University of Zagreb - Faculty of Economics and Business
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TRADE PERSPECTIVES 2021

International trade in a post COVID-19 world

PERSPEKTIVE TRGOVINE 2021.

Međunarodna trgovina u post-COVID 19 svijetu

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Tomislav Baković
Dora Naletina
Kristina Petljak

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FOREWORD

This publication was the result of international scientific conference “Trade Perspectives 2021” held at the Faculty of Economics and Business University of Zagreb, Croatia. The conference has been taking place annually since 2010, and every year the focus is placed on the selected relevant topic from the area of trade. Due to the unexpected COVID pandemic crises, which reviled how vulnerable people, countries, supply chains and economies are, this year the conference is exploring the international trade in a post COVID-19 world. On the Conference, the various aspects and impact of COVID-19 pandemic on international trade will be discussed. Conference Proceedings of previous years are indexed in EconLit and JEL and this year will be submitted for indexation as well. Papers are topically oriented to the three Conference streams: Impact of COVID-19 on economic activity, COVID-19 Disruptions and Other COVID-19 related topics.

In the stream Impact of COVID-19 on economic activity, authors investigate impact of COVID-19 on economic security of the Republic of Croatia, as well as impact of COVID-19 on international trade, importance of electronic commerce during COVID-19 pandemic. Furthermore, authors investigate the growing importance of certification in the tourism and retailing in a post COVID world and the impact of COVID-19 pandemic in the workplace, a case study of the Republic of Kosovo.

In the stream COVID-19 Disruptions, authors investigate adapting business strategy and operations to the COVID-19 distruption, acceleration of supply chain digital transformation, efficient B2B account-based-marketing response for COVID-19 time and beyond, managing the supply chain risks caused by the COVID-19 pandemic, the impact of COVID-19 on the organizational resilience and the privacy imperative in the post-pandemic world.

In the stream Other COVID-19 related topic, authors investigate adaptive foreign exchange market, innovations in multinational business, such as product innovation and business model innovation in multinationals and the associated challenges, optimization of public procurement system by using thenew mathematical model when selecting the most economically advantageous tender and the role of crisis communication in maintaining business continuity.

The organization of “Trade Perspectives 2021” Conference and the issuing of this Publication have been supported by the Faculty of Economics and Business, University of Zagreb the Croatian Chamber of Economy. We would like to thank them for their financial and organizational support!

Zagreb, 25 November 2021

Editors

Tomislav Baković, PhD
Dora Naletina, PhD
Kristina Petljak, PhD

PREDGOVOR

Ova publikacija nastala je kao rezultat međunarodne znanstvene Konferencije "Perspektive trgovine 2021" koja se održala na Ekonomskom fakultetu Sveučilišta u Zagrebu, Hrvatska. Konferencija se kontinuirano održava jednom godišnje od 2010. godine, a svake godine fokus stavlja na izabranu relevantnu temu iz područja trgovine. Obzirom kako je COVID-19 pandemija pokazala koliko su osjetljivi ljudi, države, opskrbni lanci i gospodarstva, fokus ovogodišnje Konferencije stavljen je upravo na proučavanje međunarodne trgovine u post-COVID svijetu. U sklopu Konferencije razmatraju se različiti aspekti utjecaja COVID-19 na međunarodnu trgovinu. Zbornici radova iz prijašnjih godina publicirani su u bazama EconLIT i JEL, a i ove godine će Zbornik biti poslan na indeksaciju u navedene baze.

Radovi su tematski orijentirani na tri područja: utjecaj COVID-19 na gospodarsku aktivnost, poremećaje izazvane pandemijom i ostale teme povezane sa COVID-19.

U sklopu proučavanja utjecaja COVID-19 na gospodarsku aktivnost, autori istražuju utjecaj COVID-19 na gospodarsku sigurnost Republike Hrvatske, kao i utjecaj COVID-19 na međunarodnu trgovinu i važnost elektroničke trgovine tijekom pandemije COVID-19. Nadalje, autori istražuju rastuću važnost certificiranja u turizmu i maloprodaji u svijetu nakon COVID-a i utjecaj pandemije COVID-19 na radno mjesto na primjeru studije slučaja Republike Kosovo.

U području poremećaja izazvanih pandemijom COVID-19, autori istražuju prilagodbu poslovne strategije i operacija u opskrbnom lancu, ubrzanje digitalne transformacije opskrbnog lanca, učinkovite marketinške odgovore, upravljanje rizicima u opskrbnom lancu uzrokovano COVID-19 pandemijom te utjecaj pandemije COVID-19 na organizacijsku otpornost, kao i imperativ za privatnošću u svijetu nakon pandemije.

U području Ostale teme vezane za COVID-19, autori istražuju prilagodljivo devizno tržište, inovacije u multinacionalnom poslovanju, kao što su inovacije proizvoda i inovacije poslovnog modela u multinacionalnim kompanijama i povezani izazovi, optimizacija sustava javne nabave korištenjem novih matematičkih modela pri odabiru ekonomski najpovoljnije ponude i ulogu kriznog komuniciranja u održavanju kontinuiteta poslovanja.

Organizaciju Konferencije "Perspektive trgovine 2021" te izdavanje ovog Zbornika podržali su Ekonomski fakultet Sveučilišta u Zagrebu i Hrvatska gospodarska komora.

Hvala im na financijskoj i organizacijskoj podršci!

Zagreb, 25. studenog 2021.

Urednici

Izv. prof. dr. sc. Tomislav Baković
Doc. dr. sc. Dora Naletina
Izv. prof. dr. sc. Kristina Petljak

CONTENT / SADRŽAJ

I. IMPACT OF COVID-19 ON ECONOMIC ACTIVITY

II. COVID-19 DISRUPTIONS

III. OTHER COVID-19 RELATED TOPICS

IMPACT OF COVID-19 ON ECONOMIC ACTIVITY

IMPACT OF COVID-19 ON ECONOMIC SECURITY OF THE REPUBLIC OF CROATIA

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Abstract

This paper aims to analyze the impact of the COVID-19 crisis on the economic security of the Republic of Croatia. The state of affairs known as the COVID crisis began in the Chinese city of Wuhan, where the COVID-19 virus first appeared. As the virus progressed, the Chinese started establishing quarantine and de facto prohibiting people from moving. The first country in Europe to declare quarantine was Italy, on March 10, 2020. After Italy, other European countries did the same, and so did the Republic of Croatia as well. The introduction of lockdowns has led to a decrease in economic activity, followed by a decline in gross domestic product across the EU. Due to the COVID-19 pandemic, Croatia's real GDP trickled down by 15% by the end of the second quarter, the biggest drop of the quarterly Croatian GDP in existence. The pandemic has had the most significant impact on transport, food processing, and service industries such as shops, cafes, restaurants and accommodation and tourism services. In terms of security, the pandemic is primarily a public health problem with long-term repercussions on the economic welfare of the Republic of Croatia.

Key words: COVID-19, Republic of Croatia, economic security, GDP, lockdown.

1. INTRODUCTION

At the end of 2019, a yet unknown virus called SARS-CoV-2 appeared in the Chinese city of Wuhan. Scientists quickly determined that it is, in fact, a new strain of the previously known virus, which was also first found in China in 2002 (Ropac et al., 2020). The severe acute respiratory syndrome virus was first found in Guangdong Province, China, and spelled severe or atypical pneumonia. Among the first infected people was a chef from the city of Shenzhen, who worked in an exotic restaurant that mainly served wild animals. The main symptoms of infection were: muscle pain, fever, cough and fatigue (Kuhar and Fatović-Ferenčić, 2020). SARS-CoV-2 virus mainly spreads in three ways, namely by sneezing, coughing, and speaking. Due to the rapid spread of the SARS-CoV-2 virus, the World Health Organization declared it as a pandemic threat on 11 March 2020.

The first case of infection in the Republic of Croatia took place on February 25, 2020. After the first case, sporadic cases of SARS-CoV-2 infection were still occurring, but a more severe form of the pandemic affected the Republic of Croatia in the second half of April 2020 (Ropac et al., 2020). It is appearant that the SARS-CoV-2 pandemic virus is not only a health problem, but also a problem tightly connected to safety and economic sustainability. According to Bilandžić (2021): "the COVID-19 pandemic is not only a health and medical problem, but above all a security one, a matter of national and international security" (Bilandžić, 2021, p.17). In the case of the Republic of Croatia, the COVID-19 virus pandemic presented the biggest challenge since the Homeland War took place.

The aim of this paper is to explore how the pandemic affected the economic security and prosperity of the Republic of Croatia. Hence, the aim of this paper has also been incorporated

into the research question, which asks how the pandemic affected the economic security of the Republic of Croatia and how these influences can be absorbed. The scientific contribution of this paper is reflected by providing an extensive elaboration of how one infectious disease can paralyze the whole world and affect all segments of society: from economy to security. Both primary and secondary data sources were used when writing the paper itself, combining existing literature's views with own evidence.

The first part of this paper will tackle the terms of economic security and the context in which the COVID-19 pandemic operates in. In chapter 3, health impacts of the pandemic in the Republic of Croatia will be given insight to, following with more extensive economic analysis of the pandemic's impacts in chapter 4. Finally, the paper will be finished with a summary and conclusory remarks stated in chapter 5.

2. ECONOMIC SECURITY

The concept of economic security is a relatively recent area of study and was not incepted until after the end of the Cold War. During the Cold War, greater attention was focused on traditional concepts of security and less on the economic security issues. With the end of the Cold War, there came a complete redefinition of the concept of security. The main reason was the collapse of the USSR and the victory of liberal democracy and market capitalism. Thus, states were no longer competing on the political-ideological front, but on the economic one. The latter asking: which state can prosper the most in the then-modern framework of a market economy (Dent, 2010)? Economic security can be analyzed in one of two possible ways. The first is the so-called micro-level way, which encompasses the economic security of individuals, households, the local community, with its main task being the survival of these entities. The second, also dubbed the macro-level, deals with entities that must be capable of conducting foreign economic policy, and these are national states (Dent, 2010).

The fact that the concept of economic security has gained importance is evident from the Clinton administration's 1997 report. One of the main goals of the Clinton administration was to increase American economic prosperity by means of increasing the effective use of diplomacy and armed forces (Dent, 2010, p. 235). The aforementioned concept of economic security is no longer a matter of just one of the "new sectors", say, for example, the al Qaeda's attack on the United States. According to the work of Bilandžić (2019), the Al Qaeda terrorist attack on September 11, 2001 on the World Trade Center and the Pentagon cost the USA somewhere between $300,000 and $500,000. Moreover, direct financial losses from the terrorist attack amounted to nearly $100 billion for the US making the States lose nearly 1.8 million jobs in the process (Bilandžić, 2019, p. 197-198). The current economic crisis was initiated by the COVID-19 pandemic, which also served as both a healthcare and an economic problem in the States too.

After the discovery of the virus in China in early December 2019, the virus spread very quickly to neighboring countries, with Thailand (Džidić, 2021) among the first ones to be infected. The first detected case of SARS-CoV-2. virus in the Republic of Croatia dates back on 25 February 2020. The person who brought the virus was returning from a trip to the Italian province of Lombardy, namely the city of Milan (Croatian Institute of Public Health, 2020).

The crisis caused by the COVID-19 virus pandemic significantly differs from the causes of previous historic crises, namely the Great Depression of 1929 and the economic crisis of 2008. It is worth mentioning that no crisis so far has affected the whole world so quickly and left behind a deep decline of activity in almost all economic sectors (Čavrak, 2020). The

Covid crisis, unlike other crises that have hit the world, contains as many as four shocks. The first shock developed on the supply side, the second shock on the demand side, the third shock was defined by a sudden decline in expectations and a rise in uncertainty, and finally the fourth shock being the so-called “shock of bad measures” (Čavrak, 2020).

The economic crisis caused by the coronavirus has not bypassed the Republic of Croatia either. The cause of the Croatia’s corona crisis was contributed exclusively to the incidence of the COVID-19 disease, but more with closure of all economic activities. After the first case in the Republic of Croatia was detected, the Government of the Republic of Croatia introduced an immediate lockdown. A lockdown implies a suspension of production and free movement of people, the halt of most of the financial and commodity flows, as well as closure of all state institutions (Čavrak, 2020). After the lockdown was introduced, the economy suddenly stopped breathing and began to generate losses. The reason for this is very simple, because, and citing Šonje and Kotarski (2020): "the economy is woven from a fine weave and once it is interrupted, reconstruction takes time" (Šonje and Kotarski, 2020, p. 207). In other words, economies are very vulnerable to sudden shocks and once the normal economic flows are disrupted, it takes time to get things back on track (Šonje and Kotarski, 2020). Also fractious is the figure cited by the Croatian National Bureau of Statistics (2020), that "Croatia's GDP is 15% lower in real terms in the second quarter of 2020 compared to last year’s levels and also the biggest drop in real GDP since the measurements were first made" (National Bureau of Statistics, 2020). More insight into the economic impact of the virus on the Republic of Croatia will be given in chapter four.

2.1. Securitization of COVID-19 virus pandemic

As stated earlier, with the end of the Cold War in the 1990s, the notion of security was redefined. Along with that, a new framework for security analysis was created within the Copenhagen School, which, in addition to military security, adds in environmental, economic, political and social elements of security (Emmers, 2010). In addition to redefining the concept of security, two new concepts were also added: securitization and desecuritization. The concept of securitization can be defined as follows: "Securitization is a process of adding a security significance to a particular issue or occurrence", while desecuritization means: “when a particular issue arises, taking away security significance from the said issue" (Emmers, 2010, p. 134). In addition to the processes of securitization and desecuritization, the Copenhagen School also developed a model of referral facilities. According to the latter, so-called referential objects define what is considered to be existentially threatened and has a legitimate right to survival according to Emmers (2010, p. 134). In other words, the referential object can be the state, that is, the military security of the state, state sovereignty, or political security, the survival of the national economy or economic security, and/or the security of people or the community under the term of social security (Emmers, 2010).

The securitization model defines three ways in which an issue can be utilized, politicized, or securitized. The term of non-politicization of an issue means that the issue is not subject to state action or is not discussed publicly. If a particular issue or phenomenon is politicized, it means that the issue or phenomenon will be the subject of debate within the political system, and that the issue or appearance in question will be addressed by the state itself. If a particular question or phenomenon is securitized, it means that it is marked as a security problem and that it poses a threat to the referrer of the object. This issue or appearance is also to be dealt with by securitization enforcers, namely the government, the military, the political elites, or the civil society (Emmers, 2010).

If a particular issue needs to be securitized then, according to the Copenhagen School, the process should be carried out in two stages. The first stage serves to present that there indeed

exists a security threat, which threatens the referents of the object. The second stage involves convincing the audience that something is a security threat. This audience is most often made up of politicians, state officers, citizens, and/or other elites and it is crucial for them to convey the message that the clerks of the facility (in this case the state), is at risk and that urgent measures are necessary in order to stop it (Emmers, 2010).

Securitization of infectious diseases is not a new thing and has incited in the past. For example, on 10 January 2000, the United People's Security Council declared HIV/AIDS a threat to international security (Bilandžić, 2021). The HIV/AIDS pandemic has had an impact on three different safety concepts: namely human security, international security and national security. In terms of human security, the HIV/AIDS pandemic is directly suited to millions of lives a year worldwide. The consequence for international security is reflected in the fact that it endangers members of the armed forces who are actively involved in peacekeeping operations. In national security terms, the HIV/AIDS pandemic undermines the ability of the armed forces to perform their function due to a high rate of HIV/AIDS infections (Elbe, 2010). An estimated 40 million people worldwide are infected with HIV. Furthermore, according to Elbe (2010), certain African countries' national infection rates exceed one third of the adult population.

The securitization of the COVID-19 pandemic in the Republic of Croatia began with the formation of the so-called crisis headquarters of the Ministry of Health on the 13th of February 2020, which was tasked with managing the COVID-19 virus pandemic (Džidić, 2021). That the COVID-19 pandemic has been suitably securitized, is evident from the decision of the Civil Protection Headquarters of the Republic of Croatia to restrict all travel inside and outside of the home country. In addition to restricting free movement, the Government of the Republic of Croatia had also suspended on-site classes at all universities, primary, and secondary schools, as well as suspending preschool education (Džidić, 2021). The Croatian Civil Protection Headquarters also decided to suspend public transport in the Republic of Croatia as well as ceasing operations of shops supplying food (Džidić, 2021). The introduction of these restrictive measures is a kind of precedent for liberal-democratic societies, because it strips away their most important elements, the matters of individual freedom. The reason for such restrictions lies in the fact that one affected person can infect, on average, two to three people. In order for securitization to succeed, the securitization actors mainly used persuasion techniques. With this technique, they had to convince the public that the clerks of the facilities in this case would, in fact, be the health of the citizens. In addition to persuasion techniques, they also used the language of endangerment to further justify the introduction of extraordinary measures (Džidić, 2021). Whether the securitization of COVID-19 virus in the Republic of Croatia was successful or not is also told by the fact that the vast majority of citizens adhered to the measures. The aim of securitizing the COVID-19 virus pandemic was not to restrict people's freedom, but to prevent even more damage that could have been caused by the spread of the disease. Infectious diseases not only bring security and health risks, but also pose a threat to the economy as a whole. After the pandemic ends, its consequences will be felt for many years to come. A key take away from the incidence of the pandemic itself is the fact that such diseases are a persistent and serious danger and that as much work should be done in their prevention as possible (Džidić, 2021).

3. IMPACT ON THE HEALTH SYSTEM OF THE REPUBLIC OF CROATIA

After the general notification of the Crisis Staff of the Ministry of Health about the declaration of the epidemic and the mobilization of all health workers, a large number of notifications arrived daily about the manner and organization of the work of health

institutions. In order to speed up the flow of information and consultations with employees, various ways of communication have been established - by phone, by internet and over social networks.

It was necessary to establish new separate COVID 24-hour clinics for triage examinations of patients suspected of COVID-19 along with active telephone lines to communicate with a large number of worried people. In addition to the COVID clinics, a number of swab collection points were set up for testing for the virus. (Balenović i Tenšek, 2020.)

Fast and efficient communication has enabled the prompt dissemination of information on the movement of pathogens and monitoring of the effectiveness of various models and approaches in combating the disease they cause. In Croatia, the timely discovery of the first few cases of the virus along with the simultaneous introduction of isolation and self-isolation measures played truly decisive roles in battling the virus. The latter was followed by the introduction of broader quarantine measures, such as restriction of free movement, assembly and operation of shops. (Kuhar and Fatović-Ferenčić, 2020.).

On March 16, 2020, according to the recommendations of the National Civil Protection Headquarters and the Croatian Institute of Public Health, a new way of working in primary healthcare practices began. The new way of working included, according to the recommendations of the Crisis Staff and the Croatian Institute of Public Health, major changes in the organization of family medicine. Firstly, patients had to order examinations by telephone or e-mail before arriving at the office with the family doctor deciding on the urgency of the examination. Secondly, a triage, if needed, was to be performed at the healthcare organization's entrance. Thirdly, a short stay of one patient per team was allowed in the waiting room. Only after the treated patient leaves the waiting room, the next can enter the premises of the Health Center. Next, it was highly recommended that patient examination takes no more than 20 to 30 minutes, which is enough time for targeted examination and implementation of surface disinfection measures, as well as ventilation of the room until the next ordered patient arrives. If a patient was vitally endangered, the triage provider at the entrance contacts the family doctor who then performs immediate examination. Also, patients suspected of having a COVID-19 infection during the telephone consultation should be referred for prior testing in consultation with an epidemiologist. If the received test result is negative and the patient still has respiratory symptoms and fever, they will be examined in a separate isolated room, with the obligatory wearing of protective clothing including masks, gloves and goggles (visors) and if further processing of the patient is deemed necessary, it is recommended to contact the service to which the patient needs to be referred (X-ray, laboratory) and arrange an appointment beforehand. If the smear test is positive, the protocol for COVID-19 positive patients then follows, whether it be in the Clinic for Infectious Diseases Dr. Fran Mihaljević or at the patient's home. (Nakić, 2020.)

Simultaneously with the introduction of the triage mode of operation during surgeries, a separate COVID-19 specialized clinic was also established. Very quickly, as part of the clinic, nasopharyngeal swab test were introduced in a new and more efficient, so-called "drive-in" form (Nakić, 2020.).

