team members worked remotely (*Marek et al. 2021*). Software and IT companies, in contrast to the food industry, were able to react to these situations more rapidly. The drawbacks of remote working for businesses were revealed, but there were also advantages. Companies have already moved toward being more digital, and by closing offices, they have also avoided paying office expenses. Besides these, it has been a challenging time for IT companies that do not have enough marketing knowledge, resilience, and agility in order to maintain team productivity and to keep providing valuable services to customers. It has been found that no matter how the pandemic affected IT companies' globalization, perceived resilience was useful (*Martinez-Azua et al., 2021*). The software business has overcome multiple challenges and is now more resilient than it was. The pandemic has accelerated the adoption of technology in the workplace, and this tendency is likely to persist long after the outbreak has subsided. Artificial intelligence is being used more frequently by businesses to continue operations during times of social isolation and to reduce security risks for users (*Alhakami et al., 2021*). Software teams that have accumulated technical and social debt will likely have difficulty regaining their competitive edge for a while. They will need to deal with the social and technical difficulties that remote work has brought about in order to recover. On the other hand, teams that have had success in the past could use unusual circumstances and outside influences to further develop their focus and unity (*Kude et al, 2020*).

Table 1: Main findings of the Literature for the reaction to COVID-19

Research paper	Main findings
Khan et al. (2021)	Because of restrictions, supply chain disruptions cause raw material shortages, higher prices, lower output, and increased costs for health and safety.
Dong & Truong (n.d.)	There are negative impacts on export items in exporting countries, the decline in global demand, decreased purchasing power. Covid-19 has more impact on economies reliant on international trade.
Shen et al. (2020)	A significant decline has been seen in the transportation and tourism sectors. Banking and finance have been observed to be less impacted.
Martinez-Azua et al. (2021)	The proportion of foreign companies in global markets is decreasing. Supporting local organizations and communities has gained popularity.
Hayakawa & Mukunoki (2021)	Positive effects have been noted on the internationalization of companies producing medical products, particularly vaccines, and masks.
Vissak (2022)	Most of the firms experienced foreign market exits and re-entries and the VUCA situation had a partial impact on their de- and re-internationalization.
Sammarco et al. (2022)	Swift adoption of digital technologies improved survival in the global market. Companies without digital technologies take longer to recover.
Ågren et al. (2022)	The growth of remote work has highlighted the value of physical-social interactions for productive teamwork. Hybrid model is preferred for the future.
Marek et al. (2021)	Agile software teams observed decreased meetings, more productivity, and better collaboration when working remotely.
<i>(Martinez-Azua et al., 2021)</i>	Perceived resilience proved to be beneficial regardless of the impact of the pandemic on the globalization of IT companies.

The papers' principal conclusions are shown in Table 1. Studies show that the COVID-19 pandemic has caused supply chain disruptions, which have led to a shortage of raw materials, increased costs, and lower output. In particular, in economies dependent on foreign trade, export goods, and worldwide demand have suffered. While the financial industry has been less impacted, industries like transportation and tourism have seen major decreases. Foreign corporations' involvement in international marketplaces is dwindling as local organizations and communities are more preferred. Positively, the pandemic has sped up the globalization of businesses that make medical products. The rapid adoption of digital technologies has increased businesses' chances of surviving in the global marketplace.

To conclude, the COVID-19 pandemic has significantly affected the global economy and international trade. Numerous studies have examined the effects of COVID-19 on various aspects, including the operational aspects of different companies. However, based on our current understanding, there is a lack of research analyzing the influence of these events on the internationalization of IT firms and the resilience of IT companies in the face of such circumstances. We, therefore, investigate to determine how IT firms might improve their resilience to such occurrences in the future by examining the effects of COVID-19 on the internationalization of IT firms.

3.3. Russian Aggression in Ukraine

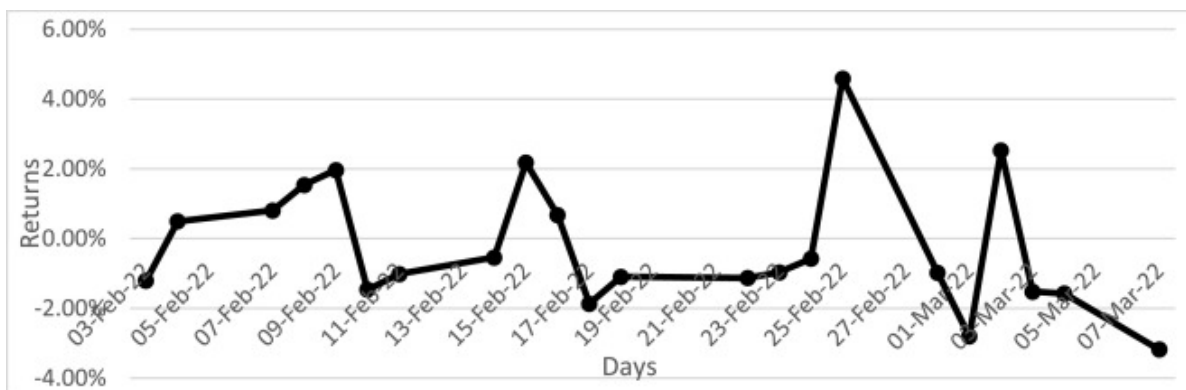
In February 2022, when COVID-19's importance began to wane, news of Russia's invasion of Ukraine shocked the world. Russia is the third-largest oil producer in the world and contributes nearly 20% of global wheat exports, while Ukraine is Europe's "crop factory," exporting significant amounts of corn and wheat and ranking in the top ten producers of rapeseed, sugar beet, barley, and soy. (*Economic Consequences of the Russia-Ukraine Conflict: Stagflation Ahead / News / News & Publications - Coface*, n.d.)

Renouncing the world's peace, the Russian aggression led to the embargo of trade and travel, known as economic sanctions, by the U.S., the EU, and their allies. These restrictions are applied to financial transactions, freezing the assets of Russia's major banks and specific individuals, banning exports of high-tech equipment to Russia, and closing the airspace for Russian flights and waterways for the country's vessels. (*Funakoshi, 2022*) However, we will

first try to understand what sanctions are and how they impact the economy of a country. According to *Lektzian et al. (2007)*, “the application of economic or other measures, typically by one state, against another state or group of states, aimed at persuading the targeted state(s) to alter their behavior in some way that is deemed objectionable,” are known as sanctions. In another article, the author(s) tries to examine the impact of sanctions on the countries where they are imposed by mentioning that they can be an effective tool of coercion if they are credible and backed by a reputation for resolve. However, the author also argues that the sanctions can also have unintentional devastating effects, such as high corruption rates, human rights abuses, and huge economic disruption. (*Drezner, D.W., 2003*)

Therefore, after the war began and the sanctions were implemented, the situation of the Russian Federation’s economy faced a fierce challenge to resist these sanctions. As per some independent sources, around 1000 companies have closed their businesses in the Russian Federation (*Yale School of Management, 2022*). However, a handful of the remaining companies are facing fierce challenges with a crumbling economy, low buying power, and a higher trading volume due to the selling pressure.