Due to the application of even stricter measures of distancing, procedures and examinations in healthcare institutions were called off. The system was quickly "locked up" as at the time, the most important thing was to stop the disease spreading. The repurposing of one hospital in Zagreb, namely Clinical Hospital Dubrava, as a hospital for the treatment of patients with coronavirus allowed other hospitals to continue operating as regularly as possible given the circumstances caused by the pandemic's incidence. As the epidemiological situation began improving, all parts of the hospital were gradually opened, and instruments

and devices intended for the treatment of COVID-19 patients were slowly repurposed to their original function, and with additional working hours, delayed procedures were quickly compensated. As for today, the current epidemiological situation in the Republic of Croatia is deemed satisfactory, although the real danger of the virus still exists according to the Croatian Legal Centre.

The differentiation between healthcare systems during the coronavirus pandemic was best seen in the number of respirators available in a state, which were of utmost importance as some cases became so severe that respirators were essential to keep the patient alive. Croatia, which overcame the crisis quite well, was equipped with mere 800 respirators, i.e. one respirator per 5,000 inhabitants. Some richer EU countries had a lot more. Germany, for example, was providing about 25,000 to 82.8 million inhabitants, meaning one respirator per 3312 inhabitants. France has a population of 67 million and has had roughly 7,000 respirators, meaning one in 9,571 inhabitants as stated by the Croatian Legal Centre.

Timely coordination of the Ministry of Health, the National Defense Headquarters, and regional patient care centers was one of the key elements of success in the fight against coronavirus. The health system quickly adapted to the new situation and adapted continuously during the epidemic to respond to all the challenges that the disease presented. All that led to Croatia having a relatively small mortality and virus incidence rates (Kuhar and Fatović-Ferenčić, 2020.).

According to research conducted by Ropac, Stašević and Rafaj (2020), 1,078,240 people (26.6% of the population) were tested for COVID-19, and 19.7% were found positive. A total of 212,084 people were infected, while 3,919 died. During 2020, a total of 20,609 patients were hospitalized, and 1847 were treated using a respirator. As is evident, the treatment costs were enormous.

Croatian Health Insurance Fond ensures the payment of health services in full for the entire health care related to COVID-19 disease. These costs are related to the three basic fractions: treatment, sick leave and testing. In addition to the listed costs, there are also the costs of procuring respirators, adjusting the space for the treatment of covid patients and opening makeshift hospitals.

4. IMPACT ON THE ECONOMIC SYSTEM OF THE REPUBLIC OF CROATIA

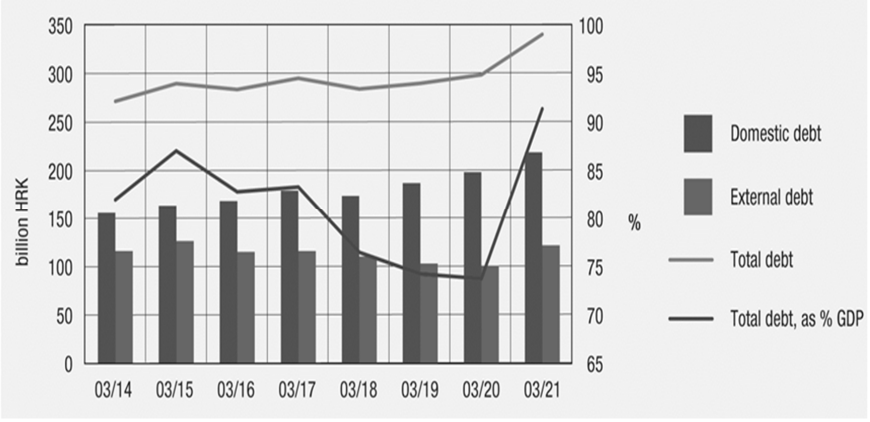
The impact of the crisis, in addition to affecting healthcare, has also had a profound effect on the economic system itself. Most countries, in order to protect the health of their residents, have opted for a lockdown despite its negative impacts on economic activity and growth. On top of that, it directly threatens the survival of the more vulnerable businesses. That is why employers have started thinking about laying off employees in order to rationalize their costs. To avoid such scenarios, many countries implemented some form of either direct or indirect economic aid to try to uphold the sustainability of both the employers and the employees.

On April 2, 2020, European Commission proposed to establish “The temporary Support to mitigate Unemployment Risks in an Emergency (SURE)” program to be implemented on September 22, 2020. The program’s main goal was to provide support and protect the employees and the self-employed against the risk of unemployment and loss of income, while also preserving their jobs. The financial support was mostly provided in the form of loans granted on favorable terms from the EU to their Member States. The program itself holds a budget of €100 billion and by May 25, 2021 it has approved a total of €94.3 billion in

financial support to target 19 Member States. As Croatia is too, a member of the European Union, it has received a total of €1.02 billion in financial support (European Union, 2021).

In Croatia, the Government has adopted many measures to help the economy. One of which is financial payment support for preservation of jobs that ranges from HRK 2,000 to a maximum HRK 4,000 per month, per employee if the required prerequisites are checked. These conditions refer to the health of a business, for example that the business employs more than 10 employees and has a drop in income by more than 40% compared to the previous year or that it has been forced to close down as part of its efforts to curb the spread of the virus (International Monetary Fund, 2021). As can be indicated, this financial support, along with a decline in budget revenues and some unpredictable financial expenses urged Croatia to take up on new public loans consequentially increasing its total indebture. At the end of March 2021, total debt reached HRK 340 billion and has been amounted to 91.3% of GDP. In the picture below, it can be seen that the total debt was kept under control all up until March 2020, or when the corona crisis extrapolated. Total debt began significantly increasing during March 2020 and onwards. Moreover, what is surely more worrying is the state of the debt-to-GDP ratio as it has increased by more than 15%, which further proves the fact that the COVID crisis is indeed as much of a health threat, as it is an economic one.

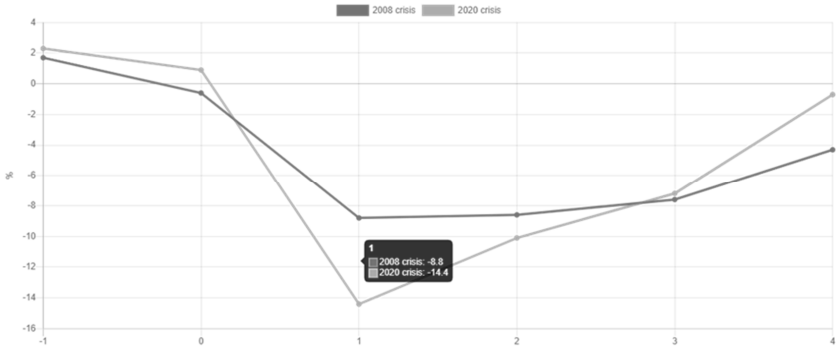
Picture 1. Consolidated general government debt over a longer period



Source: HNB, Published: 30/6/2021

When comparing the COVID crisis to the financial crisis of 2008, it is obvious that a hybrid health-driven crisis such as this one can prove to be far more serious than an exclusively economy-related one. The graph below shows the quarterly real growth rates of GDP in Croatia. The black line represents the dynamic of the real estate crisis of 2008 and 2009 and the grey line represents the convergence of the corona crisis of 2020. As far as the financial crisis is concerned, Q1 2009 has seen the biggest drop of 8.8% in GDP, and the deepest drop of the corona crisis occurred in Q2 2020 and measures at an astounding 14.4%. The latter mentioned quarter also presents the biggest quarterly drop in GDP in the history of known Croatian macroeconomic data collection.

Graph 1. Real growth rates of quarterly GDP

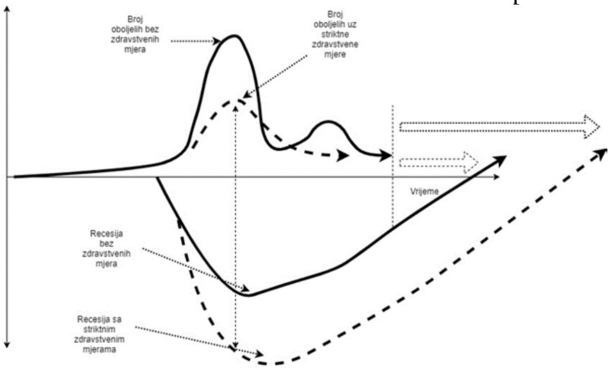


Clarification: 0 is Q4 2008 / Q1 2020, 1 is Q1 2009 / Q2 2020, 2 is Q2 2009 / Q3 2020, and so on.
Source: Croatian bureau of statistics, 2021

The real estate crisis has had a number of long-lasting negative economic consequences and it took almost six years for Croatia's economy to get back on track after it. That could have been partly contributed to the country's sluggishness and unwillingness to interfere in its economic affairs. On the other hand, the Corona crisis was a bit different as the country decided to interfere almost immediately with measures aiming to stimulate consumption and economic growth. That is why it has evaded potentially catastrophic repercussions that could have arisen from such devastating drops in GDP. As it can be seen on the graph above, the economic downturn lasted much shorter than the downturn caused by the 2008 crisis. Lastly, the Croatian National Bank is projecting a 5.9% GDP growth for 2021 (HNB, 2021), which means that this huge and devastatingly intense crisis lasted for only a year and that soon, Croatia's economy will potentially be back to its pre-crisis levels.

The corona crisis is also much more complex than a "regular" economic crisis because it affects the healthcare system, too. Due to that, many scientists and economists must collaborate to navigate successfully through it with as little negative consequences on health and economy as possible. As can be seen from the picture below, the line above the X-axis represents the number of infected with the corona virus (above the Vrijeme (Eng. Time) line) and the Recession line (under Vrijeme (Eng. Time) line). As time goes by and the Government does not do anything to interfere with existing health measurements, the number of infected along with the mortality rate would both begin to rise, but the economy itself would not decline as much (represented by all the full, non-dotted lines on the graph). In that case, there would not be any lockdowns or restrictions and the economy would operate as usual (of course, considering the decline in economic activity due to massive savings from the households caused by uncertainty, but much less so as in the scenario of a lockdown). In the other case, if the Government were to interfere with existing health measurements putting the highest priority on people's health, there would be much less infected and the mortality rates would be much lower, but the economic recession would be significantly greater (represented with the dotted line).

Picture 2. The theoretical curve of the COVID-19 pandemic and the recession curve



Souce: Čavrak, V. 2020

In the 18th and 19th century, many economists, including even A. Smith, advocated that the Government should have significant interference in a market-based economy. Particularly, as explained in Smith (2014), businesses can keep the order by themselves and that the market economy system is essentially harmonious and self-regulating. That theory slowly disappeared with newer age economic theorists advocating that the state should in fact, intervene if certain businesses have any problems with sustainability or have suffered under some form of shock (be it external or internal shocks). This theory was also tested during the real estate crisis of 2008 when many banks were saved from bankruptcy by the Government's unconventional market interventions (mainly quantitative easing). This way of operating was also the way to go amidst the corona-virus crisis. When analyzing the countries' responses, it is evident that, regardless of all the expensive actions that many of them performed in order to reduce the virus' consequences, it is overall much less expensive than doing absolutely nothing. Many recent economists will agree with the premise. Jason Furman for example, who was President Obama's chief advisor, presented some guiderails to the 'do whatever it takes' idea. His advice comes in the form of six main points, cited as follows: (1) better to do too much rather than too little; (2) use existing mechanisms as much as possible, (3) invent new programmes where necessary; (4) diversify and do not fear duplication or unintended 'winners' in the response; (5) enlist the private sector as much as possible; and (6) ensure the response is dynamic and persistent (Baldwin and Weder di Mauro, 2020).

Another essential decision includes defining the countries' exit strategies once the pandemic starts subsiding. It is crucial to determine at which intervals and specifically which sectors should be brought back to pre-crisis levels first. Fornaro & Wolf (2020) state that the spread of a pandemic results in a reduction of demand, followed by a reduction in supply and finally the continuation of negative effects in the form of a spiral effect (reduction of supply and demand are interconnected and as the disease spreads further, the negative effect increases analogically). The authors also suggest pursuing a more aggressive economic policy aimed at increasing investment in order to stop the negative spiral effect by kick starting the economy.

A country's economy is a highly complex mechanism and only time can tell which approach did a better job at tackling and battling the crisis from all of its standpoints as well as which of the chosen approaches is generally more efficient: restrictions for the preservation of people's health or actions taken with the focus on economic welfare. The onset of the COVID crisis has most certainly taught one thing: all business sectors are vulnerable, no matter in which country they operate. The world has become a pseudo-unified global "place",

and one country's decisions usually effect other countries, too and sometimes even more than that, the entirety of the world itself. Taking into consideration everything previously mentioned and explained, it is crucial to develop and define effective mechanisms to fight with economic, health, and any other crises while investing efforts to minimize negative consequences.

5. CONCLUSION

With the end of 2019, the SARS-CoV-2 virus, causing acute respiratory syndrome, appeared in the Chinese city of Wuhan. Although the virus appeared on a whole other side of the planet, due to globalization, it had quickly spread across the world causing a global health crisis with huge impacts on global economic security. The Republic of Croatia was not an exception with the first case of infection recorded in Zagreb, on February 25, 2020. Due to the rapid spread of the disease, on March 11, 2020, WHO declared a state of pandemic. Croatia had established a crisis headquarters and securitized the Covid threat. To save the lives and health of its people, the Government opted for an approach using the public communication of endangerment and persuasion before introducing a full lockdown. New COVID 24-hour clinics were established along with various informational lines to communicate with distressed people.

Despite of all the preparation, the virus had succeeded to spread and in 2020, 212,084 people were affected, while around 3,919 deaths were registered. The impact of the COVID-19 crisis, in addition to affecting the healthcare systems all over the globe, has also had a profound effect on the economy and economic sustainability. Croatia's real GPD growth flunked by an astounding 14,4% in Q2 2020, the biggest drop since known data. Various financial aids were being introduced and provided to various crisis-affected businesses and due to the leaping increases in the country's expenditure, its total debt had increased substantially and at the end of March 2021, total debt reached HRK 340 billion and had amounted to 91.3% of GDP. Despite the intensive increases in the country's borrowing and the sudden aggressive onset of the virus, with the Government's implemented measures and the people's accordance to them, the Croatian National Bank projected an almost unexpected 5.9% GDP growth for 2021.

Finally, the COVID crisis began as a mostly health-related one affecting one single country (China), and has since quickly turned into a full-blown comprehensive global crisis encompassing both elements of an economic downturn and a health threat. For that matter, it is essential that both scientists and economists collaborate in order to successfully navigate through it in order to minimize negative consequences on both the general health and the economy and to find new ways of adapting and preparing for future threats. The COVID crisis is a valuable lesson that is sure to enhance global security and country risk mitigation standards everywhere.

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IMPORTANCE OF ELECTRONIC COMMERCE DURING COVID-19 PANDEMIC - A CASE STUDY IN MUSICAL INSTRUMENTS RETAIL

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Abstract

The COVID-19 pandemic caused changes in consumer behavior and it affected all product categories. Social distancing, fear of unknown disease, and official health-protection measurements created the environment in which customers recognized the high usability and convenience of online shopping. Therefore, e-commerce usage reached rapid and significant growth during COVID-19 pandemics. In this paper, we focus on changes in the retail of musical instruments to show how pandemics changed the role of online sales channels in this special product category. The findings are based on a comprehensive analysis of recent literature that explains the general role of e-commerce during pandemics and on the case study analysis of a specialized retail company. The case study included several interviews with owners and managers of a company, analysis of managerial financial reports, insight into sales data, and web analytics of the company. The data was collected from May to September 2021 and data refers to business years 2019 and 2020. Scrutinized data show that there is a significant percentage of revenues generated in the online channel during COVID-19 and that structure of revenues changed significantly regarding product categories bought during COVID-19 pandemics. Based on findings conclusions on the role of e-commerce during COVID-19 pandemics in this retail specialization are drawn.

Key words: pandemic; COVID-19; online retail; e-commerce; musical instruments.

1. INTRODUCTION

COVID-19 pandemic and related preventive measures (such as the slogan "Stay at home") introduced worldwide in March 2020, led to serious social and economic restrictions in retail which resulted in the significant increase of digitalization in doing business. The reduction of physical contact has increased the usage of digital media in the economy and society and has led to the overall digital transformation of many businesses. Since the Second World War, humanity has not been exposed to such drastic restrictions and bans on movement. Some countries had total lockdown for quite a long period of time. COVID-19 pandemic creates both health and economic problems providing a global and systemic nature of the problem. While some countries have restricted the number and operation of retail stores, others have restricted the movements of their residents through security measures. All of the above has led to serious problems and challenges for retail and for the survival of many companies until a quick response and adaptability in business have become the key for survival.

The focus of the paper is on the impact of the COVID-19 pandemic on the retail of musical instruments, as well as the need and possibility of fast crisis adaptation and digital transformation, price movements, the increase in online shopping compared to physical shopping, changes in demand for the professional and hobby segment and difficulties in the supply chain. After the introduction, the paper focuses on the digital transformation of

business and the crisis situation in retail around the world. To shed a light on the research topic, the authors provided a case study of the retail of musical instruments.

Even before the COVID crisis, the retail sector was facing digital disruption on the global level. Nowadays, traditional market players are trying to enter new market segments and niches that involve taking advantage of the opportunities offered by the digital world. This is one of the key motives for the increasingly frequent discussions about the potentials of digital transformation and the need to redefine business strategies and plans with a key emphasis on individual consumer requirements. Digital business transformation is one of the most used terms in business publications, portals and business people conversations. There is probably no successful manager or entrepreneur who does not revolve around what digital transformation represents for the business of his organization. On the other hand, the impact of digital technologies on companies and their business, as well as on the whole spectrum of social activities, is evident for more than two decades (Tekic and Koroteev, 2019). "Digital transformation is defined as a change in the way a company uses digital technologies to develop a new digital business model that helps create and deliver greater value to the company " (Verhoef et al., 2021). Accelerating the process of digital transformation is taking place today in all industries including retail to such an extent that modern companies consider it both an opportunity and a threat (Lanzolla & Anderson, 2008; Li, 2020). A retail business faces great challenges through extremely high consumer mobility, the need for a strong focus on consumer monitoring and analysis, restructuring of supply chains and the transition to e-commerce (Reinartz, 2019; Cakir et al., 2021).

This paper aims to analyze how COVID-19 affected the pace of digital transformation in a specialized retail company and how pandemics increased the importance of e-commerce as a part of a retail strategy. The structure of the paper is as follows. Firstly, we will give a theoretical insight into the development of the retail industry in times of COVID-19 throughout the implementation and development of e-commerce as a supportive or only sales channel. This part will describe findings elaborated in recent literature in the field. Secondly, we are going to investigate the effects of COVID-19 pandemics on e-commerce development in specialized retailing. This part of the paper will be based on a case study of a retail company specialized in musical instruments retail. The case study will analyze the implementation of a webshop and its development during the pandemic. The case study aims to show how the retail company had to adapt its customer approach to surviving during a time of crisis. The analyzed case shows an example of a successful digital transformation and it describes how an extreme business disruption can be turned into a chance by recognizing the potential of the digital sales channel.

2. IMPACT OF COVID-19 ON DEVELOPMENT OF E-COMMERCE WITHIN RETAIL INDUSTRY SECTOR

Limited physical interactions, self-social distancing, and various official measures against COVID-19 pandemics affected all segments of the retail industry. Numerous studies are describing the change in consumer behavior and structural outcomes of this crisis. Data described by OECD (2020) show that Internet sales and mail ordering in EU-27 was increased by 30% in April 2020 compared to the previous year. Moreover, retail sales in EU-27 decreased by 17.9%. Similar data is recorded for the USA, China and some other countries. Therefore, we can claim that there was a significant increase in e-commerce on a global scale. However, OECD (2020) claims that effects were not the same in all product categories. While, traditionally, e-commerce was dominantly used to purchase books, e-tickets, toys, or

consumer electronics, during the pandemics the largest growth of e-commerce was noticed in groceries, medicines, and other household necessities.