Figure 1



Note: The figure has been sourced from (*Tosun & Eshraghi, 2022, p.2*), and shows the returns of the corporate firms who were operating in the Russian Federation.

It is indicated in Figure 1, that the daily returns rate of the firms from February 3 to March 8, 2022, doing business in Russia has been heavily impacted since the start of events. During the first week, the returns increased as per the uncertainty prevailing, however, it quickly drilled down after a few weeks. (*Tosun & Eshraghi, 2022*) Now, these downsides have

not only impacted the Russian economy but also the EU countries, especially the ones with closer regional borders with Russia. It also mentions that the EU stock market has been heavily impacted by the sanctions because the economies of Eastern European countries are suffering, and as a result, the least impacted countries' stock markets, such as Sweden, Germany, Italy, Austria, and Spain, have a higher investor rate. (*Kumari et al., 2023*) Another study supports this opinion that the stock markets are at higher risk due to geo-political tensions, as well as that the countries not bordering the Russian Federation are the least impacted ones. (*Abbassi et al., 2022*)

International oil firms such as Equinor, Exxon, Mobil, and Shell are limiting their operations in Russia. (*Funakoshi, 2022*) Due to Russian companies stopping or limiting the sale of energy products to Europe, the internationalization of energy companies in other countries has started to develop rapidly. During the Russian-Ukrainian invasion, energy firms outperformed their competitors in export markets where Russian providers of renewable energy, fossil fuels, and uranium were present. (*Nerlinger & Utz, 2022*) Coal, cereals, and wheat networks have the strongest ability of recovery and anti-damage against the RUW and global panic, whereas gas and maize networks have the relatively strong recovering ability and low anti-damage ability, according to a comparison of network characteristics of robustness and resilience. (*Zhou et al., 2023*)

It is estimated that the conflict will also raise global inflation by roughly 2% in 2022 and 1% in 2023, in addition to the increase predicted by NIESR at the beginning of 2022. (*Liadze et al., n.d.*) Changes in currency rates as a result of this conflict have a big impact on international businesses. (*Bossmann et al., 2023*) Removing Russia from the SWIFT payment network affects companies that conduct business with Russia and use a barter system for payments. (*Ratten, 2022*) Additionally, due to the COVID-19 epidemic's uncertainty, there are information asymmetries in the financial market. In actuality, when there is significant instability, international firms should exercise caution. The research demonstrates that the COVID-19 epidemic and the Russian aggression toward Ukraine both exhibit herd behavior and irrationality. (*Gaio et al., 2022*)

These two events had a big impact on the increase in labor and product prices. There has been a lack of fossil fuel supply, which caused an increase in petroleum prices during the war.

Freight rates from China to South America grew by almost 443% between 2020 and 2021 as a result of rising pricing. China and other Asian nations accounted for almost 63% of the rise in spending. During these two critical points in the supply chain, firms' internationalization slowed down. (*Allam et al., 2022*)

The war in Ukraine has had a profound impact not only on other industries and sectors but also on the information technology industry. In the past, there have been numerous international companies doing business in Ukraine's rapidly expanding digital economy. It's also a widely known phenomenon that Eastern Europe is rich in the IT workforce, and according to the CEO of Readdle, an application, the estimated number of tech professionals is between 100,000 and 200,000, many of whom are from Ukraine. (*McDowell, H., 2022*) However, since the commencement of the war in 2022, there has been a massive displacement of Ukrainian tech forces to other countries as well as their inclusion in the defense forces, which has highly impacted the tech companies' reduced labor forces. It is estimated that around 41,861 domestic firms in Eastern Europe, catering to 153,331 customers in 141 countries and 83 sectors, run the risk of severe business disruption, potentially impacting service delivery. (*"Impact of the Russia-Ukraine Crisis on the Technology Sector," n.d.*) Besides these, there has also been indirect pressure on the open-source software products in the market, where people from both sides have been adding up the messages and warnings to the users. Research indicates that there have been cases of malignant and benign protests where people have added alleged "messages" against war to the software programs. Also, there have been incidents where several software companies refused to sell their products to Russian buyers, e.g., MongoDB, Oracle, Microsoft, Apple, and SAP. (*Kula & Treude, 2022*)

Table 1: Main findings of the Literature for the Russian Aggression in Ukraine

Research paper	Main findings
(Coface, n.d.)	Ukraine and Russia are the world's leading exporters of energy and food sources. However, Russian aggression has triggered turmoil in the financial markets, and drastically increased uncertainty about the recovery of the global economy
(Funakoshi, 2022)	Russia is experiencing growing isolation and economic hardship due to a series of Western sanctions, which include but are not limited to the travel, business, tourism, banking, food, and energy

	sectors.
(Drezner, D.W., 2003)	Sanctions are ineffective tools of statecraft, but they are frequently used because policymakers believe they will be effective. However, this is not always the case, and it can give rise to internal disruptions.
(Yale School of Management, 2022)	Over 1,000 international companies have closed operations and businesses in Russia after sanctions from the U.S. and the EU were imposed.
(Tosun & Eshraghi, 2022)	Some firms have decided to continue their business in Russia even after the sanctions. However, the author has found that those companies are not performing well due to high corporate pressure.
(Kumari et al., 2023)	Russian companies have also been barred from trading with EU countries. However, this has mostly affected Eastern European countries
(Abbassi et al., 2022)	This research is in line with (Kumari et al., 2023), supporting the claims in addition to the stock market vulnerabilities and putting the least affected firms of the U.S.A and France, by the Russian aggression.
(Nerlinger & Utz, 2022)	The research claims that energy firms (including renewable energy sources) outperformed the stock market during the time of the events of the war.
(Liadze et al., n.d.)	Global inflation is going to increase in 2022 and 2023.
(Ratten, 2022)	Although Russia has been removed from the SWIFT banking system, still some countries are continuing to trade in either their local currencies or using a barter system.
(Allam et al., 2022)	The global chain of disruptive events has led to an increase in prices and inflation in a quick span of time, thus leading to continuous disruption. There's a need to rethink and reshape the strategies to cope with these challenges
("Impact of the Russia-Ukraine Crisis on the Technology Sector," n.d.)	Eastern European countries, being the hub of the IT sector in the EU, catering to hundreds of thousands of customers have been badly impacted by the war, due to both sanctions and resource displacement.

To sum up, the global economy has been significantly affected by the Russian-Ukraine war, particularly in Russia, Ukraine, and the European Union. The imposition of sanctions by the EU, USA, and allies has resulted in the closure of many companies in Russia and negatively impacted various industries. Sanctions can also cause high levels of corruption, human rights violations, and economic disruptions. The energy industry has been affected, with North American firms outperforming their European and Asian counterparts in export markets. There has, however, not been much research done so far to find out how the IT companies have been surviving as well as what future precautions can be taken in order to thrive in a heated geo-political environment.

4. Data and Methodology

The authors, *Leedy and Ormrod (2001)*, define research methodology as “the general approach the researcher takes in carrying out the research project”. When it comes to the selection of research methodology, it should be noted that there are two primary methods: “qualitative”, “quantitative,” and the application of “mixed methods”. (*Williams, C., 2007*) Comparatively to quantitative methods, which are frequently used to test hypotheses or a limited number of samples, qualitative research methods are particularly well-suited for case study research because they allow for an in-depth exploration of the complex phenomenon. (*Williams, C., 2007; Ahmad et al., 2019; Sardana et al., 2023*) In a nutshell, the qualitative research approach is usually based on observations of a specific phenomenon that lead to the development of a specific theory based on the patterns and cases. (*Bazen et al., 2021*)

Because the emphasis of our research is on exploring the impact of different events and determining their effects rather than conducting an experiment with a predetermined hypothesis, we have chosen the “qualitative” research methodology using the techniques of “interviews” and “case studies”. To mention here, in qualitative research, case studies are one of the frequently used techniques. (*Yazan, 2015*). A total of three IT companies have been selected to conduct the research, with their cases verified in accordance with the research aim. This has been combined with the “IDI” (in-depth interviews) technique, which is one of the most common and significant techniques to collect data in qualitative research. (*Lincoln, 2005*) The objective is to learn how people interpret, comprehend, and make sense of their lives, as well as

how they give meaning to different experiences, occurrences, and topics. The interviews have been conducted in person, with the pre-studied case studies and “semi-structured questionnaires” having the duration specified and agreed upon with the subject, as well as the questions leading to the possibility of open-ended answers, as per the procedures recommended. (*Showkat and Parveen, 2017; Lincoln, 2005; Mannan, 2020*). It's pertinent to point out that all of these interviews were recorded and transcribed (to which appendices have been added). Following is pre-contextual information about the companies, providing an overview of the nature of their businesses, their current situation, and their internationalization plans.

4.1 Machineric

Our initial company, Machineric, provides software services tailored to heavy machinery and truck traders, enabling them to efficiently manage and sell their equipment. With Machineric software, traders can significantly reduce the time required for tasks such as data entry and maintain ownership over their inputted data (*Home - Machineric, n.d.*). This company was launched towards the end of 2020 and secured its first customer from Estonia. In 2022, they expanded internationally with their first client from Sweden. Presently, they have a growing client base from Estonia, Finland, and Sweden (*MACHINERY SOLUTIONS OÜ (16094960) - Overview @ Inforegister.ee, n.d.*). We conducted an interview with Annika Amenberg, who serves as the CEO of Machineric, based on our belief that she possesses valuable insights and information in her role as a CEO (*Team - Machineric, 2022*).

4.2 Apromore

The second company that we were able to get some insight from was “Apromore”, which is a SaaS (Software as a Service) technology company, headquartered in Australia. (*About Us - Apromore, 2023*) Their only product which also goes by the name “Apromore”, is sold on a subscription-based model, to B2B customers from different industrial sectors such as IT, Telecommunications, Insurance, Food, and Medical Sciences. (*Customer Stories - Apromore, 2023*) Born in the same year when COVID-19 hit the world, Apromore was struck with unexpected circumstances and surprises, however, their motivation and ambition to achieve the goals kept them on track. (*Awards and Recognitions - Apromore, 2023*) We got a fair good insight about how they managed to not only survive but continued to thrive since the world was

soon met with the Russian Invasion of Ukraine and the resulting global recession by interviewing the “Chief Product Officer - Marlon Dumas”, who has been a professor in the University of Tartu and has two decades of experience in the field of process mining. (*Leadership Team - Apromore, 2023*)

4.3 IoT

The third company we got in touch with was from the IT and Telecommunications sector, specializing in GPS software and e-Sims selling to their B2B customers for the tracking of different vehicles. (*IoT - Global Cellular Connectivity for IoT, n.d.*) Born in the advent of 2016, the company has implemented a complex “Internet of Things” solution in their product, enabling a global chain of different customers operating throughout multiple countries. The company has partnered up with different Telecommunications services, to enable their services, namely, “T-Mobile (US and global)”, “Telefonica (Europe and Latin America)”, JT (UK), and KPN (Netherlands). The customers include various other companies providing the support of communications to the local consumers. (*Partners — IoT - Global Cellular Connectivity for IoT, n.d.*) The personnel we interviewed from IoT was the “Customer Success Specialist - Karl Jõeäär” who gave us an overview of the current situation after the Russian aggression, how the company has been affected by COVID-19 and what are their future plans. (*About Us — IoT - Global Cellular Connectivity for IoT, n.d.*)

5. Results

The Covid-19 pandemic had a huge impact on how businesses were going through digital transformation (*Quick et al., n.d.*). Companies that lacked digital technology often take a considerable amount of time to recover from such events, while those who quickly adopted the necessary technologies during this period were better equipped to withstand the challenges of the global market (*Sammarco et al., 2022*). In contrast to the food business, IT companies were able to respond to these problems more quickly (*Martinez-Azua et al., 2021*). The software industry has successfully tackled numerous obstacles and is currently more adaptable than before (*Alhakami et al., 2021*). **Machineric**, being a software company, was relatively unaffected by the Covid-19 pandemic and the ongoing invasion. As their first customer joined in 2022 when Covid-19 lost its effect, and the majority of their operations are conducted online,

the company's workflow was not significantly impacted by Covid-19. In fact, the pandemic has had a positive effect on the business, as online meetings have expanded their potential customer base. Furthermore, the shift towards virtual meetings has resulted in cost savings, as the company no longer needs to bear the expenses associated with travel. However, due to restrictions on factories during the pandemic, shipments were delayed, which did have an impact on Machineric. Nonetheless, this has not affected the company's plans for international expansion as they have not yet entered the global market. As Machineric had not initially focused on Russia and Ukraine, the ongoing conflict in the region doesn't have an impact on the company's operations. However, it has an impact on their long-term strategic intentions for the market they should be in. The company chooses to operate in countries that are not sanctioned and not sympathetic to Russia. Additionally, because the majority of its suppliers are local, the business won't alter its strategy.