Not only did the retail market change, but consumer online shopping behavior also changed during COVID-19. Digital consumer spending increased from 12% to 43% during COVID-19 pandemics and online purchasing frequency increased significantly from 9.8% to 25% of those consumers who purchase online on weekly basis (Jilkova and Kralova, 2021). In addition, Jilkova and Kralova (2021) noticed two phases of e-commerce increase, according to product categories. Firstly, the increase is noticed in food and non-alcoholic beverages, online education, and online content. This shift was supported for Taiwan in study Chang and Meyerhoefer (2020). Then, secondly, the increase was obvious in primary devices used for online access and devices for online payments. After that, all other product categories followed.

Gu et al. (2021) researched 10 countries to assess drivers and impacts of e-commerce during COVID-19 pandemics. They elaborated on main changes in consumer behavior as follows: (1) the impact of consumer awareness and experience has increased; (2) online consumers are now more experienced and it influenced online shopping behavior, (3) speed of decision during online purchasing determine the purchasing intention and it increased also. Rao et al. (2021) explained how perceived risk, perceived uncertainty, and price are antecedents in affecting the degree of consumers' satisfaction, and, indirectly influences loyalty in an online shopping environment. They discovered that the perception of consumers shopping from the direct e-store is higher than in the indirect e-store during pandemics. Therefore, consumers' satisfaction is also higher, and the loyalty towards the e-store is higher, too.

Kien Pham et al. (2020), based on the research among customers in Vietnam, claim that the perception of e-commerce utility increased significantly during COVID-19 and that perception towards usability and convenience of e-commerce (or, so-called "easy to use" of e-commerce) positively changed during the pandemics which resulted in further increase of e-commerce usage. These facts caused companies to ensure improvement of their online stores and online platforms to be more user-friendly to offer better service to online customers and to retain customers in the online world after pandemics.

Nonetheless, Jilkova and Kralova (2021) reported the high percentage of consumers claiming that they will continue to purchase online after the COVID-19 pandemic, the question that remains is will this shift towards e-commerce persist after pandemics or is it only a temporary effect? (OECD, 2020; Chang and Meyerhoefer, 2020).

Compared to large enterprises that are primarily engaged in wholesale, smaller enterprises in the retail sector are most affected by the COVID-19 pandemic. The inability to do business due to closures, challenges in quick adaption to the new situation and poor crisis management have led to the collapse of many smaller businesses. Resilience can be concerned a key factor in crisis management and enterprise survival as it helps to understand how to adapt as well as understand the dynamic environment. Resilience includes the creative and innovative ability to adapt to business in a changing environment, with a focus on customers and new market needs. However, the resilience of retail businesses in a time of pandemics also depends on state and state aid, which plays a crucial role in boosting the economy and economic activity (Thukral, 2021). Some authors are dealing with the long-term macroeconomic effects of COVID-19 and they claim that results will be slower growth of consumption and investment, larger fluctuation of prices, disruptions in supply chains which will lead to contractions of export and import (Mohsin et al., 2021).

For a better understanding of the impact of the COVID-19 pandemic on the retail of musical instruments (considered luxury goods), it is necessary to analyze the impact of the pandemic on retail trends in inferior goods such as food. In just a few months since the outbreak of the pandemic, as mentioned earlier, in the first phase of COVID-19 pandemics, there has been a drastic change in the way food and beverages are prepared, sold, distributed, and consumed. The increase in demand for food in supermarkets and the closure of restaurants and cafes were simultaneous, which together with a large amount of fear and uncertainty among consumers resulted in panicked purchases around the world. To reduce the risk of exposure, many opted to buy food online and to deliver it at home. However, redistribution of demand has negatively affected food growers as well as producers. The most significant effect of the pandemic is certainly the way food and beverages are distributed and consumed. The closure of restaurants in many highly developed countries of the world has caused major problems in consumer habits and behavior. This is evident in the US, where until the outbreak of the pandemic, almost half of food spending went to restaurants and other food-preparing institutions (e.g., schools, hospital restaurants, canteens, and the like). More food preparation and consumption from home have led to an increase in demand for groceries in supermarkets (Leone et al., 2020). There is also a general expansion of food, beverage, and grocery delivery companies such as Wolt, Glovo, and Bolt. Due to all mentioned, it can be concluded that during the pandemic, the speed of adjustment played a key role and that the digital transformation is the basis for the survival of companies in crises.

Circulation of prices from the beginning of the pandemic varies from industry to industry. Based on the research on price trends in milk products sales in the U.S. conducted by Liu and Rabinowitz (2020), several interesting conclusions can be drawn. As noted, restrictive measures and the closure of cafes and restaurants have led to an increase in demand for food and beverages consumed at home. Based on the supply and demand principles, it could be inferred that the increase in demand led to an increase in prices. However, in the U.S. dairy market, there has been an average price drop of 8%. The main reasons can be found in higher price sensitivity of consumers caused by uncertain times, reorganization of retail through online channels to preserve the health of employees, and socially responsible business of retail food stores, which thus tried to stimulate consumption. In addition to the demand side, there has been a supply-side disruption in the dairy market. Due to the closure of cafes, restaurants, and schools, some dairy products remained unused and unprocessed, which further reduced prices.

3. CASE STUDY OF A RETAIL COMPANY SPECIALIZED IN MUSICAL INSTRUMENTS

This chapter provides results of an in-depth analysis of the business case in the retail of musical instruments. The subject of the case study is the retail chain Music Shop No. 1, which is owned by the company Beltronik d.o.o. with the core business of retail musical instruments and equipment. The company has been active since 1998 under the name Art Centar d.o.o. with reorganization and rebranding in 2004 since becoming Beltronik d.o.o. The company operates in Zagreb, Croatia. The case study is based on in-depth interviews with owners and managers, on financial statements of the company, on analysis of a webshop and analysis of business data within the information system of the company. A comparative analysis of operations in 2019 and 2020 was conducted based on internally available data collected from May to September 2021. The main mission of the company is to give consumers an unforgettable experience of choosing a musical instrument that will accompany them in all stages of musical creation. Since its establishment, the analyzed company records constant revenue growth (except in the years of the global financial crisis).

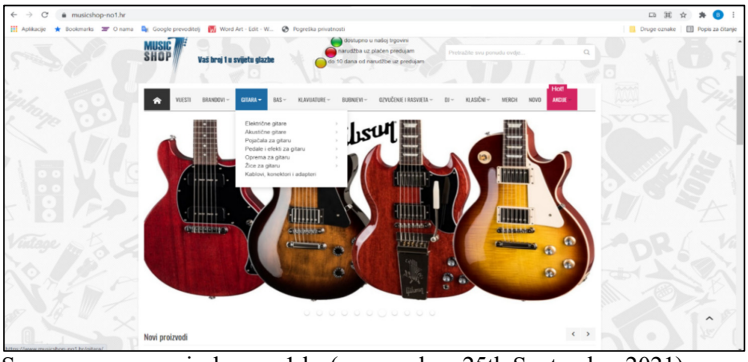
Retail sale of musical instruments belongs to an extremely specific and complex market niche because musical instruments belong to the category of luxury goods and the demand for them is rapidly decreasing in moments of instability and uncertainty. Also, there is a high degree of correlation between the demand for musical instruments and the situation in the music industry, and the number of musical events in the environment. In addition, it is preferred to purchase them (mostly stringed musical instruments) physically at the branch. The reason for this lies in the fact that each instrument is handmade and that most of them are made of wood resulting in differences from instrument to instrument of the same type. Customers have to try out the instrument when buying to know for sure if it is the instrument they want to buy. There are almost no manufacturers of musical instruments in Croatia, so the purchase of retail companies is exclusively focused on imports from abroad.

The total offer of the products in the analyzed case can be divided into several basic product categories:

- String instruments - electric guitars, acoustic guitars, bass guitar, piano, violin, etc.
- Keyboards and digital pianos
- Wind instruments - trumpet, saxophone, flute, etc.
- Drums and percussion
- Sound and loudspeakers - speakers, mixers, microphones, etc.

Each of the product categories can be further subdivided into subcategories according to the final application of each instrument. In this way, there is a distinction between the professional and hobby segments of musical instruments. The professional segment is considered to be products that are primarily used in organizations or realizations of large music concerts, while the hobby segment is primarily considered to be instruments for home use. The structure of product categories was implemented into the webshop at the very beginning (since 2004). Figure 1 shows the starting web page of the webshop where mentioned product categories are implemented into the top menu and each category has subcategories. Such organization of the webshop enables customers user-friendly and easy navigation to desired products. Besides that, ongoing actions and promotions are highlighted as a separate link at the top of the page and the central part of the page is devoted to seasonal promotional activities (such as „back to school“ promotion of musical instruments for kids) and temporary promotions of product brands or specific special offers or extra discounts promoted by webshop's suppliers.

Figure 1. The starting page of the webshop

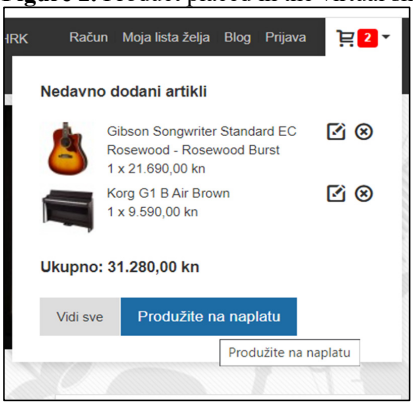


Source: www.musicshop-no1.hr (accessed on 25th September 2021)

The process of purchasing is simplified and customers can put products into the shopping cart without previous registration. In that case, consumer data will be collected at the checkout point before electronic payment. Nevertheless, there is a possibility of previous consumer

registration and authorization at the very entrance to the webshop. In this case, data on the navigation of the particular consumer can be tracked and the offer can be personalized upon his/her preferences in previous purchasing transactions. When products are placed in the shopping cart, customers have full control at each moment and then can decide to increase quantities or to delete products from the shopping cart during their navigation in the webshop (not only at the checkout point, as it is a case at some other web stores). Figure 2 shows the contents of the shopping cart available to the customer during one session of webshop usage.

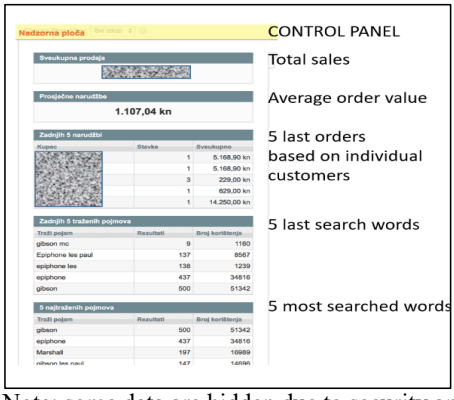
Figure 2. Product placed in the virtual shopping cart



Source: www.musicshop-no1.hr (accessed on 25th September 2021)

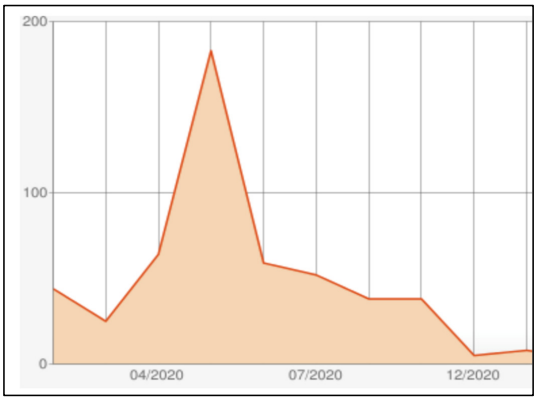
Activities and functions of the webshop are monitored and controlled based on data in web analytics (see Figure 3). Analytics includes data on consumers' navigation, the popularity of products and product categories, sales indicators based on quantities, and based on financial values of sales transactions. From the managerial point of view, summary data and visualization of the number of orders, quantities, and sales revenues are the most valuable part of webshop analytics. In Figure 4 visualization of the number of orders are shown for 2020. At the glance, it is obvious that revenues peaked in the time of the COVID-19 lockdown period when the number of orders from customers at one point exceeded 180 orders per day.

Figure 3. An excerpt from the webshop analytics



Note: some data are hidden due to security and privacy reasons
Source: internal data of MusicShop No. 1

Figure 4. Visualization of number of orders per day in the webshop analytics in 2020



Source: internal data of MusicShop No. 1

In the next chapters, we will analyze the change in the revenue structure during the COVID-19 pandemic which resulted as an outcome of increased customer activities of the webshop in a given company. After that, we will discuss changes on the supply side of the story.

3.1. Change in the sale revenue structure

As shown in Table 1, the analyzed company in 2019 recorded total retail revenue of HRK 6.9 million. The majority (almost 40%) was generated in the product category „string instruments". The part of the range that belongs to the professional segment is the sound system and public address system, which recorded a share of almost 30% of total revenue. However, with the arrival of the pandemic in early 2020 and the complete blockade of the music industry, there was a sharp decline in sales of the professional segment and an increase in sales in the hobby segment (acoustic guitars, digital pianos, electric drums). A total revenue reduction of 10% in a year that has led many industries to collapse is considered an excellent result.

The main reasons for these trends in 2020 are:

- cancellation of most music concerts and festivals
- lack of financial support for musicians
- growth in the supply of used professional goods
- more free time
- consuming music primarily at home.

Table 1. Revenue structure according to retail product categories

Retail category	**% Revenues**		
	2019	***2020***	***Difference***
string instruments	39%	56%	17%
keyboards and digital pianos	26%	35%	9%
wind instruments	3%	2%	-1%
drums and percussion	2%	2%	0%
sound systems	30%	5%	-25%
TOTAL	100%	100%	

Source: own analysis based on internal financial data of the company

The analyzed company is going through digital transformation in the last few years. Initially, external sources were used to improve and modernize the business (primarily the advancement of the e-commerce interface), while in the last few years the improvement has been carried out "in-house". In addition to the modernization of the website itself and the regular updating of new payment and delivery methods, various methods of sales and advertising via social networks are applied. Therefore, in 2019, before the pandemic, revenue in e-commerce reached almost one million kunas (see Figure 5) and the achieved level of revenue in online sales was about 15% of total sales. The reason for the relatively low share of e-commerce in 2019 lies in the fact that consumers in Croatia still mostly prefer physical shopping, as well as the reason for the necessity of testing a musical instrument mentioned earlier.

Figure 5. Revenues in million HRK

Source: own analysis based on internal financial reports of the company

The closure of stores in March 2020 and general restrictions led to a significant increase in the share of online sales in revenue, and revenues in online sales exceeded HRK 2.5 million (see Figure 1). However, although online sales increased by 154% compared to the previous year, this was only enough to offset the losses incurred in traditional stores and the increase in total sales revenue was ultimately only 2.86% (see Table 2). Therefore, we can conclude that the online sales channel was not sufficient as the only access to consumers even in this pandemic year.

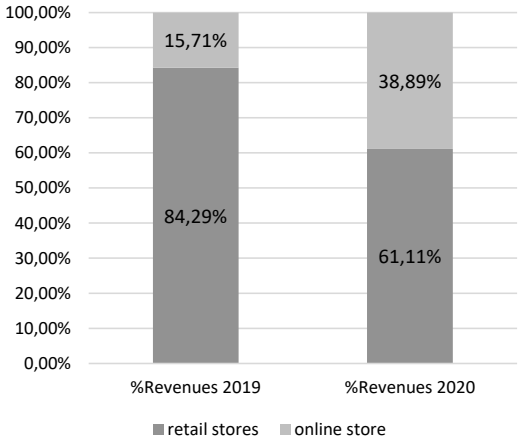
As shown in Figure 6, in 2020 there was a significant change in the structure of revenue and the share of online revenue increased from 15.71% to 38.89%. One of the reasons is the fact that the pandemic year has significantly affected the behavior of regular consumers who know exactly what they are looking for, what brand of instruments and what level of quality and are ready, without trying, products to easily and quickly change the purchase channel.

Table 2. Change in revenues

Sales channel	Chain index (2020-2019)
Physical retail stores	-25.42%
Online store	154.55%
TOTAL	2.86%

Source: own analysis based on internal financial reports of the company

Figure 6. Revenue structure according to sales channels



Source: own analysis based on internal financial reports of the company

3.2. Changes in distribution and the relation with the suppliers

The global COVID-19 pandemic has greatly affected the distribution network and relations with suppliers. The closure of a large number of musical instrument factories, as well as factories that produce parts for musical instruments, has led to deficiencies globally. The Korg company (a manufacturer of musical instruments from Japan) has been recording major deficits and losses worldwide since the beginning of the pandemic. As Korg uses a "Just in time" production strategy in production (which is primarily aimed at reducing time within the production system), orders of raw materials from suppliers are directly aligned with production schedules and production line planning. The Korg product line mostly consists of keyboards and digital pianos in the production of which LEDs are used as parts of the main interface. As identical LEDs are also used in car production, there is a delay in deliveries of 6 to 12 months. In this way, there are great difficulties in the application of the "Just in time" production strategy because the compliance of orders and raw materials, as the main foundation of the "Just in time" production strategy, is violated. An additional specificity of this industry lies in the fact that the ordering process by the retail is carried out at least 12 months in advance, which in the new situation maximally complicates deliveries and the well-established order forecasting mechanism. An additional problem is the guarantees and breaking the legal deadlines in retail due to the lack of spare parts. Due to all mentioned, there was a big delay and delay in production and there is a need to reorganize production as well as reorganize the production line from the professional to the hobby segment of music equipment.

An additional problem in the pandemic year in the electric and acoustic guitar segment is the restriction of imports by applying the international CITES convention. CITES is an international agreement between governments with the aim that international trade in certain specimens of wild animals and plants does not endanger the survival of these species. Manufacturers of electric and acoustic guitars such as Gibson, Epiphone, Ibanez, and Maton have been producing instruments according to certain specifications for more than 100 years, which means that endangered types of wood such as ebony and rosewood need to be used in the production of certain models. Substitutes unfortunately do not exist because the value of the instrument depends on the specifications set at the beginning of production. In this way,

the application of CITES regulation created additional problems in production and relations with suppliers, as the production of most electric and acoustic guitars was further reduced. Several manufacturers have tried to change the specifications, but the market has rejected these products. As electric and acoustic guitars mostly belong to the hobby segment, the losses worldwide are quite significant.

The global pandemic has also affected price circulations in the musical instrument market. The logical conclusion is that the global decline in demand has led to a reduction in the prices of musical instruments, especially since musical instruments fall into the category of luxury goods. However, the increase in demand in the hobby segment was so significant that at one point producers could no longer deliver the required quantities. The reason for the supply problems lies in the situation with the suppliers mentioned earlier and the geographical location of most musical instrument factories. Asia is the continent that was the first to be hit by a pandemic on whose territory most of the musical instrument factories are located. A large number of factories were closed and production was reduced to a minimum. Several producers have stopped production until further notice due to the unprofitability of production through extremely high fixed costs. In addition to the above, uncertainty and poor assessment in the planning of most management have led to global shortages of certain products in the hobby segment of musical instruments. All of the above is the cause of the rise in the price of musical instruments globally by an average of 7%, which has already made luxury goods even more luxurious.

4. CONCLUSION

After the global financial crisis in 2007, the world once again faced major challenges for the economy. As economic trends are linked to public health measures, the emergence of global economic instability has led to major problems for many economies. As a result of the pandemic and economic instability, there has been a drastic change in consumer behavior. Retailers are most affected by the COVID-19 pandemic. Aside from the inability to do business due to closures, many smaller businesses were unprepared for the business challenges caused by the pandemic. Innovation, creativity, and digitalization have become key factors for the survival of the company's business as well as the proactivity of management to adapt to the new environment.

Based on the analysis of the state of retail in the world and the case study of the retail of musical instruments, it can be concluded that the digital transformation of business is a common denominator for all activities and sectors. The Physical Contact Avoidance Directive has moved retail online and forced businesses to adapt to new business conditions. Retail trends in musical instruments are related to trends in the music industry, and thus the global situation dictates the state of retail. The lack of music concerts and festivals has led to a complete breakdown of part of the music industry as well as a drop in demand for the professional equipment segment. However, the partial or complete lockdown worldwide has led to an increase in the hobby segment of musical instruments which has increased demand. More free time fostered many people to decide to buy one of the musical instruments.