Categorized as a SaaS company, **Apromore** was born in September 2019 in Australia, just around the time when the world started closing its borders. The organization received its first customer segment in the EU, and then quickly after the lockdown began, they canceled the plans of creating a physical workspace and instead, shifted towards the “Remote” work. Being an IT team, it was not difficult for them to adapt to this new methodology as many of the workers were already displaced in different regions of the world. This in turn is aligned with the suggestion by (Quick et al., n.d.), that “34% of businesses chose to rely more on the internet and digital platforms in reaction to the difficulties brought on by the pandemic, further accelerating the trend toward digitalization”. The pandemic lockdown hit the company hard, initially, in terms of losing the RFI and sale proposals, as the business situations were unclear, and Apromore, being a B2B provider, was dependent on other companies as their customer channels. However, the world quickly started to cope, and the disrupted sales started to restore as well, and the customer base started to expand its borders to some more countries in the EU, Australia, and Japan. Explaining the slow growth, the CPO of Apromore, Marlon Dumas, explained the cause was uncertainty in the market, forcing the businesses to make every move in a cautious way. Also, the sales of these companies, who were customers of Apromore, were reduced which in turn, affected their decisions in terms of delays, to adapt to new software, as survival was the first priority. Following the Pandemic, when asked about the Impact of the Russian aggression toward Ukraine, Marlon mentioned that it had a certain impact on the

businesses operating in Europe, causing their sales to slow down as well. To elaborate more, he mentioned that the companies falling in their “potential” customers category, were the ones targeting the B2C markets of food, energy, and other sectors, and since the war has begun, they’ve limited the new plans. Further discussing the political impact, he emphasized the geopolitical changes happening before even COVID-19, where the Chinese markets have been sanctioned by the U.S. and its allies, therefore, leaving a diaspora of retail organizations withdrawing or limiting their businesses and this trend shifted towards Russia due to the invasion of Ukraine, resulting in the businesses getting closed. When asked about the reliefs provided to certain businesses, Marlon was keen to mention that those benefits were only limited during the COVID-19 period, and they didn’t directly get any benefit for the economic impact due to war, however, he also stated that this might be due to the fact they were not directly involved with any business inside Russia. Lastly, talking about future sustainability and resiliency, he mentioned the fact that change is inevitable, and as we have seen in the last couple of years, it’s one situation after another, creating a chain effect. Therefore, it would be only wise to create plans that are highly adaptable, rather than being rigid and sticking to only one way. This is directly in line with the research provided by (Vissak, 2022), where the author suggests that the manager should be more proactive to failures and learn from them. Therefore, during his closing notes, he mentioned expanding the business into the “U.S” territories as they were not much impacted due to the Russian aggression toward Ukraine and the situation appears to be more suitable for their business needs.

During the interviews held with the **1oT**, the technology company behind the idea of connecting the world over the e-Sims and GPS systems, it was revealed that they were more highly impacted by the Russian Invasion than COVID-19. Commenting on the situation, the representative said it was easier for them to get through COVID-19 restrictions as most of the work was already done virtually, however, since the initiation of the War, they’re not providing any services to their Russian clients anymore. Being also a B2B company, the 1oT clientele and partners are Telecommunications companies, therefore, the business deals getting closed does make sense due to the sanctions being imposed on Russia. However, at the same time, the company mentioned that there were other opportunities that opened up, specifically the “cold chain (temperature monitoring) solutions growing in a huge number. Upon raising the questions about the geo-political behavior, the personnel although not very specific about their views,

were able to mention that there has been a certain impact on their business strategies. Thus, they're opening up new markets and closely monitoring the changing situation as they're working in the domain, where technology itself is always changing and geopolitical changes are an added issue. Lastly, discussing the plans on how to tackle these situations in upcoming recessions and the impacts of the War, the company's respondent was hesitant to share any specific plans or outlines, however, they did make remarks about expanding the business to the U.S. and central European countries where the business has less chances to suffer from the changing situations, in return, providing more opportunities, and getting to work in a sustainable and safe environment.

Our research has shown that companies seeking international growth must adopt a range of strategies to succeed. Firstly, businesses should consider becoming their own supplier to enhance their supply chain capabilities, at least in the case of businesses related to Information Technology that are self-dependent. Additionally, it is important to have diversified suppliers and customers to reduce the risks associated with dependency on a single partner. Embracing digitalization in operations is also crucial, enabling businesses to improve efficiency, reduce costs, and stay competitive in the global market. It has been found that it is advisable to refrain from making long-term business plans associated with the countries having a risk of unstable political environment, thus resulting in sanctions. Also, several businesses have suffered setbacks as their factories or certain partners associated with China were disrupted by the Covid-19 pandemic, while the ongoing conflict in Russia and Ukraine has also impacted the firm's production and internationalization.

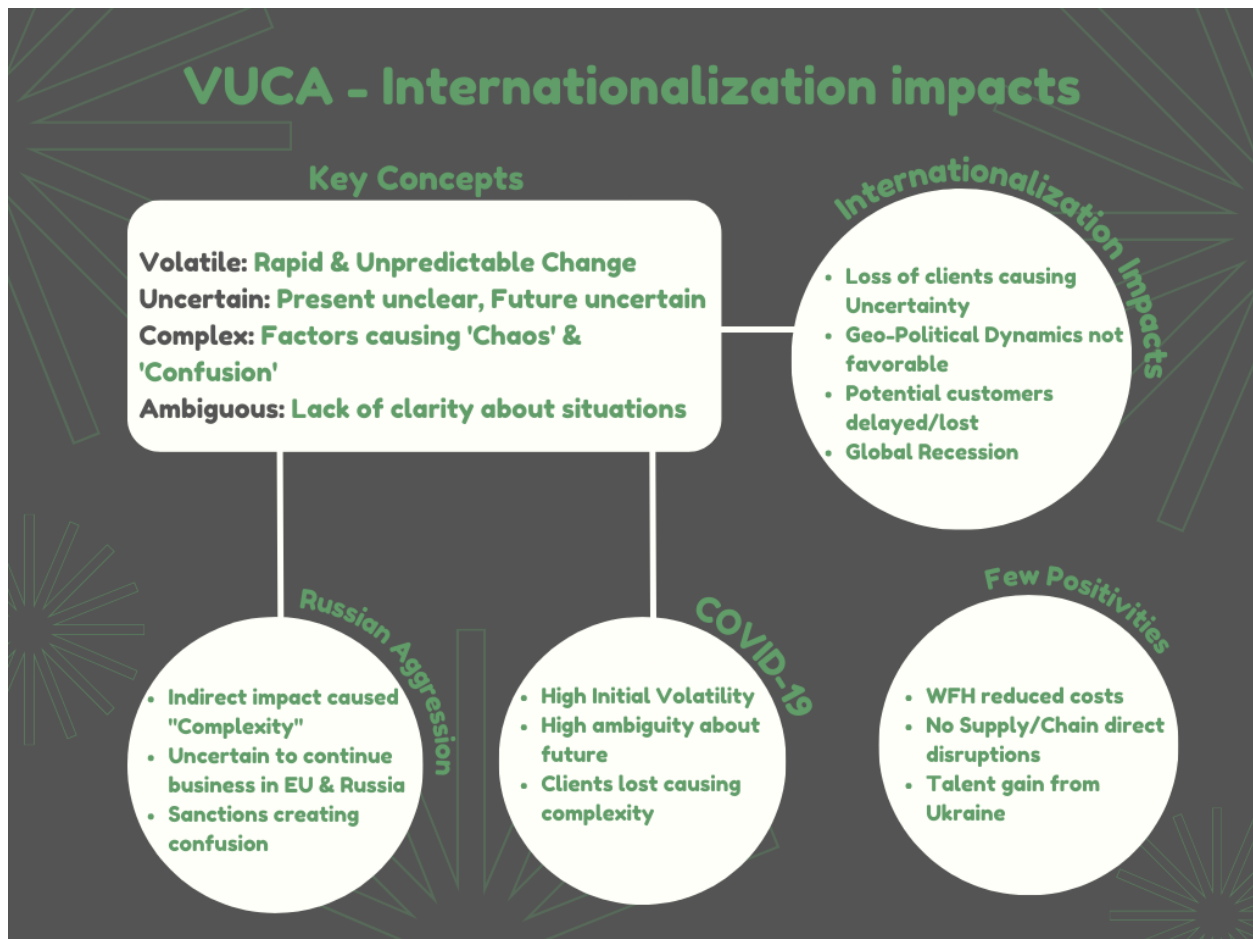
Table 3: Comparison of impact levels of COVID-19 & Russian aggression to 3 IT companies

Company	Location	COVID-19	Russia-Ukraine War	Political Climate	Economic Recession	Future Plan Changes
Machineric	Estonia	Medium	Low	Medium	High	High
Apromore	Australia	Medium	Medium	High	High	High
1oT	Estonia	Medium	High	Medium	High	Medium

The results deduced from the interviews are discussed with their impact level in Table 3 and entails that all the three IT companies had different experiences during these global events

on a larger scale, however, on a micro level, they were all affected somehow. As we can see that all the companies were relatively not much affected by the COVID-19 pandemic being still in business, however the Russian aggression toward Ukraine had adversely impacted one company, leaving the other two less impacted. This explains that the current issue has been even more devastating for some IT businesses as they had either direct or indirect clients in the affected countries. This leads us to the next important factor which is the political climate and the stability, as we interpreted from the interviews that the Economic Recession, that emerged after the advent of these two events had a “High” impact on their growth. Also, the changing political climate also impacts the organization's capabilities and sometimes, forces them to prepare for the worst.

Figure 2



Note: Figure 2 illustrates the relation of discussed events to VUCA and the impacts on the Internationalization of firms

As it is visible in Figure 2, the IT firms might not be impacted directly by the global pandemic i.e. COVID-19 and the Russian aggression to Ukraine, however, this has increased the unpredictability of the future and have created a highly volatile environment. These events have also shaped the business expansion plans of these organizations since they fall into the category B2B companies, therefore the customer base is not retail but other organizations, which are and can further be impacted by the war, indirectly affecting the three companies under discussion. Directly supporting the key arguments made by (*Taskan et al., 2022; Grzybowska & Tubis, 2022*), that currently, companies operate in a highly unpredictable environment and therefore, it is very difficult to predict the future. This also supports the opinion shared by (*Sammarco et al., 2022*), that companies associated with digital technologies are quick to adapt to changing circumstances, provided the fact that both internal and external environments are analyzed continuously. (*Minciu et al., 2019*)

Therefore, the two key takeaways from these interviews were as follows:

1. The ongoing pandemic events can impact an organization, however, the aftermath is even worst i.e. Economic Recession.
2. In order to survive, companies have to change their future plans, no matter what the results are.

6. Conclusion

The main aim of the research here was to find out the effects of the two recent events in the world that have shaped businesses. We strived to find these implications by studying the existing literature that portrayed information about the effects of COVID-19, and vice versa for the War in Ukraine. However, it is to mention here that the Russian aggression toward Ukraine began in 2022, therefore the literature was not present in abundance as it was for COVID-19. This thesis work is also done to aid the gap that exists.

While discussing the literature, some key points were highlighted that drastically impact a firm's strategies to Internationalize its business. The global business, although established, has strong plans and visions, however a pandemic or a war can highly impact, reshape as well as change their course of action completely. We have reviewed how the risks are associated during the internationalization process and how resiliency, being the response of a firm, can help us measure how a company withstood or is capable of withstanding in the future.

Then we discussed how COVID-19 disrupted the global economy and supply chain, by bringing almost a halt to the businesses and international trade. The pandemic led to the work culture that was shifted from an “on-site” to a “remote-based” as people were in a state of lockdown. The pandemic led to widespread quarantines, border closures, and lockdowns in many countries, resulting in a loss of revenue, increased costs for remote work, and reduced consumer spending. The existing research also indicated that this was productive for some organizations however, the overall global impact was high, causing loss to many businesses and their operations. As companies had to increase their expenditures to ensure the health measurements and safety regulations, this was an added issue for many businesses as they were not ready for it. The existing research also indicated that those companies who were able to adapt to new changes in culture and who successfully modified their business strategies by carefully planning the future steps were able to manage their businesses at a successful pace in contrast to those who didn’t change within time.

Now, while the world was just recovering from the aftermath of the COVID-19 pandemic, Russian aggression was initiated. This was especially endangering the EU and the allies since they are directly bordering Russia as well as its allies. In response to this, Sanctions are economic or other measures imposed by one state against another to change the targeted state's behavior, but they had negative effects on multiple organizations operating in Russian territories. This also increased inflation in countries having small economies such as Eastern European countries. On the other hand, the EU stock market has been heavily impacted by these sanctions. According to the research, it was found that the most impacted sectors were Energy and Food. In terms of performance, the European energy companies outperformed their Russian counterparts due to sanctions, however, these were just initial results.

The current literature also presented a gap where the impact of the latest war events on technology companies has not been completely assessed and since it has been a while since the pandemic, not the threat, it was interesting to see how the technology companies are performing. Therefore, we interviewed 3 technology companies, focusing on B2B business patterns, and discussed the impacts of these events on their businesses. The results are surprising that the companies were able to survive the pandemic itself, however, it was difficult to withstand the aftermath. While mentioning that COVID didn’t impact the business much, the War was a major turnover for the organization operating directly within Russian territories as

they lost the business due to the sanctions imposed. Therefore, the global political climate has also been emphasized to be a major variable by these organizations, as it is necessary for it to have a positive value in order for a business to flourish. Lastly, it was concluded that in recent years, it's a chain of disruptions that are observed, therefore in order for the businesses to survive, there is a need for political sustainability as well as high adaptability required from the organizations and their managers.

This also provides us a baseline for the future research to be conducted as to what patterns can be significantly adapted by these businesses in order to sustain and thrive in the circumstances of sanctions and also, considering a B2B centric organization, what can be done when the business is not directly but indirectly being impacted.