Last year was extremely challenging for the retail of musical instruments. Despite good business results, it is not possible to predict how and when the music industry will return to its pre-pandemic state. This industry was first to close and probably last to open. In the first three months of 2021, retail results are significantly worse than expected. It is estimated that this is a consequence of pessimistic expectations as well as a lack of available funds because musical instruments still fall into the category of luxury goods.

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Additional sources used for the case study:

1. In-depth interviews with owner and manager
2. Internal data and documents of the MusicShop No. 1
3. Internal financial reports of the analyzed company
4. Web site: https://www.musicshop-no1.hr/

THE GROWING IMPORTANCE OF CERTIFICATION IN THE TOURISM AND RETAILING IN A POST COVID-19 WORLD

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Abstract

Tourism is a socio-cultural phenomenon, which also plays a significant role in the world economy. The international tourism market operates under constant changes in trends. Also, it is under the influence of unpredictable situations that negatively affect the tourism flow. One of these situations is the Covid-19 pandemic that began in the first half of 2020 and almost completely stopped international tourism arrivals. A brief improvement in the situation with the Covid-19 pandemic has shown that in some European countries' tourism is recovering rapidly in a short time. However, to reach a fast and successful recovery after the pandemic, the tourism industry will need to adjust its work to new trends which will appear in the tourism international market. Trends indicate that implementation of greening and reaching sustainable development will play an important role. One of the tools to achieve this goal could be the implementation of different forms of certifications in the tourism industry. However, all stakeholders involved in tourism need to act in the direction of sustainability, and retailing is one of the most important in this process. The purpose of the paper is to explore the implementation of certification and ecolabels in tourism and retailing in the process of reaching sustainable development. Secondary data have been used to analyze scientific literature. A bibliometric analysis of published scientific articles in the Web of Science databases was conducted. The findings have shown that numerous different ecolabels and certifications are used in tourism and retailing practice on the international level. However, these topics are still insufficiently represented in scientific researches.

Key words: tourism, retailing, certification, ecolabel, COVID-19.

1. INTRODUCTION

The tourism industry has an important role in the world economy. However, tourism is taking place in a very unpredictable market environment, as the situation with the Covid-19 pandemic showed. Also, tourism takes place in a market that is followed by a constant change in consumer trends and at the same time takes place in a very competitive environment (Reig and Perry, 2000). Tourism is a heterogeneous economic activity, and its development involves the participation of a large number of stakeholders who provides a large number of different products and services for different segments of tourists. All those stakeholders need to act in the same direction to develop tourism on a basis of sustainable principles. That considers meeting the expectations and needs of tourists, but also achieving positive effects for all those who participate directly or indirectly in tourism. Retail is one of the economic activities directly involved in tourism development as well as hospitality, transportation and travel agencies (Čavlek et al., 2011). Withal, retail is an integral component of the tourist offer (Čavlek et al., 2011). Retail, like tourism, is a heterogeneous economic activity that includes a lot of different stakeholders intended to act in the same direction although their interests are often diverse.

The tourism market is very dynamic and subject to constant change. Therefore, the tourism industry should constantly adapt to new demands and trends. Last decades "going green" in tourism is becoming increasingly important, and at the same time encourages sustainable tourism development that has affected the requirements and behaviour of customers as well as the tourism relationship with other branches of the economy (Bučar, 2017). By Statista, in 2018, 87% of tourists want to travel in a way that their tourist trips will contribute to sustainable development in tourist destinations (Statista, 2020). Tourists are increasingly interested in trips that provide an authentic experience, while their trips contribute to the positive economic and socio-cultural effects of the destination they visit (UNEP, UNWTO, 2012; CREST, 2018). Tourists who recognize visited areas as preserved usually show loyalty to the tourist destinations and give positive recommendations to their relatives and friends (Frangos et al., 2015). So, the implementation of various certificates and ecolabels have become more popular because their implementation allows tourists to recognize the product that they plan to consume as environmentally friendly (Bučar et al., 2019). The objectives of the implementation of certificates and ecolabels are to (i) provide reliable environmental information, (ii) identify best practices in promoting sustainable development and going green, (iii) help tourists to make an informed decision about services/products, focusing on genuine care for the environment, (iiii) develop an image of environmentally responsible behaviour and to attract tourist with a higher level of ecological motivation (Bohdanowicz et al., 2004; Bučar et al., 2019; Chen, 2011; Kozak and Nield, 2004). Also, the proper implementation of certificates and ecolabes can be used as a powerful tool in the quest to attain sustainability (Rattan, 2015).

After the pandemic Covid-19 crisis, rapid recovery of the tourism market is expected at the national and international level, as shown by the data for summer 2020, in which some southern European countries recorded a rapid recovery of tourism in a short time, but to do so it is necessary to have a clear vision of tourism development in the next period (Čorak et al., 2020). The OECD in its report 2021 emphasizes that in the post-Covid-19 period, for the tourism development an important role will have different certification and accreditation programs and not only those which will have a role to ensure health protection (OECD, 2021). The purpose of this paper is to explain the importance of sustainable development in tourism and how implementation certifications and ecolabels could affect the businesses of tourism and retail in the period after the Covid-19 pandemic.

The research conducted in this paper has shown that there are many published scientific papers in the field of tourism and retail. However, there are significantly fewer published scientific papers dealing with the application of certificates in tourism and retail. The use of ecolabels in tourism and retail have been relatively poorly researched by scholars, especially concerning the simultaneous usages of ecolabels in tourism and retail.

Following this introduction, the paper begins with an explanation of the concept of the certificates and ecolabes and their relationship between tourism and retailing through a literature review. The section that follows provides theoretical discussion and managerial implications of implementation of ecolabes in the development of tourism and retailing. Finally, the paper finishes with a conclusion.

2. LITERATURE REVIEW

Economic development and the constant increase in population over the last 150 years have led to numerous negative consequences on the environment (UN, 2019). This situation led to the concept of sustainable development in 1987 as "development that meets the needs of the present but does not endanger future generations in meeting their needs" (WCED,

1987). The term sustainable development globally was accepted at the UN International Conference on the Environment in Rio de Janeiro in 1992 (UN, 1992). The concept of sustainable tourism development means responding to and meeting the needs of tourists and at the same time preserving the environment and local culture, bringing positive effects to the local economy and improving the quality of life of the local population (WTO, 1998; Inskeep, 1991).

Since the emergence of the concept of sustainable development, tourists have become increasingly concerned about the negative environmental impacts they leave during travel and stay, forcing the tourism industry to carefully plan its development on the principles of sustainability. To achieve sustainability, businesses have begun to implement a green economy especially, after the Rio+20 UN conference (Reddy and Wilkes, 2015). UNEP (2011) defines "a green economy as one that results in improved well-being and social equity, while significantly reducing environmental risks and ecological scarcities". Greening in tourism businesses involves efficiency improvements that will balance the unique needs of all stakeholders in tourism (UNEP and UNWTO, 2012; Mazilu, 2013). One of the instruments that can help achieve green business is the application of various certificates and ecolabels.

A certificate is an official document that states that the information written on it is genuine (Cambridge Dictionary, 2021). Certification is a voluntary process that provides written proof of the product or service and aims to help consumers distinguish between products that meet certain specific requirements (Totem Tourism, 2013). Biodiversity (2012) emphasizes that all certificates have in common some elements:

- voluntary enrolment – businesses decide to apply for certification of not
- logo – which enables the recognition of certificates on the market
- criteria to comply – businesses must fulfil the minimum requirements prescribed by that certificate
- commitment to sustainable development – businesses are committed to adapting their business to the principles of sustainable development
- assessment and auditing – all certificates are awarded by a third party that regularly monitors the application of the minimum requirements prescribed by that certificate
- memberships and fees - most of the certification includes the charge of fee that usually is used for the promotion of logo and to support companies that provide a certificate.

The emergence of the first forms of certification in retail often dates back to ancient times, which usually implies brick manufacturers in Egypt and blacksmiths who made swords in the Roman Empire as the first users of trademarks (Rogers, 1910; Richardson, 2008). Trademark is "a name or symbol on a product that shows it was made by a particular company or person" (Cambridge Dictionary, 2021b). The first legalization of the trademark was in 1266 in Great Britain when the law prescribed that every baker needs to put his mark on the bread he produces (Rogers, 1910). The era of legalization of trademarks began in France in 1857 with the enactment of the law, and later that such laws were brought in other countries as well (Bently, 2008). The modern era of certification started when in 1978 by German Government established Blue Angel as an eco-certificate and in 2021 around 12.000 products and services from around 1,600 companies were awarded this certificate (Blue Angel, 2021).

The first certificate established entirely for the tourism industry was the ecolabel Blue Flag. It was developed in 1985 by the Environmental Education Foundation (FEE) to promote the sustainable development of tourism in marine and freshwater areas and to encourage local authorities to ensure clean and safe beaches (and marinas) for locals and tourists (UNEP, WTO and FEE, 1996; FEE, 2017).

After the appearance of the first certificates on the international tourism market the number of certificates and ecolabels are increased fast for tourism and retail (Fukey and Issac, 2014; UNEP, 1998; Bučar et al., 2019).

A label is a simple description of a product by which potential customers can obtain additional information about the product while ecolabels indicate actions by the environment and sustainable development (Bucklely, 2002). Ecolabel is "an official symbol that shows that a product has been designed to do less harm to the environment than similar products" (Cambridge Dictionary, 2021a). Also, ecolabels "inform consumers about a specific product/service, whereas certification schemes tell them something about the companies (or parts thereof) that produce the products/services" (Biodiversity, 2021). As a positive side of the application of ecolabels, the OECD emphasized that they could help consumers make a purchase decision, on the other hand, consumers may have difficulty distinguishing and not understanding the criteria of similar certificates, which can lead to a loss of credibility (OECD, 2016). Ideally, ecolabels can guarantee tourists that a tourism product is environmentally friendly and committed to sustainable development, due to the overproduction of ecolabels in recent decades, tourists often cannot be sure how reliable such certificates are (Bučar et al., 2019).

Since the 1990ies there has been a significant increase in ecolabels (Biodiversity, 2021). Ecotrans states that the use of ecolabels in tourism has increased significantly since the beginning of the 20th century (Ecotrans, 2016). Thus, the United Nations Environmental Program (UNEP) in 1998 mentions 28 different ecolabels for the tourism industry, while for 2000 Mihalič quotes 30 of them and the European Commission (EC) about 60 of them for the same year (Mihalič, 2000; EC, 2019). For 2013, Totem states that there have been 138 ecolabels in the international tourism market (Totem, 2013). The EC states that in 2018 on the tourism market are a total of 186 different environmental and sustainability certificates from the international up to the local level (EC, 2019). In 2019 there were 203 ecolabels and certificates for the tourism industry, and 106 of them or 52% were for the international level, while 173 out of 85% of them referred to more than one area or poly-focused; for example, one certificate applies to accommodation, transport, attractions, activities, destinations and conferences (Bučar et al., 2019).

3. RESEARCH METHODOLOGY AND RESULTS

In this part of the paper, bibliometric analyses have been performed to provide insight into the application certificates and ecological labels present in scientific research. The research for this paper is based on research conducted by Bučar et al., 2019 and Čorak et al., 2020, and then adapted to the needs of the research topic.

A bibliometric analysis was performed to obtain data on published scientific papers covering a specific area (Dabić et al., 2017). In particular, a keyword survey of all scientific articles indexed in the Web of Science (Wos) Core Collection database has been conducted. The WoS database has chosen because it is the platform that has the world's highest citation index for the social sciences.

The research was performed on July 13, 2021, and covers the period from the mid-1950s since the electronic version of WoS was available to the present day. In the first step, related keyword research has been conducted focusing on the combination of the terms "tourism", "retail" and "tourism AND retail". In the second step, a search has performed by using a combination of the keywords "certification * AND tourism", "certification * AND retail" and "certification * AND tourism AND retail". To the keyword "certification" was added an

asterisk to identify all words with this root. In the last step, the search was carried out by combining the keywords "ecolabel * AND tourism", "ecolabel * AND retail" and "ecolabel * AND tourism AND retail". During this search, an asterisk of the keyword "ecolabel" was added to identify all words with this root, such as "ecolabels" or "ecolabelling".

In the first step, the search of scientific papers in the WoS database showed that the first scientific paper on retail has been published in 1918. The next scientific paper on this topic has published in 1920. Each year since 1945, more than 2 papers have been published annually. The number of published papers increased every year, so in 1968 more than 100 papers have been published for the first time. More than 5.000 scientific papers on the topic of retail have been published the first time in 2012, while in 2019 there were the most published scientific papers in the WoS database, 9.709 of them.

Bibliometric research in the WoS database showed that there is a larger number of published papers that focus on tourism than in the retail field. The first two papers dealing with tourism research in this scientific database have been published in 1948. Since 1974, more than 100 papers on the topic of tourism have been published annually, and in 1992, more than 1,000 papers have been published for the first time. In 2008, more than 5,000 papers have been published for the first time, and in 2015, more than 10,000 scientific papers have been published in the WoS database in the field of tourism.

At the end of the first step of the WoS Core Collection database search, 1,568 scientific search papers were matched with the keywords "tourism and retail". The first two scientific papers in this field have been published in 1975. The number of published papers covering areas of tourism and retail continuously increased. In 1996 have been published 20 papers, in 2003 70 of them, and in 2017 it is noted 91 scientific papers published in WoS Core Collection. In that period more than 100 published papers in their focus of research had tourism and retail. In 2020, have been published 108 scientific papers in that field which makes the largest number of published papers on the subject in one year. This number of published articles which covers both economic activities is relatively small considering the number of published papers in the field of tourism and in the field of retail.

Table 1. Results of bibliometric analysis in WoS Core Collection

TOPIC OF RESEARCH	NUMBER OF ARTICLES	YEAR OF FIRST PUBLISHED ARTICLE/S IN THIS FIELD
Tourism	156.686	1948
Retail	73.858	1918
Tourism and retail	1.568	1975
Certification and tourism	772	1987
Certification and retail	503	1957
Certification tourism and retail	8	2000
Ecolabel tourism	70	2002
Ecolabel retail	34	1999
Ecolabel tourism and retail	0	-

Source: author-compiled based on collected data

The second step of the bibliometric analysis of the WoS database was performed to search scientific papers that focused on the application of certificates in tourism and retail. In this step of bibliometric analysis, the WoS database search showed that the first paper on the

application of certificates in retail has been published in 1957. That is 30 years earlier than the first paper on the application of certificates in tourism has been published. However, the search showed that more published papers had in focus application of the certificates in tourism, 772 of them. While in the same time were 503 published papers that had in the focus of their research application of certificates in retail. However, in the WoS database have been published only 8 papers which in their focus of research have at the same time application of certificates in tourism and retail. From those 8 published papers dealing with the application of certificates in retail and tourism in the WoS database, 3 published papers study the application of certificates from a retail perspective, while 5 published papers that study this issue from a tourism perspective. In 2000, have been published the first two scientific papers in the WoS database focused their research on the application of certificates in tourism and retail. Those published papers looked at the application of certificates in retail and tourism from a retail perspective as the paper published in 2003. Then for the next thirteen years, no scientific articles on this topic have been published in the WoS database on the research topic. A scientific paper published in 2015 investigated the application of certificates in retail and tourism from a retail perspective as well, and it was the last published paper in the WoS database which investigated the role of certificate application in retail with implementation in tourism. A scientific paper published in 2001 and two papers published in WoS database 2020 and 2021 looked at the application of certificates in retail and tourism from a tourism perspective.

Table 2. Articles about certification simultaneously applied in the field of the tourism and retail, published in WoS Core Collection

AUTHOR/S	YEAR	JOURNAL	TITLE	MAIN CONCEPTS/RESULTS
Baumber, A. Merson, J., Lockhart Smith, C.	2021	CLIMATE	Promoting Low-Carbon Tourism through Adaptive Regional Certification	• climate change significantly affects the sustainable development of tourism • tourism has an impact on climate change • the tourism industry can encourage changes in the behaviour of all tourism participants • developing sustainable tourism development program, the tourism industry can be a catalyst for changing community action including schools and retail
Guimaraes, P.	2021	INTERNATIONAL JOURNAL OF TOURISM CITIES	Retail change in a context of an overtourism city. The case of Lisbon	• retail has significant role in overtourism development in cities • retail has significant role in tourist satisfaction; and numerous elements play a crucial role in that process • the retailer adapts their shops to the amount of free time that tourists have during their stay in tourist destination • the importance of the "authentic" certificates that gives tourists confirmation of the quality and authenticity of local products
Athanasopoulos, K., Christodoulopoulou, G., Karolemeas, C., Kyriakidis, C., Noutsou, M.-S., Papagerasimou-Klironomou, T., Siti, M., Stroumpou, I., Vassi, A., Tsiodinos, S. Tsilo	2020	SUSTAINABILITY	Development of a Cycle-Tourism Strategy in Greece Based on the Preferences of Potential Cycle-Tourists	• cycle-tourism becoming an important special interest of tourism which requires specific infrastructures where small shops play an important role • the development of small shops as a meeting place of tourists with local culture in remote villages plays the important role in the development of tourism • small stores should fulfil certain criteria's that would confirm obtaining a certificate as companies adapted to cycle-tourist

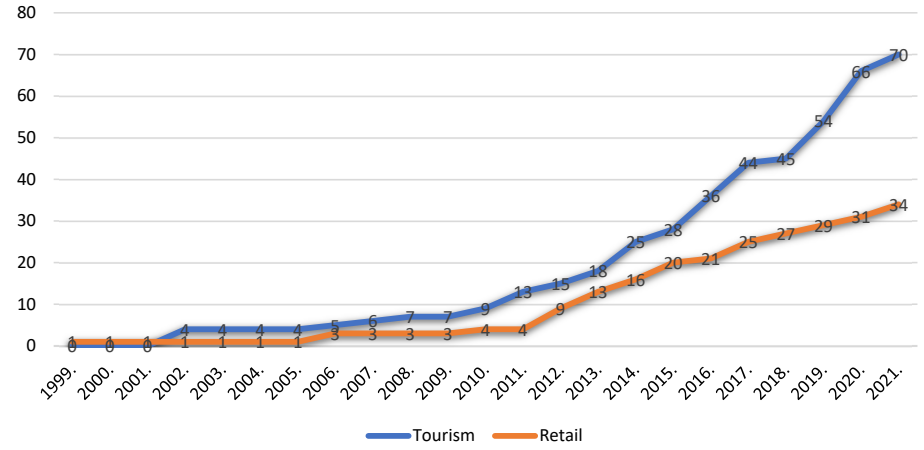
Vintila, I.	2015	TRENDS IN FOOD SCIENCE & TECHNOLOGY	Actual state and perspectives of Christian religious dietary laws and certification in Romania	• paper pointed out traditional food has an important part of religious tourism • in religious tourism food companies should guarantee that all religious requirements are fulfilled when introducing certificates in the hospitality and tourism industry • to make the process simpler and to meet all the necessary conditions, food authorities should provide clear guidelines that will include a list of acceptable ingredients in order to enable simpler business for manufacturers and retail trade
Zylbersztajn, D., Machado, CAP.	2003	SUPPLY CHAIN MANAGEMENT -AN INTERNATIONAL JOURNAL	Competitiveness of meat agri-food chain in Brazil	• paper emphasizes importance of reinforcing the relation between coordination and competitiveness • the discussion on competitiveness should be based on a comparison of agribusiness chains, and not just a comparison of costs and market share of countries, as obtaining subsidies can lead to inconsistencies in the results of the analysis • it is necessary to create a system that will enable the inclusion of different regions in the global market through standardization and the introduction of certificates
Harris, R., Jago, L.	2001	TOURISM MANAGEMENT	Professional accreditation in the Australian tourism industry; an uncertain future	• some employees began to seek for the possibility of obtaining a certificate for their specific knowledge in certain activities in tourism • employers have started activities that would allow their employees to receive special accreditations and certificates for those who are work in certain tourist activities such as meetings, short trips.. • there are certain problems in creating such certificates which jeopardise that whole process of accreditation • such problems are almost identical to the problems to those which occur when awarding certificates in other parts of tourism
Tan, YH., Thoen, W.	2000	DECISION SUPPORT SYSTEMS	INCAS: a legal expert system for contract terms in electronic commerce	• business begins to transform in such a way that the paper trade documents are replaced by electronic messages enabling faster transmission of documents and their automated processing by computer • one of the examples where such electronic messages are applied are trade agreements that are negotiated and concluded online • INCAS system can provide an electronic service for the organization and transport of goods and for documents on the origin of goods and their quality certificates
Dowlatshahi, S.	2000	INTERNATIONAL JOURNAL OF PRODUCTION ECONOMICS	Designer-buyer-supplier interface: Theory versus practice	• paper stressed out the importance of cooperation between designer and customers for strategic, tactical and operational planning with a focus on the relationship with suppliers • in achieving a successful process, the importance of 9 elements is emphasized, which are: long-term strategic alliances, supplier R&D investment and financial strength, confidential relationships reducing the number of suppliers, information sharing, constant training and education of employees, supplier plant visitation, supplier training/meetings, and the inspection and receiving policy

Source: author-compiled based on collected data

In the last step of bibliometric analysis, a search of scientific papers in the WoS database was conducted, where the keywords were "ecolabel * AND tourism", "ecolabel * AND

retail" and "ecolabel * AND tourism AND retail". The research showed that the first paper in the field of retail-related to ecolabel was published three years earlier than in the same field in tourism. And although the first Ecolabel was established in 1987 (Blue Flag), the first journal article on this topic indexed in the WoS Core online database was published in 2002, a gap of fifteen years. However, by 2021, almost twice as many scientific papers have been published in the field of ecolabel and tourism than have been published in the field of ecolabel and retail. The search showed that there are no published scientific papers in the WoS database that lists all three keywords, "ecolabel * AND tourism AND retail" keywords.