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Appendix A

Interview with Machineric - Transcript

Q1: Could you please describe how the firm has internationalized, when and which markets it entered?

The company itself was launched at the end of 2020. The first customer we onboarded in 2021. And this customer was from Estonia. In Autumn of 2022, our first international customer joined us. It was from Sweden. Currently we have customers in Estonia, Finland and Sweden.

Q2: How have Covid-19 and Russia's attack on Ukraine impacted your business's plans for international integration?

Covid hasn't changed anything for us for international sales. But in general, due to the Covid, due to a cheap shortage on the market, the factories were closing down and shipments didn't go through. As we started to build our software and services for used machinery sellers, then at the time when we launched our product, many of the companies which are using the big stock of used machines, like 100 machines, only have 5-10. In this way Covid has impacts on us but not for internationalization.

War has not very much of an impact on us. Of course after the war, we didn't want to offer our services to the Russian Companies, but that was also not our main target. We didn't focus even before the war on Russian Markets.

Q3: In what way does the current state of the world-wide pandemic and conflict scenario affect your business?

It also affected us because new machines are not manufactured at the speed that they usually are. Therefore they used machines when there was very high demand.

We didn't focus even before the war on Russian Markets. In that way it didn't affect us, but of course it might affect our strategic plans which markets to go to. Not exactly Ukraine, because Ukraine is mostly buyers markets in the coming years. But countries close to Ukraine, all Eastern European countries, we offer them our products and they can sell to Ukraine. Of course Ukraine is prioritizing Ukrainian language in our Software.

Q4: How did these events have impacts on your company's relations with foreign suppliers?

We are currently considering outsourcing developers from Ukrainian IT companies. But it is not related to war, we order from them, because they offer good services. Our suppliers are mostly from Estonia.

Q5: How did these events affect your company's sales in the global market?

No Answer

Q6: Do you think Covid-19 and the Russian invasion of Ukraine have affected consumer behavior in foreign markets? If so, how have your tactics changed?

No Answer

Q7: What effects has the political environment had on your business' capacity to grow internationally?

I wouldn't say it has affected. All the sanctions and Russian friendly countries, we rather keep out of there. We rather work in countries which are not in the sanction list.

Q8: In these circumstances, did the governments of the countries where your company works support you? Did your government support your company?

Not at all, honestly any support isn't needed.

Q9: What role has technology played in helping your company adapt to the challenges posed by Covid-19 and the Russian invasion of Ukraine?

Due to Covid there have been rather positive impacts, because more people are using online sales meetings. Before covid, a lot of businesses had face to face meetings. But now most of them are online and I think it is the only beneficial thing. You can do business with more people

Q10: How well does agility help companies to respond to the situations?

It didn't have an impact on us.

Q11: What did you do to be resilient against these events? Could you give some examples?

Nothing, because everything is online and employees are okay to work from home. It is totally okay and I think if another Covid were to hit, it would not harm us. It will be beneficial, because we are selling software to the old fashion industry. It will push them to be online, to do their work online not with traveling

Q12: Does it reduce your expenses?

Yes, definitely, I can't compare our business before the Covid. We started during the Covid. Maybe if you have face to face meetings you can close the deal, I am not sure, maybe it would be beneficial. Of course industry events are important which are face to face.

Q13: In a world after a pandemic or invasion, how do you see the role of internationalization changing, and how does this affect the business plan of your company? Do you have any strategy?

No, we are all online and this is good and not a special strategy. If war would come to Estonia, many people would go to Sweden and work as before.

Q14: What would you suggest to other firms' managers to become more successful?

Don't do business with Russia. Many equipment manufacturers cut hits, because their factories or some parts are coming from China and due to Covid they were not coming anymore, due to war , factories in Russia and Ukraine were affected. So it rather support your own country's economy, order everything from close, or countries that have democracy.

Appendix B

Interview with Apromore

Speaker - 1

Okay, thank you so much. So we have Professor Marlon Doomas here. And we're going to discuss internationalization and the impact on this process due to the war in Ukraine and also the COVID-19. So, I will explain the questions and you can answer your thoughts. And also if you do not feel like answering some particular question, or you do not want to answer it in an evaluation, you can just skip it as the interview will be recorded. And today is 10th, April 2023. And the time is 1:34pm. So, we will start with the first question, which is, can you explain, explain a little bit about your company just in a nutshell.

Speaker - 2

So, yeah, Apromore is a software company, we develop our software product by the same name of Apromore. And that software product allows managers and business analysts to analyze data from their enterprise information systems like ERP or CRM systems, and understand their business processes and improve them. So our customers are a b2b market, and our customers are primarily large, large organizations, say 1000 plus employees at the very minimum, who have very complex processes across many departments and need to continuously improve those processes.

Speaker - 1

Understandable. All right, I'll go with the questions now, which are related to the research. So could you please describe how the firm has internationalized, internationalized when and which market it has entered since its initiation.

Speaker - 2

So the company was created in September of 2019. And, since the beginning, its first customers were in Europe. But the company says we're headquartered in Australia. And we started getting customers in Australia already, during the pandemic. So that's kind of a form of internationalization. And, the company has continued to expand into more countries in Europe, as well as Japan, and recently about a few months ago into the US.

Speaker - 1

That's very good. That's very good to hear. So can you point out exactly how COVID-19 I mean, we explained earlier that the internationalization was very good there. But can you explain a bit more about how the COVID-19 and Russia's attack on Ukraine has impacted the business plans of international integration?

Speaker - 2

Yeah, I think that a COVID lock down had clearly a bit of lengthened the decision cycles in companies, because companies were a little bit cautious for at least a year to a year and a half to the pandemic, and kind of postponing decisions into purchasing software that they perceive not to be extremely critical to their operations. Okay. And in the case of a product, which is, like you said, it's good to have, because it allows you to improve processes, but it's not like impact, the direct impact is an immediate impact on operations. So, then clearly, we were in a category of software, where the sales cycles became much slower due to the pandemic. And that led to a series of delays in, in the business plan. It probably also created some delays. Also, in terms of our fundraising our Series A and later into our series B. The word crane kind of did have a certain effect, particularly in Europe. And we did have some concrete cases of customers who had an open request for proposals so they weren't going to buy okay, you had to cancel the RFPs explicitly because of the uncertainties around the word crane and who basically even until now, I'm not reopen those RFPs Okay. However, I think it's a minority. It's not, it's not the majority of customers but a minority of customers. in industries that were perhaps a little bit more directly affected by these, so industries, for example, around the food industry, which were sourcing directly from Ukraine and or Russia, A, or ordering the, let's say oil and gas industry, stuff like that. So, those industries were directly impacted, and not every customer.