Chart 1. Year of publishing ecolabels in field of tourism and in the field of retail



The performed research has shown that until the summer of 2021 no scientific paper has been published in the scientific WoS database dealing with the research topic of the application of ecolabels in tourism and retail. These results indicate that scholars are not interested in research this topic even market trends show that the application of ecolabels in business practice going to become increasingly important and will improve the attractiveness and competitiveness of products (Batić and Gojčić, 2011; Bučar et al., 2019). However, it would be important that scholars in their focus of research put more topics on implementation of certification in tourism and retail at the same time. For sure they could provide important insights into this problem. Also, they could provide some solutions which could be implemented in the businesses practice. That would be extremely important due to the fact that retail is an integral part of the tourist offer (Čavlek, et al., 2011) and because tourism and retail need to work closely together to operate successfully in the market.

4. DISCUSSION AND IMPLICATIONS

Tourism is a complex economic activity that includes in its business a large number of stakeholders who provide a large number of products and services that the tourism industry needs. Tourist resources, hospitality, transport, tourist agencies and the organization of tourism, as well as retail, are the components of the tourist offer (Čavlek et al., 2011). For tourism and retail to be successful, it is necessary that have a common vision of the future tourism development for the benefit of all stakeholders at the level of the tourist destination. Destination management organizations (DMOs) should play an important role in this process.

DMOs should follow the trends in the tourism market and should be able to adapt their work and development plans to all new situations (Foris et al., 2020). The emergence of the Covid-19 pandemic in 2020 that caused unpredicted changes in the international tourism market, certainly is one of these situations. Such a rapid and strong decline of all movements in the international tourism market has not been recorded since the 1950s since the movement of tourist trips, overnight stays and revenues in the international tourist market has been monitored (UNWTO, 2021).

Such a completely unexpected situation, which lasts for almost two years, will lead to a change in the habits of tourists, their requirements and trends in the tourism market. The task of the tourism industry is to respond to all those requirements correctly. Before the outbreak of the Covid-19 pandemic, the problem of over-tourism in some tourist destinations was increasingly pronounced. This problem often is a result of the rapid and unplanned development of tourism which has led to excessive consumption of resources, overloading of infrastructure in tourist destinations. All that have significantly negatively affected the environment and the quality of life of the local population. Withal, that often causes dissatisfaction of tourists who expected a preserved environment on their travels.

In the last few decades, there has been an increasing awareness of the importance of preserving the environment (Renko et al., 2010). At the same time, more and more tourists express their view that they want their trip to have no negative impact on the environment and that their travel contributes to sustainable development in the tourist destination. Withal, tourists stated that if the price of a tourist product is the same, they would always choose the one that has a lower impact on the environment (Iraldo et al., 2020). Therefore, the tourism industry should make additional efforts in tourism development that will not harm the environment.

In this whole process, certificates and ecolabels could play an important role. Ecolabels promote sustainability without compromising consumer freedom of choice (Grunert and Wills, 2007). By implementing ecolabels and certificates in business practice, consumers could in most cases receive valid information on activities that help the environment, such as reducing water consumption, the use of renewable energy sources, better waste management, etc. (Biodiversity, 2021). The goal of implementing ecolabels has always been to combine customer satisfaction and company competitiveness to ultimately reduce the environmental impact of products (Iraldo et al., 2020). At the same time, the application of certificates and ecolabels can improve the quality of life of local people and increase their income as well. The purchase of domestic products gives an additional impetus to the local economy.

Therefore, implementation certificates and ecolabels in businesses could play an important role in attracting consumers by providing them with valid product information as well as being an instrument in reaching sustainable development.

Thus, the cooperation of all stakeholders in the tourism industry is a necessity, especially in retail which is a direct part of the tourist offer. Thus, it would be important to develop even more certificates that will unite these two economic activities. All participants in tourism should take their share of responsibility for the future tourism development on the principles of sustainability, from the international level until the local level, including entrepreneurs, the local population and tourists (Bučar et al., 2010).

The UNWTO should play a major role in this process by adopting major guidelines for tourism development worldwide. The WTO should play an equally important role in the field of tourism and retail. In 2020, the WTO launched an initiative entitled “Structured Debates on Trade and Environmental Sustainability” (TESSD) which states that the COVID-19 crisis has shown the need to diversify and strengthen the resilience and sustainability of global supply

chains to ensure trade stability global challenges ", but also that in future development" environmental sustainability should be one of the guiding principles" (WTO, 2020).

Cooperation between these two organizations at the international level should provide guidelines on which each state should create the preconditions for their implementation by enacting laws and regulations.

In this process, governments should not be guided by short-term goals and rapid revenue generation already by the idea that sustainable development brings positive effects to all involved in the process.

Equally, scientists should take a more active role. Scientists focusing their research more in this direction would give additional importance to the topic of applying certifications and ecolabels in business practice. Through their research, scholars could generate important insights that could certainly help facilitate the implementation of certifications in business practice as well. In this way, scholarships would contribute to easier and faster implementation of the principles of sustainable development in the practice.

4. CONCLUSION

Every year is increasing the number of people participating in the international tourism market, and this trend is expected to continue after the end of the global Covid-19 pandemic. In such a situation, various certificates and ecolabels that provide tourists with valid information on the quality of services and products will become more important. At the same time, certificates and ecolabels will enable tourism development on the principles of sustainability. Therefore, more certificates and ecolabels should be developed that jointly cover these two economic activities.

Tourism and retail are often the focus of research by scientists who published a lot of scientific papers dealing with these economic activities. However, although retail is an integral part of the tourist offer, a relatively small number of scientific papers have been published that investigate the relationship between retail and tourism. There are even fewer published scientific papers on the usage of certificates in tourism and retail. There are even fewer the number of published scientific papers on the application of ecolabels in tourism and retail. Given the fact that without good business cooperation between retail and the tourism industry, there is no quality tourism product, this topic should be more in the focus of research scholars.

Also, scholars should devote more time to researching this issue because the application of certificates and ecolabels certainly will be of increasing importance in the business application of both tourism and retail after the end of the Covid-19 pandemic.
The limitations of this research are expressed through the use of searching only one database of scientific papers. The analysis of other databases of scientific papers should be carried out, for sure that kind of research would bring broader insight into the published papers dealing with the application of certificates and ecolabels in the field of tourism and retail.

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THE IMPACT OF COVID-19 ON INTERNATIONAL TRADE: AN EVIDENCE FROM CROATIA

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Abstract

COVID-19 pandemics has led to unprecedented collapse of world economy, followed by the supply and demand disruptions, fall in commodity prices, reduced manufacturing output and disrupted operations in global value chains. The crisis also dealt a violent blow to the international trade, with disruptive economic impact of lockdown measures taken. The goal of this paper is to estimate the impact of COVID-19 on international trade in the case of Croatia. The data for the analysis are provided on a monthly basis for the period from January 2019 to February 2021. For the purpose of the analysis, eight panel regression models will be constructed for Croatian bilateral trade with over 180 countries in the world. In four panel regression models the role of dependent variable will have the Croatian exports variable while in other four panel regression models the role of dependent variable will have the Croatian imports variable. On the other side, the independent variables in the model will be the new cases and new deaths due to the COVID-19 variables, the stringency index and lockdown dummy variable. It is expected that all explanatory variables will have negative effect on the value of Croatian bilateral exports and imports. This study can be important for economic policy makers and trade related subjects in order to evaluate changes in trade flows in the time of pandemics.

Key words: COVID-19, international trade, Croatia.

1. INTRODUCTION

The COVID-19 pandemic has led to an unprecedented collapse of the world economy, followed by the supply and demand disruptions. Like other spheres of an economic activity, the international trade was also a victim of the COVID-19 pandemic, Zhang, et al. (2021). There was a fall in commodity prices, reducing manufacturing output and disrupting operations in global value chains, Escaith and Khorana (2021). COVID-19 pandemic has reshaped the trade landscape. The crisis has dealt a violent blow to the international trade with disruptive economic impact of lockdown measures taken, Jean (2020). World trade is being severed by the COVID-19 pandemic. Barua (2020) identified five waves of COVID-19 impact on international trade. In the beginning of the pandemics there was localized direct impact, following with the effects on trade activities and capital flows, having global implications for the world market. The use of trade instruments to mitigate the health effects of the trade collapse induced by COVID-19, such as wide-ranging links between trade, trade policy and the determinants of health and health inequalities should be carefully considered, Barlow et al. (2021).

Although economic theory and empirical research on the impact of coronavirus crisis on the international trade is relatively new, related to the last one or two years, there is considerable amount of papers on this subject. The previous investigation in this field of research covered the resilience of trade to COVID-19, Bas et al. (2021), trade under lockdown, Berthou and Stumpner (2021), heterogeneous impacts of COVID-19 on trade, Cai

and Hayakawa (2020), lessons from the first wave, Espitia et al. (2021a), pandemic trade, remote work and global value chains, Espitia et al. (2021b).

The goal of this paper is to investigate the impact of COVID-19 on international trade in the case of small country, Croatia, which is the contribution of this paper in regards to the previous research which was related to the case study of large countries, such as China and United States, Zhang et al. (2021). The hypothesis of this paper states that all explanatory variables included in the analysis (new cases and new deaths due to the COVID-19, the stringency index and lockdown dummy variable) will have the negative effect on the value of Croatian bilateral exports and imports, meaning that there is a negative effect of COVID-19 related variables on the bilateral trade flows in Croatia. The methodology of the paper is based on the construction of panel data regression models for Croatian bilateral trade with over 180 countries in the world. The determination of the appropriate panel data regression model is made using three tests: Hausman test, F-test and Breusch-Pagan test.

Paper is structured in five chapters. First chapter is introduction, second chapter presents literature review on the topic, in methodology and data section the descriptions of variables and data sources are displayed as well as the methodology for construction of panel data regression models. In results and discussion section descriptive statistics of data is shown, after which the main results of the panel regression modelling for Croatian exports and imports are displayed. The last section presents concluding remarks.

2. LITERATURE REVIEW

In this section the empirical research about the impact of COVID-19 related variables on the international trade will be presenteed and elaborated. Bas et al. (2021) used COVID-19 deaths figures and lockdown stringency index variable throughout their analysis in order to demonstrate the resilience of trade to COVID-19. Berthou and Stumpner (2021) constructed a measure for trade under lockdown for third-country stringency in a robustness specification, although not for the COVID-19 incidence variables. Cai and Hayakawa (2020) investigated the impact of COVID-19 on China's province-level trade using monthly trade data from January to August 2019 and 2020. A rise in confirmed cases of infection decreased exports and imports, especially until March 2020. Using disaggregated export data for multiple countries, Espitia et al. (2021a) showed that participation in global value chains increases exporters' vulnerability to foreign shocks, but it also reduces vulnerability to domestic shocks. Using monthly bilateral trade data for 28 exporting countries over the period from January to June 2020, Espitia et al. (2021b) studied how COVID-19 pandemic impacted international trade. There was a strong evidence for a claim that sectoral characteristics such as the feasibility of remote work, durability of goods and integration into global value chains play a significant role in mitigating the trade effects of COVID-19 shocks. Baldwin (2020) compared the 2020 trade collapse with the 2008-09 Great Depression trade collapse. COVID-19 pandemic is both a demand and a supply shock while the 2008-09 collapse was driven mostly by a demand shock, involving a disproportionate fall in demand for tradable goods, inventory adjustments or postponement of durable goods purchases, Behrens, Corcos and Mion (2013). Consequently, there was a danger of permanent damage to the trade system driven by policy and firms' reactions, Baldwin and Tomiura (2020).

Evenett et al. (2002) introduce a new data set for trade policy interventions on a weekly basis, from January 2 to mid-October 2020, in order to control for trade flows of food, medical supplies and personal protective equipment. There was a big jump in trade policy activism starting from February 2020. Consequently, countries responded to the COVID-19

pandemic with different combinations of export controls and import liberalization measures. Short-term consequences of the COVID-19 pandemic have been serious for international trade but they do not appear to be unmanageable, Gruszczynski (2020). On the other side, long-term consequences of the COVID-19 pandemic may be more profound than initially anticipated, leading to structural changes.

Using monthly trade data between January and June 2019 and 2020, Hayakawa and Mukunoki (2021a) quantified how lockdown policies affected international trade in the first half of 2020. Stay-at-home orders did not have significant effect on trade while workplace closures had significant negative effects on trade. Hayakawa and Mukunoki (2021b) provided an evidence from the first shock of COVID-19 on international trade using monthly data on worldwide trade from January to August 2019 and 2020. The main findings of the paper can be summed up as: (1) there was a significant negative effect of COVID-19 on the international trade of both exporting and importing countries, (2) the effects of COVID-19 in importing countries tended to become insignificant since July 2020 and (3) there were heterogeneous effects across industries. According to Liu, Ornelas and Shi (2021) the trade impact of the COVID-19 pandemic is significantly mitigated for products with a higher work-from-home share and durable consumption goods but weaker for capital goods.

Maliszewska, Mattoo and van der Mensbrugghe (2020) simulated the potential impact of COVID-19 on GDP and trade. Their trade scenarios forecasted decline in GDP by 3.9%, with developing countries hiting the hardest (4% on average, but for some countries over 6.5%). The impact of containment policies imposed in China after the first reported outbreak of the pandemic in Wuhan shown decline in exports. The economic impacts of COVID-19 are also sensitive to the speed of lockdown restrictions, Verschuur, Koks and Hall (2021). The USA showed a lagged response in exports decline relative to the moment when a lockdown was imposed. Zhang, et al. (2021) examined the impact of COVID-19 on international trade using monthly data for China and USA and Fourier causality test. The findings indicate direct causal relationship between the COVID-19 related deaths and trade flows (exports and imports) of China and United States. On the other side, COVID-19 cases did not have a causal relationship with the exports and imports of China.

3. METHODOLOGY AND DATA

In this chapter the observed data will be described, alongside with the brief explanation of research methodology applied in the analysis. The main focus of the research is given to Croatian bilateral imports and exports and the COVID-19 related variables that affects it. The full list of observed variables is presented in Table 1.

Table 1. List of observed variables

Variable	Variable description	Source
Exports	Exporting value in thousands of US dollars	International Trade Centre (2021a)
Imports	Importing value in thousands of US dollars	International Trade Centre (2021b)
New cases	New COVID-19 cases, on monthly level	World Health Organization (2021)
New deaths	New COVID-19 deaths, on monthly level	World Health Organization (2021)
Stringency index	Stringency index is a composite measure based on nine response indicators, including school closures, workplace closures and travel bans, rescaled to a value from 0 to 100 (with 100 being the strictest).	Our World in Data (2021)
Lockdown	If the value of stringency index is larger than 0, the lockdown dummy variable equals 1. If the value of stringency index is equal to 0, the lockdown dummy variable equals 0.	Authors, based on Our World in Data (2021)

Source: authors.

For all observed variables the monthly data from January 2019 to February 2021 are collected and used in the analysis. As mentioned, the focus is given to Croatian bilateral exports and imports. The variable Exports represents the bilateral exporting value from Croatia to other countries worldwide. On the other side, the variable Imports represents the bilateral importing value from other countries from the world to Croatia. In the observed period Croatia exported to 195 countries and imported from 184 countries in the world. The changes in Croatian exports and imports during the COVID-19 pandemic will be modelled by using different COVID-19 variables and COVID-19 impact measures.

The variables that describe the level of COVID-19 infection in Croatia are the New cases and New deaths variables. The New cases variable shows the population of newly infected people by the COVID-19 disease in a certain month. For the purpose of the analysis, the number of new COVID-19 cases will be observed separately for Croatia and for Croatian trade partner countries. The same approach will be than applied for the New deaths variable. The monthly number of new deaths cases due to the COVID-19 infection is also separately observed for Croatia and other trade partner countries. As a way of fighting against COVID-19 infection during the COVID-19 pandemic the countries have introduced different measures related mainly to restrictions on population movement and economic activities. The level of such restrictions is measured with the Stringency index variable. The Stringency index takes into account different restriction measures according to which the value of index is calculated. It can have a value from 0 to 100, where the value 0 means that there are no restrictions whatever whereas the value of 100 represents the maximum restriction level. The Stringency index is daily calculated. The monthly values are calculated by averaging daily values for each month separately. Again, the Stringency index variable will be observed twice, firstly for Croatia and then separately for other trade partner countries.

Based on the Stringency index variable, additional dummy variable, Lockdown, will be introduced. The Lockdown dummy variable is equal to zero if the Stringency index is also equal to zero. This refers to the situation when there are no COVID-19 restrictions in the observed country in the certain month. Opposite to that, when there are some COVID-19 restrictions in the certain month and country, the value of Stringency index is larger than zero, with maximum value of 100. In such cases, the Lockdown dummy variable will have the

value of 1. Therefore, the Lockdown dummy variable points out whether there are some COVID-19 restrictions or not.

In the first step of the analysis, basic descriptive statistics of the observed variables will be conducted. After that the panel data regression modelling will be made. Due to the fact that data are available for all observed countries and time periods, balanced panel regression models will be applied. Overall, eight balanced panel regression models will be estimated. In four panel regression models the role of dependent variable will have the Croatian exports variable while in other four panel regression models the dependent variable will be the Croatian imports variable. Due to the fact that Croatia exports goods and services to uneven number of countries than it imports it from, the balanced panel models will be of different sizes.