Speaker - 1

Understandable. Thank you so much. Okay, so my next question is that in what way does the current state of the worldwide pandemic and the conflict scenario impact do you think in the upcoming years, because the pandemic is still going on? It's not completely over. And also the conflict between Russia and Ukraine, we think that it's going to impact in the upcoming years or so. Do you foresee any future?

Speaker - 2

We don't see any more impact of COVID. We don't say that advice in any way in any sales conversation. We do see perhaps some impact from the war in Ukraine to the sales cycle, that's the reason for uncertainty to postpone decisions. It's moving more and more from the Ukraine war to recession. Yeah, right. Yeah. So it's kind of hard to transition from, from one excuse to another, let's say to kind of reopen RFPs or to open new work requests for proposals. So it's, it's, it's ongoing, and it has more fit from war in Ukraine to recession. And of course, this is likely to stay with us for at least another quarter or couple of quarters ahead. And so general, they say the slowdown in the in the sales with respect to what we had planned, it's kind of still going on, it's been a series of things because pandemic, then perhaps when things were recovering, war in Ukraine, and and perhaps when things were recovering from war in Ukraine recession, it kind of has been like the timing has been incredibly bad things connecting sequentially with one after the other. It's really, the sequential nature of things, the problem and not each of these three individual things.

Speaker - 1

Got it. Okay. So, in this old situation, do you think that if you have changed your tactics somehow, because you mentioned about the RFP, some of those have been closed? Some companies have said, No. So do you think that your sales target or your housing present those things have n't been changed?

Speaker -2

Yeah, well, we have, we have, for example, we defined our series B strategy, which would change the series B, towards October of last year, our series B strategy was kind of already impacted by they took into account the series of events and kind of tried to focus on certain verticals and or certain or industries and also can geographies. So there's a strong focus in our current plan on its own entering the US market, as we perceive it to be a bit less impacted by this use of events with respect to orders keeping growing our Australian market, which is also was very heavily impacted by COVID lock downs, but has been much less impacted by war in Ukraine and recession. And, and then trying to conservatively continue to develop our European market, but not Not, not not as being the primary target in this year. So that's basically where we are and, and trying to focus vertically on certain industries. So we had only made a little bit of a bet in banking insurance plus a, telcos cause, like, industries that supposedly were less affected, okay, yeah. But then comes the banking crisis in a way which we hope is not going to expand that further, because then that will have, again, an effect on our strategies. We were betting on Banking, insurance, telcos and utilities being more or less impacted by all the series of events and, and for the time being, it's working, but everything. Things could change. Of course,

Speaker - 1

yeah. Things have been changing quite radically in the past

Speaker - 2

a couple of years. You wouldn't have thought in a way or we wouldn't have preempted back in October that banking and insurance could be affected this way. As of particularly parking, because insurance is not really effective, things are working pretty well in the insurance

Speaker - 2

industry that and especially how the Switzerland bank courtship,

Speaker - 2

that has been, of course, terminated, all the banks, even those that are not directly affected makes it much more cautious.

Speaker - 1

Yeah. Yeah. Thank you. So one of my other questions is that it's about the political environment. So whenever you start a business in one country, there's always a political environment that you have to face in the laws in the local government, by that of those countries. So when you expand, there is also a political environment there. So during these two major events that have been there, the COVID-19 and Ukraine invasion, how has the political environment been for your business?

Speaker -2

Yeah. Yeah, there have been some effects from political environments. And I'd say this is very focused on COVID. But there have been some other friction points that are perhaps less visible, for example, even a few months before COVID, there was a little bit of a trade spat between Australia and China, there has also been a straight spat between US and China for several years already. Right. And, and then a plus COVID, supply chain disruptions. And actually, that has impacted quite a lot of companies, particularly companies that were selling to China. And, and, of course, we're where all these tensions have, have lowered the demand for the trade. So I think that this data has had some impact. So we have had cases of companies that stopped sales conversation, because they had been impacted by a trade spat with China, or they had been impacted by supply chain disruptions resulting from COVID in China. We used to be having some sales conversations with large Russian companies and that had to be stopped as well, yeah. A and we clearly there has been the word in a way that our addressable market has, has not rolled out and as a result of that, so it's not like China is not over the map or Russia is no longer on the map. Some companies that were trading with Russia or China have been in Western countries that have been trading with Russia and China have been impacted as well. So clearly a little bit affected has had some ripple effects that have affected directly our sales pipeline. Okay.

Speaker - 1

So your company has also been impacted indirectly by this?

Speaker -2

Yes, directly, you know, some are being canceled, postponed, sales, conversation being postponed, etc. But also indirectly, in a way some companies trading with Russia or getting raw products from Ukraine or Russia or from China, or selling into China or selling it to Russia are also impacted by having a little bit of an effect on us as well.

Speaker - 1

Understandable. Understandable, thank you. So, in these circumstances, the government of the country is where your company has been working. So how have they been supported? supporting you and the business? Do you think has there been any support or

Speaker 2

So our company is headquartered in Australia? And yes, we like any Australian company, we've received some COVID support Okay. As you know, to be able to maintain our economic activity, so that we do not let people go etcetera, downsize in time. So, so, there was some, some help only related to COVID door No, not related to Okay, war in Ukraine and Recession, just very purely pandemic related,

Speaker -1

All right, thank you. So, also in these two events, we actually understand that technology has played a very huge role in the COVID-19. But can you explain a bit how exactly it has helped you? Or how have you, how has this technology been useful for your company to maintain operations, and also, not only during the COVID-19, but during the Russian invasion of Ukraine. So if you can form the Russian invasion part, I will explain it a bit more that like, has there been, there has been some RFPs that have been canceled, as you mentioned. So what do you think if technology could have created a better space, for example, bitcoins and some other currencies, which are not sanctioned by the European Union or some other countries?

Speaker - 2

No, I don't think that it wasn't a technology issue in any way. All the decisions companies have taken to postpone sales conversations have been purely on business grounds purely on economic uncertainty grounds. Okay, so I don't think that any piece of technology will save us here. It's really about human psychology and okay, and reaction here. And,

Speaker - 1

yeah. So during the COVID-19, even, do you think that was the technology?

Speaker - 2

No, it was not the technology. We had, perhaps a bit of an impression, but not necessarily grounded on data, that, in the first couple of months of the pandemic, people were kind of still adjusting to working remotely. Yeah. So that was what I really felt in terms of like, there was also a hope that, you know, things will go back to normal and people will go back to the office, and we'll be able to travel and meet in person. But that may only last for about one to two weeks.

So it was not sufficiently long to, to even get enough data to nail it down. And, and then very quickly, I guess, after one month and a half of the pandemic, things adjusted, and those companies that did want to continue sales, continued sales conversation remotely, without any, any issues, it also we did not have any disruptions in our working. Also, because we are a software company, and there was a lot of cultural radio for remote work. In fact, it turns out that we did not have an office during COVID. Okay, because we had a temporary shared startup workplace, I wish we had had to give up just before COVID Coincidentally, and our workers work remotely and have already recovered. So nothing changed for us right back to where we were, except that we were able to postpone moving into an office by like, a year. We were an entire year, we were planning to be like six months with our office and because of COVID ended up being more than a year and a half without office.