Table 2. The list of panel data regression models

Model code	Panel data regression model
E1	$Exports_{i,t} = \hat{\beta}_0 + \hat{\beta}_1 \times New\_cases\_exporter_{i,t} + \hat{\beta}_2 \times New\_cases\_exporter_{i,t-1} + \hat{\beta}_3 \times New\_cases\_importer_{i,t} + \hat{\beta}_4 \times New\_cases\_importer_{i,t-1} + \hat{\beta}_5 \times Stringency\_index\_exporter_{i,t} + \hat{\beta}_6 \times Stringency\_index\_importer_{i,t} + \varepsilon_{i,t}$
E2	$Exports_{i,t} = \hat{\beta}_0 + \hat{\beta}_1 \times New\_cases\_exporter_{i,t} + \hat{\beta}_2 \times New\_cases\_exporter_{i,t-1} + \hat{\beta}_3 \times New\_cases\_importer_{i,t} + \hat{\beta}_4 \times New\_cases\_importer_{i,t-1} + \hat{\beta}_5 \times Lockdown\_exporter_{i,t} + \hat{\beta}_6 \times Lockdown\_importer_{i,t} + \varepsilon_{i,t}$
E3	$Exports_{i,t} = \hat{\beta}_0 + \hat{\beta}_1 \times New\_deaths\_exporter_{i,t} + \hat{\beta}_2 \times New\_deaths\_exporter_{i,t-1} + \hat{\beta}_3 \times New\_deaths\_importer_{i,t} + \hat{\beta}_4 \times New\_deaths\_importer_{i,t-1} + \hat{\beta}_5 \times Stringency\_index\_exporter_{i,t} + \hat{\beta}_6 \times Stringency\_index\_importer_{i,t} + \varepsilon_{i,t}$
E4	$Exports_{i,t} = \hat{\beta}_0 + \hat{\beta}_1 \times New\_deaths\_exporter_{i,t} + \hat{\beta}_2 \times New\_deaths\_exporter_{i,t-1} + \hat{\beta}_3 \times New\_deaths\_importer_{i,t} + \hat{\beta}_4 \times New\_deaths\_importer_{i,t-1} + \hat{\beta}_5 \times Lockdown\_exporter_{i,t} + \hat{\beta}_6 \times Lockdown\_importer_{i,t} + \varepsilon_{i,t}$
I1	$Imports_{i,t} = \hat{\beta}_0 + \hat{\beta}_1 \times New\_cases\_importer_{i,t} + \hat{\beta}_2 \times New\_cases\_importer_{i,t-1} + \hat{\beta}_3 \times New\_cases\_exporter_{i,t} + \hat{\beta}_4 \times New\_cases\_exporter_{i,t-1} + \hat{\beta}_5 \times Stringency\_index\_importer_{i,t} + \hat{\beta}_6 \times Stringency\_index\_exporter_{i,t} + \varepsilon_{i,t}$
I2	$Imports_{i,t} = \hat{\beta}_0 + \hat{\beta}_1 \times New\_cases\_importer_{i,t} + \hat{\beta}_2 \times New\_cases\_importer_{i,t-1} + \hat{\beta}_3 \times New\_cases\_exporter_{i,t} + \hat{\beta}_4 \times New\_cases\_exporter_{i,t-1} + \hat{\beta}_5 \times Lockdown\_importer_{i,t} + \hat{\beta}_6 \times Lockdown\_exporter_{i,t} + \varepsilon_{i,t}$
I3	$Imports_{i,t} = \hat{\beta}_0 + \hat{\beta}_1 \times New\_deaths\_importer_{i,t} + \hat{\beta}_2 \times New\_deaths\_importer_{i,t-1} + \hat{\beta}_3 \times New\_deaths\_exporter_{i,t} + \hat{\beta}_4 \times New\_deaths\_exporter_{i,t-1} + \hat{\beta}_5 \times Stringency\_index\_importer_{i,t} + \hat{\beta}_6 \times Stringency\_index\_exporter_{i,t} + \varepsilon_{i,t}$
I4	$Imports_{i,t} = \hat{\beta}_0 + \hat{\beta}_1 \times New\_deaths\_importer_{i,t} + \hat{\beta}_2 \times New\_deaths\_importer_{i,t-1} + \hat{\beta}_3 \times New\_deaths\_exporter_{i,t} + \hat{\beta}_4 \times New\_deaths\_exporter_{i,t-1} + \hat{\beta}_5 \times Lockdown\_importer_{i,t} + \hat{\beta}_6 \times Lockdown\_exporter_{i,t} + \varepsilon_{i,t}$

Source: authors.

In panel regression models where the dependent variable will be the Croatian exports variable, the balanced panel will be consisted of 195 countries and 25 monthly values, total of 4,875 observations. On the other hand, in the panel models where the dependent variable will be Croatian imports variable, the balanced panels will be comprised of 184 countries and 25 monthly values, total of 4,600 observations. The independent or explanatory variables will be the same for all panel regression models because the intention was to compare different trade flows (exports and imports). The full list of panel data regression models which will be estimated is presented in Table 2.

In order to select appropriate panel data regression model, three statistical tests will be conducted (Hausman test, F-test and Breusch-Pagan test) which will decide what panel regression model will be estimated (pooled OLS, random effects or fixed effects models).

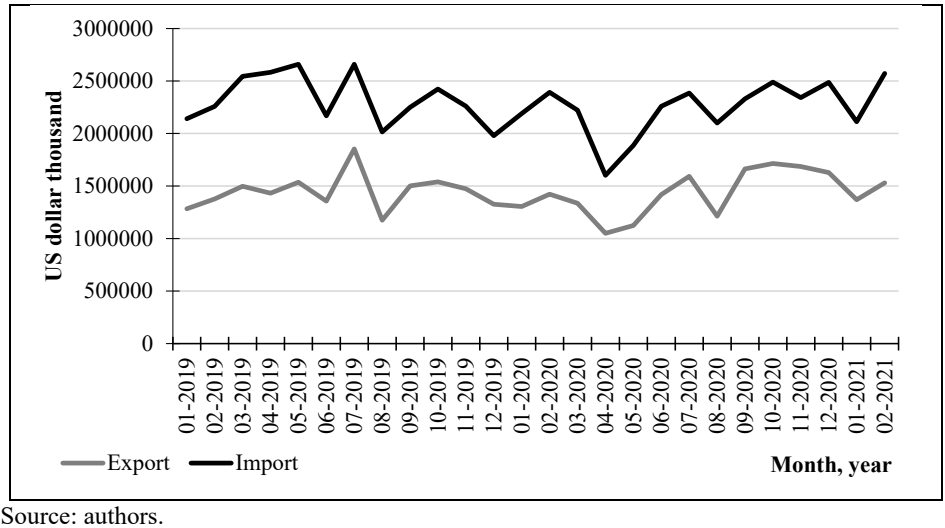
4. RESULTS AND DISCUSSION

In this section the main findings of the paper and discussion of results will be displayed and elaborated.

4.1. Descriptive statistics results of the observed variables

In Figure 1 the values of exports and imports for Croatia, in period from January 2019 to February 2021, are shown. It can be noticed that the monthly values of imports are higher than the monthly values of export in the whole observed period. According to the Figure 1, it seems that the absolute difference remained about the same in the whole observed period. The exports and imports variables have also the similar direction of their change. This statement is supported and confirmed by the value of Pearson coefficient of correlation which amounts to 0.82.

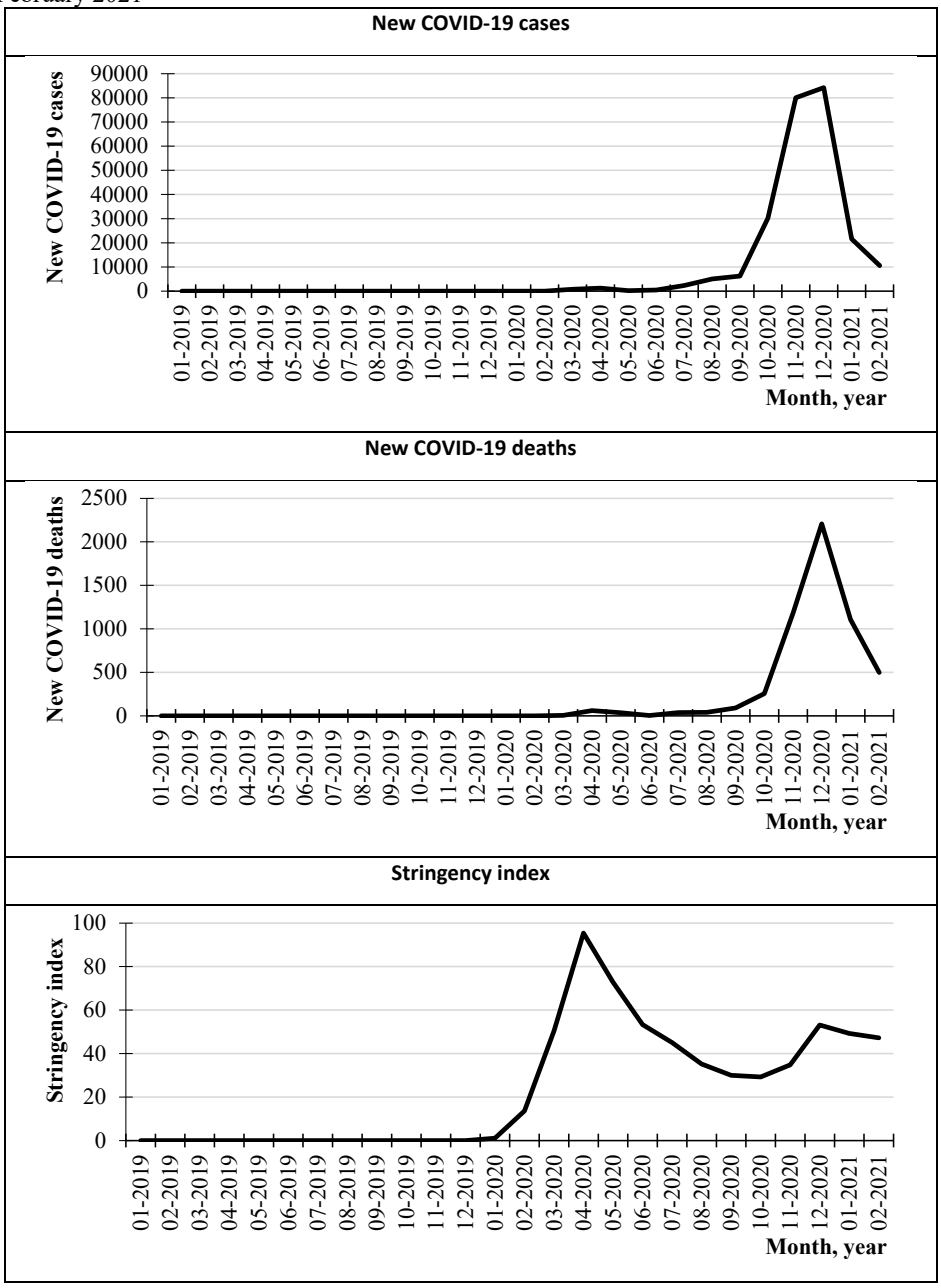
Figure 1. Croatian exports and imports in the period from January 2019 to February 2021, in thousands of US dollars



Source: authors.

The Figure 2 is consisted of three figures, each presenting one measurement of COVID-19 level of pandemics in Croatia, in the period from January 2019 to February 2021.

Figure 2. The observed COVID-19 variables in Croatia in the period from January 2019 to February 2021



Source: authors.

Due to the fact that the first COVID-19 cases in the world were confirmed at the very end of 2019, all observed COVID-19 variables related to Croatia, are equal to zero in 2019. However, as the aim of the paper is to inspect the changes in Croatian exports and imports due to the COVID-19 pandemic, it was necessary to include into the analysis the pre-COVID-19 periods, as well. According to the new COVID-19 cases and the new COVID-19 deaths figures, it can be concluded the most severe form of COVID-19 pandemics in Croatia was during the last quarter of 2020. However, according to the stringency index, the highest restriction level in force in Croatia was in April 2020. The basic descriptive statistics results for the observed variables, except for the Lockdown variable, are given in Table 3.

Table 3. Basic descriptive statistics results of the observed variables, from January 2019 to February 2021

Statistics	Variable				
	Exports	Imports	New cases	New deaths	Stringency index
Average	1,438,545	2,280,944	9,345	213	23
Standard deviation	190,520	249,269	22,622	516	28
Coefficient of variation	13%	11%	242%	243%	118%
1st quartile	1,329,144	2,147,591	0	0	0
Median	1,427,284	2,259,526	3	0	7
3rd quartile	1,538,972	2,471,187	4,376	56	47
Minimum	1,050,474	1,602,051	0	0	0
Maximum	1,853,612	2,659,923	84,225	2,208	95

Source: authors.

According to the descriptive statistics results it can be concluded that the values of exports and imports for Croatia have low variability level. On the other side, according to the coefficient of variation, the COVID-19 variables have much higher variability level. This was partially expected due to the fact that the values from 2019, when those variables where equal to zero (as Figure 2 reveals), have been taken into analysis as well.

4.2. Panel analysis of Croatian exports

In Table A1., in the Appendix, the results of the statistical tests (Hausman test, F-test and Breusch-Pagan test) for determination of appropriate panel data regression models, in which the dependent variable was Croatian exports, are displayed. According to the results of aforementioned statistical tests, the fixed effect model was the most appropriate for all panel data regression models. The results of estimated panel data regression models are presented in Table 4.

Table 4. Estimated balanced panel data regression models, dependent variable Croatian exports, 195 trade partner countries in the period from January 2019 to February 2021

Explanatory variables	Panel data regression model			
	E1	E2	E3	E4
Constant	7533.45*	7490.74*	7563.90*	7490.74*
New_cases_exporter	0.0216*	0.0246*		
New_cases_exporter $(t-1)$	−0.0057	−0.0094		
New_cases_importer	0.0046*	0.0047*		
New_cases_importer $(t-1)$	−0.0013	−0.0012		
New_deaths_exporter			1.0161*	1.0076*
New_deaths_exporter $(t-1)$			−0.3773	−0.4851
New_deaths_importer			0.0449	0.0419
New_deaths_importer $(t-1)$			0.0034	0.0171
Stringency_index_exporter	−21.8433*		−26.9122*	

Stringency_index_importer	6.9115		13.1385*	
Lockdown_exporter		−267.640		−230.655
Lockdown_importer		−358.470		−233.997
Diagnostics				
Mean dependent variable	7,408.982	7,408.982	7,408.982	7,408.982
LSDV R-squared	0.9500	0.9498	0.9495	0.9493
Log-likelihood	−49,258.46	−49,265.97	−49,280.76	−49,291.91
Rho	0.1922	0.1939	0.1974	0.2002
S.D. dependent var	26,465.62	26,465.62	26,465.62	26,465.62
Akaike criterion	98,918.91	98,933.93	98,963.52	98,985.82
Durbin-Watson	1.5814	1.5782	1.5712	1.5659
Observations	4,875	4,875	4,875	4,875

Note: * statistically significant at 0.05 level.
Source: authors.

According to the results from Table 4, when the time lag of one month was introduced, there was a significant and negative impact of New cases variable, both for exporter and importer countries, on the value of Croatian exports. Similar can be said for the lagged new deaths variable; the number of monthly new death cases in Croatia had negative effect on the bilateral exports of Croatia. The stringency index of Croatia had negative impact on the value of exports while the stringency index of importer countries did not have significant negative effect on exports meaning that Croatian exports strongly reacted on restriction in a country and less on restrictions from abroad. Lastly, the lockdown dummy variable had significantly negative impact on the bilateral exports in Croatia which was the result expected according to the economic theory.

4.3. Panel analysis of Croatian imports

In Table A2., in the Appendix, the results of the statistical tests for determination of appropriate panel data regression models, in which the dependent variable was Croatian imports, are given. According to the results of aforementioned tests, in panel data regression models I1, I2 and I4 the random effect model was chosen as the most appropriate model whereas for the panel data regression model I3 the fixed effect model was chosen as the most appropriate one. The results of all (eight) estimated panel data regression models are presented in Table 5.

Table 5. Estimated balanced panel data regression models, dependent variable Croatian imports, 184 trade partner countries in period from January 2019 to February 2021

Explanatory variables	**Panel data regression model**			
	I1	**I2**	**I3**	**I4**
Constant	12878.0*	12746.1*	12889.2*	12746.1*
New_cases_importer	0.0182*	0.0213*		
New_cases_importer $(t-1)$	0.0034	−0.0027		
New_cases_exporter	0.0013	0.0013		
New_cases_exporter $(t-1)$	−0.0027	−0.0026		
New_deaths_importer			0.9351*	0.8890*
New_deaths_importer $(t-1)$			0.1162	−0.0447
New_deaths_exporter			−0.2158*	−0.2258*
New_deaths_exporter $(t-1)$			−0.0076	0.0080
Stringency_index_importer	−29.5615*		−34.1546*	

Stringency_index_exporter	3.4813		10.4355	
Lockdown_importer		−424.208		−418.683
Lockdown_exporter		−507.200		−316.161
Diagnostics				
Mean dependent variable	12,426.90	12,426.90	12,426.90	12,426.90
Sum squared resid	9,09e+12	9,10e+12	3,22e+11	9,12e+12
Log-likelihood	−55,757.63	−55,759.46	−48,074.92	−55,764.72
Rho	0.2932	0.2935	0.2924	0.2930
S.D. dependent var	44,462.40	44,462.40	44,462.40	44,462.40
Akaike criterion	111,529.3	111,532.9	96,529.84	111,543.4
Durbin-Watson	1.3813	1.3811	1.3830	1.3820
Observations	4,600	4,600	4,600	4,600

Note: * statistically significant at 0.05 level.
Source: authors.

The results displayed in Table 5 are similar to the ones presented in Table 4. There is a significant and negative impact of new cases of COVID-19 both for the importer and exporter countries on the value of Croatian bilateral imports. The same conclusion can be brought for the New deaths variable. The results for the stringency index and lockdown dummy variables are similar as in the case of exports; there is a significant and negative impact of lockdown measures on the value of Croatian bilateral imports. The results obtained from this analysis are in the line with previous investigation, Cai and Hayakawa (2020) and Hayakawa and Mukunoki (2021b); a rise in confirmed cases and deaths due to COVID-19 infection decrease bilateral exports and imports. Thereby, the time lag is very important, that is the time required for COVID-19 measures to have impact on the value of bilateral trade flows.

5. CONCLUSIONS

The goal of this paper was to investigate the impact of COVID-19 disease on the value of bilateral trade flows in Croatia. The main findings of this paper can be summed up as: (1) there was a significant and negative effect of the lagged New cases variable in most of the panel regression models, both for importer and exporter country, (2) the stringency index for Croatia (in both cases when Croatia was exporting and importing country) pointed out to negative impact of lockdown measures on the bilateral trade flows, and (3) the lockdown dummy variable, both for exporting and importing countries had negative impact on bilateral trade flows. Therefore, the hypothesis of the paper which stated that all explanatory variables in the model will have negative impact on the value of Croatian bilateral exports and imports can be validated as true.

The limitation of the paper is related to the quality of COVID-19 data obtained, that is new cases and new deaths due to COVID-19. This data did not include all actual cases and deaths due to COVID-19 infection, it included only the official data confirmed and reported by the official authorities. Recommendation for future research is to observe the impact of lockdown measures on the value of international trade for other countries, differentiate between various time periods by observing various waves of infection and estimating the resilience of trade to the pandemics.

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APPENDIX

Table A1. The results of the statistical tests for determination of appropriate panel data regression models in which the dependent variable was Croatian exports

Test	Statistics	Panel data regression model			
		E1	**E2**	**E3**	**E4**
F test	Emp. value	450.27	448.816	444.311	442.153
	p-value	<0.0001	<0.0001	<0.0001	<0.0001
Breusch-Pagan test	Emp. value	51633.2	51569.9	51120.9	51019.1
	p-value	<0.0001	<0.0001	<0.0001	<0.0001
Hausman test	Emp. value	10.1644	10.2627	11.133	11.4596
	p-value	0.0377	0.0362	0.0110	0.0095

Source: authors.

Table A2. The results of the statistical tests for determination of appropriate panel data regression models in which the dependent variable was Croatian imports

Test	Statistics	Panel data regression model			
		I1	**I2**	**I3**	**I4**
F test	Emp. value	647.705	645.307	649.069	646.222
	p-value	<0.0001	<0.0001	<0.0001	<0.0001
Breusch-Pagan test	Emp. value	50516.3	50544.8	50229.3	50212.4
	p-value	<0.0001	<0.0001	<0.0001	<0.0001
Hausman test	Emp. value	7.36781	6.71153	7.91533	7.50929
	p-value	0.1947	0.2430	0.0478	0.0573

Source: authors.

THE IMPACT OF COVID-19 PANDEMIC IN THE WORKPLACE: INSIGHTS FROM THE REPUBLIC OF KOSOVO

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ABSTRACT

This paper aims to identify, analyze and evaluate the impact of COVID-19 on workplaces, considering the essential factors such as: health and incentives of restrictions to protect the majority's health, financial and economic aspects at different stakeholders, and the ability of Government to deal with the situation. This research paper presents the results of a survey conducted by the authors provided on a sample of respondents in the Republic of Kosovo. The data were collected through questionnaires in the small and medium enterprises in the Republic of Kosovo during January to July 2020. The questionnaires were completed through direct contact with the respondents, and for the data to be more valid and reliable, the questionnaires were anonymous. The survey questionnaire included questions with a sample of a total of 92 respondents and contained 21 questions. Respondents came from different sectors such as Gastronomy, Construction, and Urbanism, Technology, Marketing, Aesthetics, Distribution, Agriculture as some of the sectors most affected by the situation created by the pandemic. The research results will indicate the actual impact of Covid-19 on workplaces and employees, distinguishing health and economic issues and indicating what measures needed to be taken by the Government to overcome the situation.