Speaker - 1

Understand. Thank you. So, just a couple of more two, three more questions. So, do you think that yeah, so, if you can give some examples that if such events happen in the future, how exactly do you see your company will be able to withstand and how will we be resilient in these events.

Speaker - 2

I think that the main thing for us will be that there is some economic certainty so solid that companies are more willing to invest because a lot of what they do with us is really long term investment, like they they buy our product to start analyzing the processes, so that they can make improvements that have effects over a period of six months, 12 months, one year, two years. So, they do a lot of upfront investment both in terms of the software licenses, but mostly even in terms of people in the organization being hired or being redeployed to analyze processes using our tool and that is an is an actual investment as far as the companies are concerned and and then they end with a potential return on investment of like from several months to possibly several years really to see the fruit of it coming out. And then for that kind of timeframe, people complex need to have more certainty of course, and of course, the interest rates are reasonable, because otherwise the cost of money is very high and otherwise more difficult to achieve.

Speaker - 1

Got it. So, basically the economic stability, the financial stability of the overall the world is like very

Speaker - 2

Absolutely yes, the markets that we address, which is like Australia, Japan, Europe, US also. So, instability will do a great deal of good in terms of getting companies again to think long term and to be able to do the kinds of investments they do using software like ours.

Speaker - 1

I agree with that. One more question, which is what would you suggest to other firms to be resilient in these sorts of events and what would you suggest to them to become more successful? In case of these unfortunate incident to happen,

Speaker - 2

no, I don't, I will refuse giving any advice or trying to make any statements of truth in this matter. I think things are very unexpected, and companies need to be ready to adjust. Okay. as they go along that is part of the business. Is highly adaptable to change.

Speaker - 1

That, I guess, is advice. And so, yeah, so in a pandemic, or invasion, how do you see the role of internationalization changing? And also, how does this affect the business plan of your company? So since this has been ongoing, like you said, there's like a third event, which is the International recession. So how do you see that internationalization of companies is changing?

Speaker - 2

Companies need to make, I think their business plans with respect to the available resources, the timeframes, their capacity, the type of product and the type of markets they are, I don't think that internationalization is a goal on its own. But it's like, it's, it's a way is, it's, it's a way of getting to your goals and not a goal. So So, so, we are international, but we have not done it. In a way it has not been our goal. We have never had a KPI to internationalize. We have never had explicit say who would like to sell there. So, we have been driven by where the market opportunities are. And if that means internationalizing further we internationalize further, if that means investing more into our existing market that makes the best import or to the market. So I don't think that internationalization should be an end or a means to an end. And, and I think that COVID Or not COVID The war in Ukraine or No War, it stays the same, you know, internationalize as a means to get to your business goals.

Speaker -1

Got it. Yeah, this will be all for now. So, thank you so much for your time. I will conclude the interview here. Thank you. Thank you

Appendix C

Interview with 1oT

Q1: How have Covid-19 and Russia's attack on Ukraine impacted your business's plans for international integration?

-The impact to our sector was probably not as big as to other sectors. 1oT deals strictly with B2B cases, where we act as aggregators of connectivity service. We offer a connectivity solution to our customers who in return offer something to the end customers. We are not serving any Russian companies anymore, and the Covid-19 situation meant that we had to work from home, however it did not impact us on a large scale.

Q2: In what way does the current state of the world-wide pandemic and conflict scenario affect your business?

-The current state of the world-wide pandemic and conflict means that we are no longer serving Russian business entities. The pandemic does not really impact our business, I would say that to some degree it might have even benefited us. There are a lot of "cold chain" (temperature monitoring) solutions out there, that during COVID started rapidly growing. Since all these temperature monitoring companies need connectivity, we could provide it to them.

Q3: How did these events have impacts on your company's relations with foreign suppliers?

Neither of these events impacted our relations with foreign suppliers since they are big chip manufacturers in Latin America and in the Middle East.

Q4: How did these events affect your company's sales in the global market?

-Our company's sales were hit due to not catering the Russian businesses any longer, but like mentioned earlier, we did benefit from the COVID-19 crisis a little bit.

Q5: Do you think Covid-19 and the Russian invasion of Ukraine have affected consumer behavior in foreign markets? If so, how have your tactics changed?

-We are not seeing any massive change in consumer behavior. We are strictly dealing with B2B sales and that means we are not really in contact with the end customer and consumer. Since our customers are from more than 100 countries, it is difficult to say what the exact impact was. One possible thing we have noticed is that customers who were hit hard by COVID are being more careful with what they are looking for.

Q6: What effects has the political environment had on your business' capacity to grow internationally?

-The political environment definitely has an impact on our business. Although we are unable to provide service in one part of the world currently, we are seeing other emerging markets as a result of that. Business has not decreased, rather we are growing year by year due to the quantity of options that have become available for us.

Q7: In these circumstances, did the governments of the countries where your company works support you? Did your government support your company?

-We have no contact with the local governments in any of the countries we operate in. Our service can be used in 190 countries across the world, however our business is based on a reselling model. That means we are buying in a service from our partners, and reselling it with

our own VAS on top. The rules and regulations that are put in place by our partners are the same ones we abide by.

Q8: What role has technology played in helping your company adapt to the challenges posed by Covid-19 and the Russian invasion of Ukraine?

-We are working in a sector that is constantly changing. Our team is used to working from home, in the office as well as from different parts of the world. Even before COVID we had already taken these steps to futureproof.

Q9: How well does agility help companies to respond to the situations?

-We have a collective mentality in IoT, which means that people take actions wherever necessary and make calculated decisions together if necessary. We all wear multiple hats at the company and that means we are used to facing challenges and solving difficult issues on the spot.

Q10: What did you do to be resilient against these events? Could you give some examples?

Since a large number of our business is done over the internet and with virtual calls, this phenomenon did not affect us that much. The only pain point is when people get sick, and you need to replace these valuable people in the team for a period of time. Luckily our team works closely with each other and we are able to cover each other's tasks for a short period so no big impact was noticed.

Q11: How do you see that your company's overall agility has changed during the past year?

With new additions to the team, we have become much more flexible and we are able to cover more ground. Offering a global connectivity service with a limited number of people is a challenge, and we have gotten good at time management and task prioritization. We are looking at expanding outside Estonia, to be able to offer closer support to our US and central EU customers, which in return should open up more ways for doing business.

Q12: In a world after a pandemic or invasion, how do you see the role of internationalization changing, and how does this affect the business plan of your company?

-Since the world is opening up more, we will try to be present at more Industry events and have more face to face meetings with potential customers and current partners. Having in person meetings can greatly improve relationships and create potential new business.

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