Key words: Workplace, Covid-19 pandemic, Small and Medium Enterprises, Republic of Kosovo.

1. INTRODUCTION

This paper aims to contribute to the emerging literature around the impact of COVID-19 on workplaces, considering the essential factors such as public health and the imposition of restrictions to protect said health; the financial and economic impacts on different stakeholders; and the ability of governments to deal with the situation. In general, the COVID-19 crisis is recognised as having had a significant impact on workplaces across Europe, including around working, wages and the support provided for governments to workers. According to Molina (2021), this has created a significant impact on labour outcomes and wage equalities in the EU, although the intervention of governments has helped to address this issue to a degree. At the same time, the ILO (2021) notes that the crisis resulted in the extensive loss of lower-paying jobs in the US economy. This in turn indicates that COVID-19 has had notable impacts on the workplace, and these require further investigation, particularly outside the main studied economies of the US and the EU.

In light of this, this research paper presents the results of a survey conducted by the authors on a sample of respondents in the Republic of Kosovo. This data was collected through questionnaires of small and medium enterprises in the Republic of Kosovo from January to July 2020. The questionnaires were carried out with the managers of small and medium enterprises, and completed through direct contact with the respondents. The research

thus looks to indicate the actual impact of Covid-19 on workplaces and employees in Kosovo, identifying health and economic issues and indicating what measures needed to be taken by the Government to overcome the situation.

The primary objective of this research are as follows:

- To critically evaluate the impact of COVID-19 on the salary and job security of employees in Kosovo
- To critically analyse the social and financial impact of remote working and other restrictions related to COVID-19 on small and medium sized companies in Kosovo
- To evaluate the impact and effectiveness of government support for Kosovan companies affected by COVID-19.

2. LITERATURE REVIEW

2.1. The impact of COVID-19 on employment and salaries

The literature indicates that, for many economies, the COVID-19 crisis came at the worst possible time. This was particularly linked to the rise of protectionism in the United States, and the imposition of tariffs on a number of countries, including the EU and China, creating downward pressure on global trade and problems for the economy (Boylan et al, 2021). These negative trends were further affected by COVID-19 outbreaks, contributing to a rise in unemployment around the world, along with the closure of businesses and falling demand for many goods. This has resulted in concerns around the global economy, and the outcomes for workers (Larue, 2020). Survey data presented in the literature indicates that the COVID-19 pandemic led to a total loss of aggregate real earnings for workers of over $250 billion in the US alone between March and July 2020 (Cortes and Forsythe, 2020). However, this same survey data indicates that most of the decline in earnings was due to unemployment, with individuals who remained employed not tending to see their salaries fall. Further to this, comparative insight can be gained from the fact that the COVID-19 pandemic was seen as having a lower level of losses in earnings and wages when compared to the recession after the 2009 financial crisis, albeit with a high level of losses amongst the youngest and oldest workers (Gulyas and Pytka, 2020).

2.2. COVID-19 and restrictions on workplaces

Given the highly infectious nature of COVID-19, most countries have experienced significant lockdowns to some or all of their population for long periods. This in turn has resulted in large scale remote working, with many companies needing to enable their employees to work from home in order to continue to operate during the COVID-19 pandemic (Davies, 2021). However, the results of this process have been mixed. In particular, Ipsen et al (2021) note that whilst the experience of remote working as a whole was positive, many workers suffered from inadequate space and tools, with businesses suffering from poor quality connectivity and difficulty coordinating their workforce. This can be compared to evidence that flexible and remote working has been argued to have impinged on the family life of many workers, who are increasingly expected to always be available over electronic devices (Althoff et al, 2020). There is also a strong argument that remote working has not led to any notable changes or adaptations in the operational activity systems of organisations, meaning that working practices have not adapted to the use of technology, creating some problems for businesses and their workers around how to work efficiently in a remote and virtual environment (Putri and Amran, 2021).

2.3. The role of governments in COVID-19 responses and support

Whilst the COVID-19 pandemic is not the only crisis to strike the world, it is one of the most unique ones, being a crisis, which emerged suddenly and spread throughout the entire world, regardless of geography and social structure. As a result of this, many households in all countries have lost income, either directly or indirectly, due to lockdowns and wider economic impacts, thus requiring government support, with many businesses also struggling to survive around the world (Nzimakwe and Jili, 2020). Estimates of the impact of COVID-19 on business failures for small and medium sized enterprises indicate that if sufficient government support is not provided, over a quarter of businesses around the world could fail, representing over 10% of total private sector employment in many nations, and creating total losses of up to 12%of GDP (Gourinchas et al, 2021). However, the cost of government support for these businesses is not insignificant, requiring many global governments and monetary authorities, such as the European Central Bank, to provide funding and support fiscal programs, along with monetary easing to drive down the cost of borrowing (Lachman, 2020). Unfortunately, not all governments and authorities have access to the same level of resources, implying a risk of some disparity across nations.

2.4. Research question

The main research question for this project is: “How has Covid-19 impacted on workplaces and employees in Kosovo, and what measures need to be taken by the government to address the situation?”

3. METHODOLOGY

3.1. Data collection

In order to ensure effective research outcomes, the work must apply an appropriate data collection method. One of the most appropriate techniques for a study such as this is a quantitative survey questionnaire (Saunders et al, 2012). This is due to the value of such a survey in gathering information around the opinions and experiences of individuals around a given topic, providing effective insight around the impact of COVID-19 on individuals. An effective quantitative survey questionnaire instrument will provide an array of questions to enable the collection and measurement of responses as well as the comparison and analysis of impacts on individuals around their experienced outcomes during COVID-19 in Kosovo (Bryman and Bell, 2015). As such, the data collection for this research project involves a quantitative survey questionnaire, which contained 21 questions, distributed to employees of businesses in Kosovo. The survey questions were developed by the researcher, based on their own reading and analysis around the topic. As such, there is a lack of effective comparison to ensure the questionnaire's validity and reliability, and this is an important limitation of the work (Saunders et al, 2012).

3.2. Sampling approach

When considering the sampling approach, any research project must balance the need to gain access to respondents in a manner which is feasible and time appropriate for the research, whilst at the same time needing to consider how to obtain a representative sample, and thus to support valid and reliable outcomes from the research. For the present case, the size of the workforce in Kosovo, and difficulties approaching all these individuals, means it will be difficult to obtain access to a genuine probability sample. As such, the dissertation looked to ensure representativeness through the scale of the sample. Specifically, a target sample of 100

participants was set, collected using a combination of a convenience and then a snowball sample to maximise the level of reach and thus come as close to reaching the goals as possible (Easterby-Smith et al, 2012). Whilst this approach does not provide a true random or representative sample, the scale of the sample is still sufficiently valid for the purposes of the present research. Following the sampling approach, the survey questionnaire obtained responses from a sample of a total of 92 respondents.

3.3. Data analysis

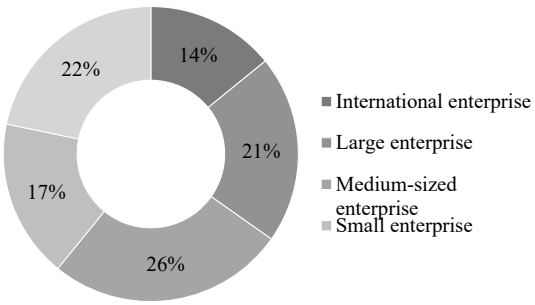
The data analysis process for this project has analysed the research data collected using the quantitative survey questionnaires. In order to achieve this, the work has used graphical analysis and considerations of percentages of respondents to develop the necessary level of insights around the impact of the COVID-19 pandemic on the workplace in Kosovo. This approach is in line with the exploratory aim of the research, around how to understand the impact of the pandemic and provide insights to support further understanding and research going forwards (Creswell, 2013). As such, rather than look to use statistical techniques to test the relationship between variables, the present research has focused on outlining the overall nature of the research topic and the situation in Kosovo, thus providing the potential to build more descriptive and explanatory analyses going forwards (Ghauri and Gronhaug, 2005).

4. RESULTS AND DISCUSSION

4.1. Results

Of the respondents, 26% are part of medium-sized enterprises, 22% are part of microenterprises, 21% are part of large enterprises, 17% are part of small enterprises, and 14% are part of international enterprises.

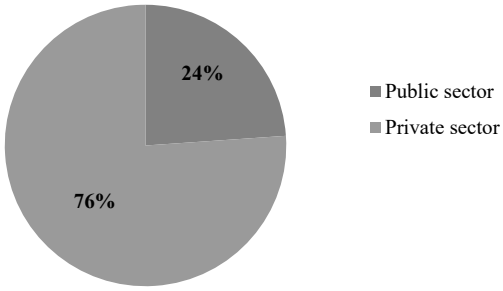
Figure 1. Type of enterprise



Source: authors

Of the respondents, 24% are employed in the public sector, whereas 76% are in the private one.

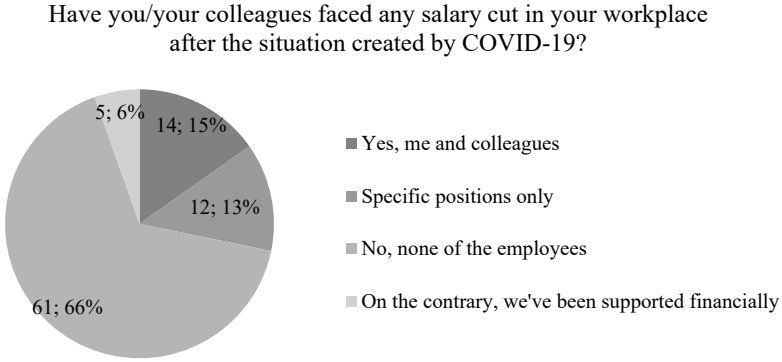
Figure 2. Employment sector



Source: authors

When asked if there has been any salary cut in their workplace, implying to them or their colleagues, because of the situation created by COVID-19, 14.15% of the respondents have confirmed such a case, whereas the answer "No, none of the employees" dominates with 61.66%. 12.13% of the respondents point out that specific positions only in their enterprises have faced salary cuts, while 5.6% of the respondents suggest that they were supported financially by their employer.

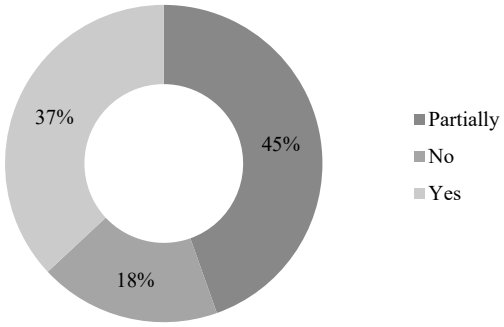
Figure 3. Salary cuts due to COVID-19



Source: authors

37% of the enterprises have taken new measures in certain aspects to ensure the maintenance of staff after the situation created by COVID-19, 45% of the enterprises have partially reflected on the case, whereas 18% of the enterprises did nothing on the matter.

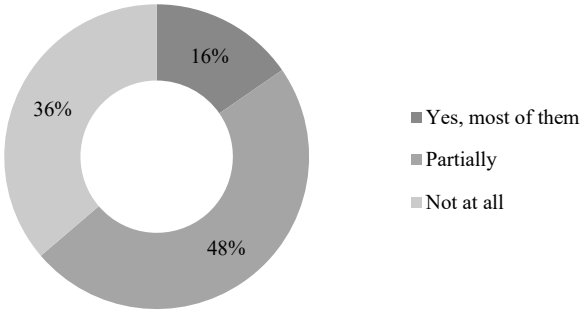
Figure 4. Additional measures taken



Source: authors

16.3% of the respondents suggest that most of the enterprises' activities where they work were stopped or suspended because of the situation created by COVID-19. 47.8% of the respondents show that the enterprise where they work has partially suspended their activities. The rest of the respondents have shown that the enterprise where they work has not suspended any activity at all.

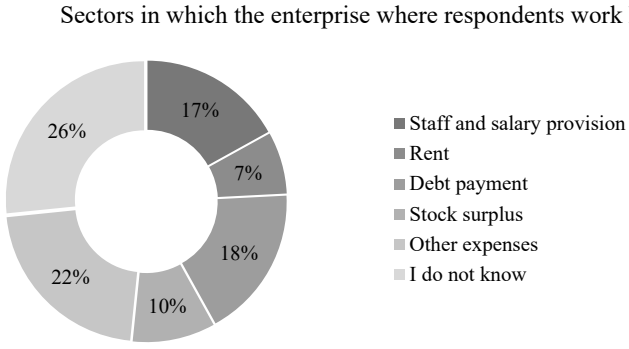
Figure 5. Activity suspension



Source: authors

When asked about their opinion on what aspect has their enterprise financially suffered, 17% of respondents consider staff and providing salaries as one. 18% of the respondents consider debt payment an aspect, whereas 7% of the respondents see rent as one. 10% of the respondents see stock surplus as an aspect. 22% of the respondents suggest that there are other expenses causing financial damage. 26% of the respondents do not have any information over the source of financial damage caused.

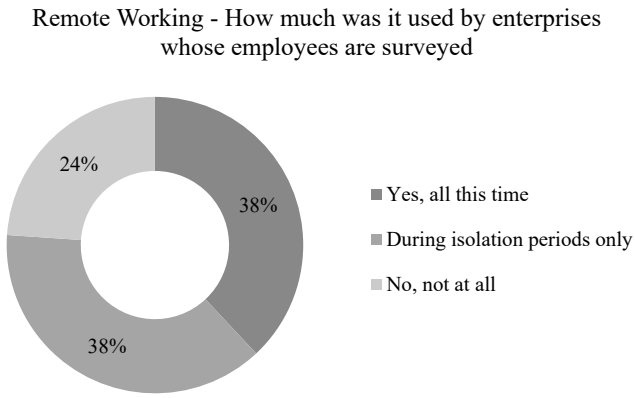
Figure 6. Financial impacts



Source: authors

Remote Working as a method has been applied by 38% of the enterprises during the time. Also, in 38% of the enterprises, this method has been applied during isolation periods only. This method has not been applied at all during the pandemic at 24% of the enterprises whose employees are surveyed.

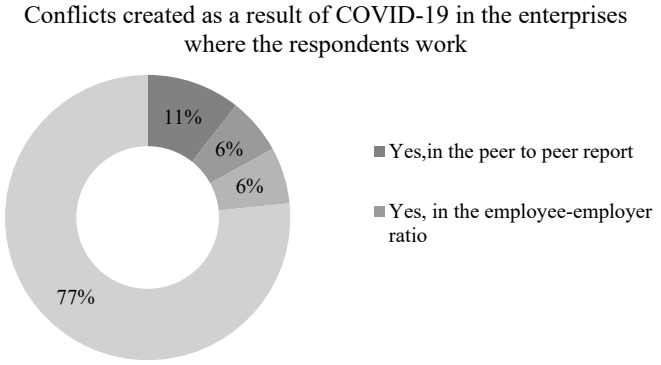
Figure 7. Remote working



Source: authors

In 10% of enterprises where respondents work, as a result of the situation created with COVID- 19, there was a conflict in the peer-to-peer ratio. In 7% of enterprises there was a record of conflict in the employment-employer ratio and 6% in the enterprise-client ratio, while in 77% of enterprises there were no indications of conflict.

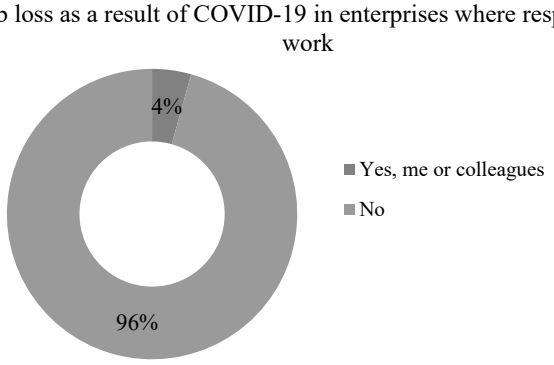
Figure 8. Conflicts in peer ratios



Source: authors

4% of respondents or colleagues of respondents have lost their job as a result of the conflict after the situation created by COVID-19. The remaining 96% say that their workplace is not endangered as a result of a conflict, the creation of which would be the situation with COVID-19.

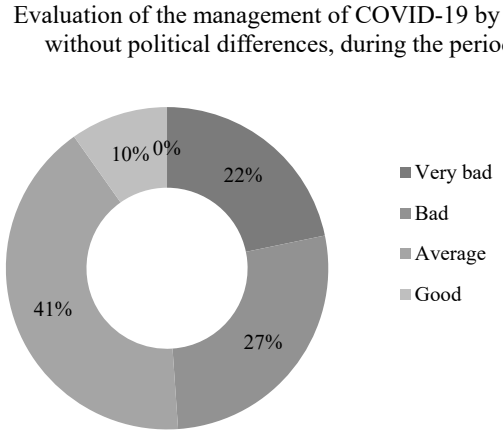
Figure 9. Job losses



Source: authors

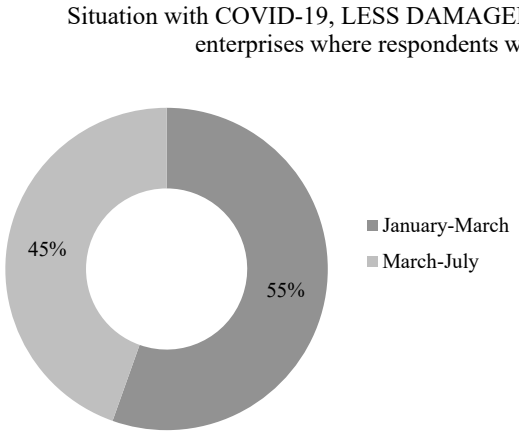
"How do you assess the management of COVID-19 by institutional actors without political differences during the period January-July" was the question posed in which the answer "Average" dominates with 41%. 27% think it is poorly managed, 22% think it is very poorly managed while 10% say the situation with COVID-19 is well managed.

Figure 10. Evaluation of management of COVID-19



Referring to the respondents in this questionnaire, the situation with COVID-19 less harmful for their enterprises in terms of financial aspect has been during the period January-March. This is the opinion of 55% of respondents, while the other 45% think that in the period March-July the damage was smaller.

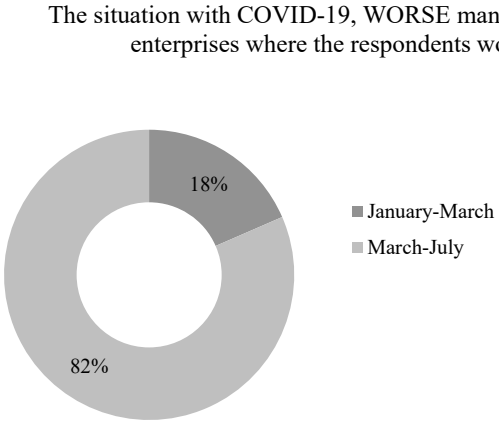
Figure 11. Financial impact of COVID-19



Source: authors

The situation with COVID-19 was worse managed during the period March-July, according to 82% of respondents. The other 18% think that the situation with COVID-19 was worse managed during the January-March period.

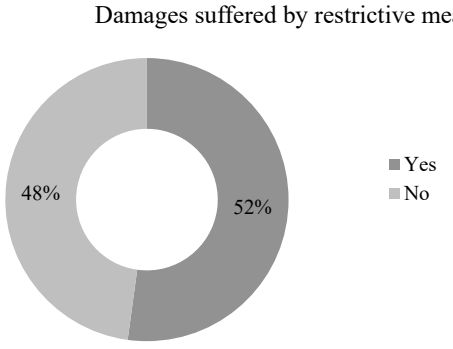
Figure 12. Management of COVID-19 situation



Source: authors

52% of enterprises feel directly harmed by the application of various mobility measures or other restrictions as a result of the situation created by COVID-19. 48% of enterprises are not explicitly harmed by the application of mobility measures or similar restrictions.

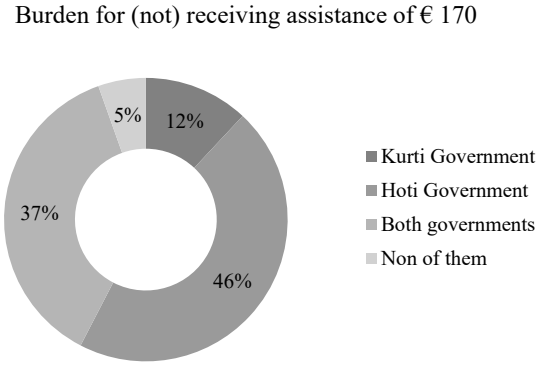
Figure 13. Damage suffered by restrictive measures



Source: authors

Following the promise of financial assistance in the amount of 170 euros from the Government of the Republic of Kosovo, some of these funds have not yet been allocated to the accounts of practitioners of various professions. According to 46% of respondents, the finger should be pointed at the Hoti Government, while 12% think that the finger should be pointed at the Kurti Government. 37% think that both governments without exception are responsible, while 5% think that neither is to blame.

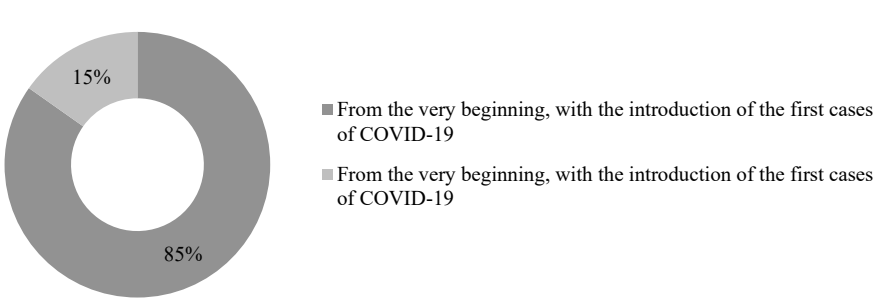
Figure 14. Failure to provide assistance



Source: authors

85% of respondents think that in order for businesses not to suffer major losses as a result of being unprepared for the situation with COVID-19, the Government of the Republic of Kosovo should have intervened from the beginning, with the presentation of the first cases with COVID-19. The remaining 15% think that the intervention was / is correct; later, when businesses have experienced significant declines.

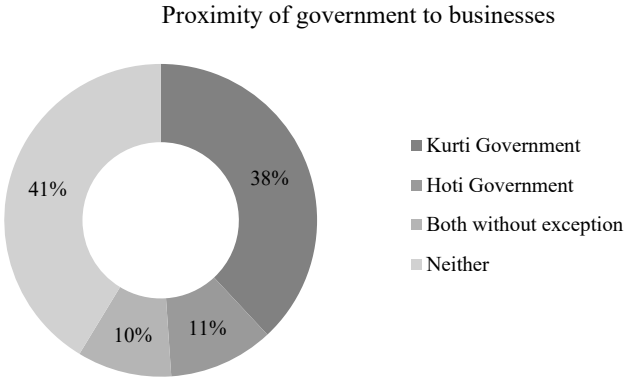
Figure 15. Appropriateness of intervention



Source: authors

Despite the damage caused by COVID-19, by the two governments in charge, for 41% of the enterprises no government has been close to them to provide assistance. For 38% of enterprises, the Kurti Government has been closer to them in the sense that it has contacted them to provide assistance, while for 11% of enterprises, the Hoti Government has been closest in the same aspect. For the 10% of enterprises there was no exception, both were interested.

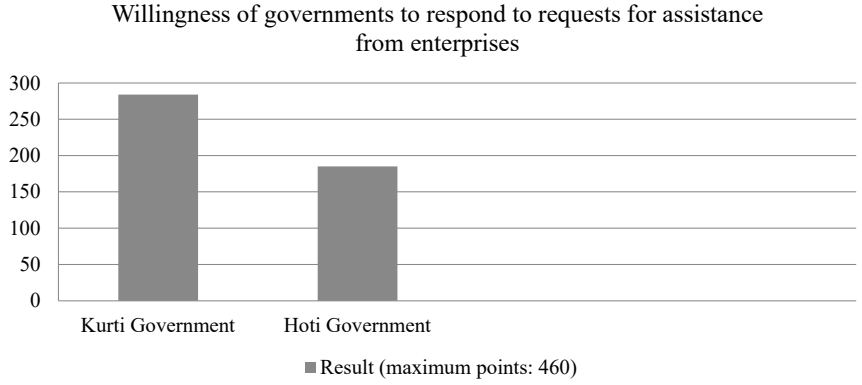
Figure 16. Provision of assistance by governments



Source: authors

The metric method of scale was used to assess the readiness of the Kurti and Hoti Governments in relation to the responsiveness to the requests of the enterprises submitted to them. The Kurti Government has an average score of 3.09 / 5 while the Hoti Government has an average score of 2.01 / 5.

Figure 17. Readiness of governments to provide assistance



4.2. Discussion

The evidence from the results indicates that COVID-19 has impacted on the salary and job security of a sizeable minority of employees in Kosovo, with over 26% of respondents indicating that either they, or someone in their workplace, has suffered a salary cut due to COVID-19. At the same time, over 60% of respondents indicate that some or all of their organisations' activities have been suspended due to COVID-19, with almost all respondents indicating some form of financial impact as a result of this.

When considering the impact of remote working and other restrictions related to COVID-19 on small and medium sized companies in Kosovo, it is clear that most organisations have

seen some form of remote working, with only 24% of respondents continuing to work full time in an office. However, the social impacts of this have been limited, with 77% of respondents indicating no conflict created by COVID-19 in their workplaces, and only 4% of respondents having job losses, implying that the social and financial impact of remote working was not too serious.

Finally, the impact and effectiveness of government support for Kosovan companies affected by COVID-19 appears quite poor. Almost half of respondents indicate that the management of COVID-19 by institutional actors has been bad or very bad, with the effectiveness worsening as the pandemic grew from March to July. Over half of enterprises report that restrictive measures resulted in damage to their businesses, with both the Kurti and Hoti governments receiving notable blame for the failure to distribute funds to businesses and individuals. Overall, the Kurti government seems to have performed better during the crisis, although 85% of respondents do indicate that they believe the government should have done better, implying a lack of government effectiveness and a need to improve in this regard.

5. CONCLUSION

This work has analysed the impact of COVID-19 on small and medium sized enterprises in Kosovo, and the responses of the government. In general, most of the respondents surveyed indicated that the impact has been notable, with evidence showing that over 60% of organisations have suspended their impact and suffered some form of financial impact as a result of the pandemic. However, the impact on employees has been less, with only around 25% of respondents experiencing harm to their salary or job security. The main impact on employees has thus been in the form of changes to work, with only 24% of respondents continuing to work full time in an office, indicating a major shift to remote working, albeit one with little conflict or problems to the working practices. At the same time, the impact and effectiveness of government support for Kosovan companies affected by COVID-19 appears quite poor, largely rated as bad or very bad, contributing to damage to businesses. As such, the main conclusion from the study is that the Kosovan governments need to be more effective at addressing the impact of the pandemic, including providing businesses with the necessary financial and administrative support.

At the same time, it is important to note the important limitations of the study. In particular, as one of the first studies of its type on the impact of the pandemic in Kosovo, there is a lack of comparative research to provide validity or reliability for the questionnaire or results. At the same time, the sample is a convenience and snowball sample, which is not probabilistic or representative of the overall population of Kosovan businesses. In light of this, it is clear that additional research is required with a larger and more representative sample, providing for a stronger body of literature upon which to form more reliable and valid conclusions. This will thus be a key recommendation emerging from the paper for future research. The main practical recommendation remains to the governments of Kosovo, recommending that they increase their level of business support and look to ensure a strong recovery from the pandemic.

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COVID-19 DISRUPTIONS

ADAPTING BUSINESS STRATEGY AND OPERATIONS TO THE COVID-19 DISRUPTION: A CASE STUDY ON ELDA COMPANY

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Abstract

A business strategy can be defined as the combination of all the decisions taken and actions performed by the business to accomplish business goals. At the end of 2019, the world was hit by the COVID-19 pandemic, which led to a partial lockdown of the global economy. The imposed interventions to deal the disruption caused by COVID-19 pandemics had a very negative impact on the economy. To sustain a stable business, companies were forced to adapt their business strategies to changing environmental conditions within a short amount of time. This paper focuses on a case-study analysis and on in-depth interviews with managers performed in the manufacturing company ELDA, which is identified as a successful business example in the redefinition of business processes and the reformulation of a corporate strategy in times of COVID-19 pandemic. The company's core business activity was manufacturing electronic cigarette liquids and during the pandemic crisis, the company changed its range of products and successfully adapted its business processes towards hand antiseptics. In accordance with this switch, it successfully changed its business strategy by incorporating a new market approach and reorganizing the supply chain. This paper shows how effective implementation of innovation in business strategy and fast reactions in operations can provide an effective answer to a new business environment without changing the mission statement of a company and how a crisis can be observed as a chance to improve overall business performance.

Key words: Adaptability, Business strategy, Corporate strategy, Business environment, Corona crisis, COVID-19

1. INTRODUCTION

The world pandemic brought new challenges not only to individuals but also to each company, small or big businesses and projects. In this paper, we will stay focused on the construction of business strategies and how a well-designed and well-adapted strategy can bring a large success to a company brave enough to take that step and risk.

This paper presents the theoretical basis of what are the definition, structure, and value of a business strategy, how it is composed, and the long-term time period that can be defined by it. In the theoretical part of this paper, the authors described the challenges brought by the COVID-19 pandemic. It came fast and out of nowhere, bringing changes to all world markets and challenging all active businesses. Authors are defining who had a chance to survive it and succeed and who had troubles making it through and had to close their business. It's not a success recipe, but it should serve as encouragement for small and large companies to observe

all the aspects of these new times and take advantage of everything despite the vast uncertainty that characterizes it.

In order to illustrate the above-mentioned encouragement and present the theoretical basis to those that will follow that path, this paper brings the story of a Croatian company called ELDA. In the middle of the production process of one product, ELDA had to face the challenges brought by the COVID-19 pandemic and managed to restructure their business strategy, change it and redefine their business activities and reach success on the European market. In the meantime, they managed to start a new business, fight the pandemic, and succeeded in recovering the old activities so that in 2020 they had two new successful products on the market.

As defined and underlined in the documents of ELDA, the company's mission was to create high-quality, certified products in accordance with customers' needs. Their desire to invest in continuous research kept them improving the general industry and contributing to the advancement and success of their buyers. Apart from this mission, ELDA's vision can be motivating to all businesses and companies: by monitoring the latest technology, introducing new technological and organizational improvements, and creating a higher added value, everybody should serve their clients in the best way possible. In that way, they can contribute to the industry's development and invest in the great potential to change the world.

2. METHODOLOGY

Through the definition of the theoretical framework of business strategy, this paper presents the change of the business strategy in light of COVID-19 disruption. The research method is a descriptive case study focusing on the example of a small company named ELDA Ltd., leading manufacturer of e-liquids for electronic cigarettes in Europe, which started to produce antiseptics in the midst of COVID-19 pandemic.

Yin (1984) defines the case study research method "as an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used."

We collected the data by conducting an in-depth interview with ELDA Top management. It was a semi-structured interview preceded by extensive research and reading of materials about the company and its activities from sources available at the time (such as newspaper articles, the company's website, management statements, annual financial reports, business documents, enterprise information system etc).

We wanted to explore how, despite new business activities, the company's mission (to save at least one human life) has not changed, but has perfectly mapped into a new business strategy. Data were collected in the period March 2020 till March 2021 and refer to 2018, 2019 and 2020.

2.1. Business strategy

Strategy is the theory of the firm on how to compete successfully. It also considers performance as a factor influenced by strategy, as it can be considered that to compete successfully means having a satisfactory performance (Barney, 2001).

As indicated by Moore and Manring (2011) and repeated multiple times by many other authors (Barney, 2001; Mohapatra, 2013; Diasz, 2021) business strategy can be defined as the combination of all the decisions taken and actions performed by the business to accomplish business goals. It means defining the methods and tactics needed to take within the company and guides many organizational decisions, such as the hiring of new employees. Furthermore, the business strategy helps different departments work together, ensuring departmental decisions support the overall direction of the company.

The same authors explain more thoroughly the main reasons why a business strategy is considered very important for organizations:

1. Planning: A business strategy helps identify the key steps to take to reach business goals.
2. Strengths and weaknesses: The process of creating a business strategy allows a company to identify and evaluate its strengths and weaknesses so that they can create a strategy that optimizes all strengths and compensates for or eliminates weaknesses.
3. Efficiency: A business strategy allows to effectively allocate resources for all business activities, which automatically makes the company more efficient. It also helps plan ahead for deadlines, allocate job roles, and stay on track for project goals.
4. Control: Creating a business strategy gives the company more control over choosing the kinds of activities that will directly help you reach your goals, as well as allows you easy access to whether your activities are getting you closer to your goals.
5. Competitive advantage: By identifying a clear plan for how to reach defined goals, a company can focus on capitalizing on its strengths, using them as a competitive advantage that makes the company unique in the marketplace.

Moore and Manring (2011) confirm that no matter the differences between companies, business strategy keeps its importance and continues to maintain its integrated structure which may be considered its best value. It can help every company, be it a small or large, independently from the type or size of business activities.

Another thing worth mentioning in the context of business strategy is the timeline. Aspects such as how long it takes to develop a business strategy and how long can one business strategy last are very important, especially when the construction or reconstruction of the business strategy happens in challenging times like the COVID-19 pandemic.

Business strategy is the primary driver of Business process reengineering initiatives and radical redesign of business processes to achieve dramatic improvements in critical and contemporary measures of performance, such as cost, quality, service, and speed. (Mohapatra, 2013).

Experts agree that a good business strategy can be built and adopted in a period from three to six months. As indicated by Moore and Manring (2011), it's enough time to adapt the current business to new business directives or to develop a good basis for starting a successful business. Other authors like Grover et al. (2015) agree that prolonging it to more than six months might include both technical and motivational issues during the adoption period, so it's better to complete it within the above-mentioned period. Also, experts agree that the business strategy itself should include a period no longer than five years.

The authors mentioned in this paper all agree that in challenging times like the COVID-19 pandemic, that period might be even shorter in order to keep the efficiency level at optimal, no matter the general uncertainty that characterizes this period.

2.2. Business goals and processes

As happens with its value, authors Moore and Manring (2011) confirm that business strategy maintains also its structure, which can be summarized into six key components:

1. Vision and business objectives: A business strategy is intended to help the company reach its business objectives. With a vision for the direction of the business, the company can create clear instructions in the business strategy for what needs to be done and who is responsible for completing each step.
2. Core values: A business strategy guides top-level executives, as well as departments, about what should and should not be done, according to the organization's core values. It helps everyone stay on the same page and with the same goals.
3. SWOT analysis: SWOT stands for strengths, weaknesses, opportunities, and threats. This analysis is included in every business strategy, as it allows the company to rely upon its strengths and use them as an advantage. It also makes the company aware of any weaknesses or threats.
4. Tactics: Many business strategies articulate the operational details for how the work should be done to maximize efficiency. People who are responsible for tactics understand what needs to be done, saving time and effort.
5. Resource allocation plan: A business strategy includes where you will find the required resources to complete the plan, how the resources will be allocated and who is responsible for doing so. In this regard, you will be able to see where you need to add more resources to complete your projects.
6. Measurement: The business strategy also includes a way to track the company's output, evaluating how it is performing with the targets that were set before launch the strategy. This helps you to stay on track with deadlines and goals, as well as budgetary concerns.

All these settings may seem complicated and hard to adopt, but authors claim that they can bring only success to any company that invests in this aspect of their work. In the article they bring multiple examples of great business strategies: if well thought through and constructed, business strategy can bring success to a company by achieving cross-selling of more products, having the most innovative product or service, growing sales from brand new products, improving customer service, cornering a young market and adopting product differentiation that wasn’t sufficiently elaborated before. Apart from these, a good business strategy involves different pricing strategies, achieving technological advantage, and improving customer retention.

2.3. COVID-19 disruption

In 2019, whoever had any connection with economics and business was satisfied with the annual results. It was the year of new records in tourism, e-commerce and retail, but also in other branches of the economy. People were already generalizing that it was the year in which every existing activity had an opportunity to accomplish success and complete their goals. And the majority did just that – succeeded.

Global economies were following their paths towards new highs and new success criteria when they were suddenly hit by a new situation – a disease that started far away in China and surprised everybody how fast and efficiently flew over the globe and got in Europe and the USA. No company was ever ready for this situation. Everybody started improvising, by trying to save what they had managed to achieve until that point. Time was crucial, together with creativity, knowledge and resources – the ones that had these things managed to save their business.

Others were forced to lock their headquarters, close their business and give up all they had, or at least postpone all activities until further notice. The pandemic brought nothing but uncertainty, risk, realization issues and sustainable collapse.

How did it manage to do that on a global level? As authors described, the answer lies in two methods by which coronavirus stifled economic activities. First, the spread of the virus encouraged social distancing, which led to the shutdown of financial markets, corporate offices, businesses and events. Second, the exponential rate at which the virus was spreading, and the heightened uncertainty about how bad the situation could get, led to a flight to safety in consumption and investment among consumers, investors and international trade partners (Ozili and Arun, 2020). Governments were trying to construct the list of measures and behavioural patterns to prevent any form of collapse, especially in the health-care sector, but what was thought to be convenient to the health and safety of people, turned out to be fatal to business activities all over the world. Employees were alienated far away from their working space; meetings were transformed into online calls with countless technical issues and bad user experience. Each company tried to adapt by accepting the different routines and behaviours suggested by the World Health Organization and local government always with the same objective to save their business. The adaptation was long and uncertain. Nobody could guarantee anything since nobody knew what tomorrow would be.

In 2020 the world arrived at the partial lockdown of the global economy. The imposed interventions to combat/fight the COVID-19 virus had a very negative impact on the economy (Ozili and Arun, 2020). In the beginning, it was all coherent because nobody thought differently or dared to defy the government's safety package. Everybody believed that the suggested measures would bring safety, although with time it became evident that safety and certainty cannot be guaranteed. Once it became evident, people stopped following the suggested measures and this cohesion fell apart. The lack of equality in this situation destroyed the natural protection system and every individual, business and company were left unprotected and alone.

As mentioned before, companies and small businesses that didn't have resources or time and creativity simply didn't succeed. Creativity included also taking bigger risks and trying to figure out market needs. It was hard due to the uncertainty looming over each market, but taking the risk of changing business strategy and redirecting business activities in new and frequently very different directions turned out to be the winning combination. Even the most stable businesses, the companies with very good results from the previous year were forced to adapt business strategies to changing environmental conditions within a short amount of time. Those that dared to do so, succeeded (Ozili and Arun, 2020). They have been forced to adapt, overcome limitations, forge ahead with very little time on their hands and to come out with some new innovative product or service.

Some authors suggested how companies should adapt to the disruption and underlined that business strategy should also include a sustainability plan that, wouldn't only be able to give a contribution to the global project for biological and climate balance, but would also provide flexibility to face the uncertain and fast-changing circumstances like the ones brought about by the COVID-19 pandemic. Summarizing the main insights and contributions of the informants, Accirini et al. (2021) found that the role of digital technologies is decisive in developing effective responses to crises like the COVID-19 pandemic. Acciarini et al (2021) highlighted five key areas of strategic intervention in response to the COVID-19 pandemic: financial support, new sanitary norms, new business models and new business systems, digital investments and support to education. Indeed, by dedicating resources to physical and digital infrastructures, by reconfiguring the existing ways in which companies do business and by increasing the overall safety and education of citizens' Resilient companies in the time of COVID-19 pandemic organizations can also increase resilience and flexibility. Figure 1 shows suggested strategic actions according to those five dimensions.

Figure 1. Possible dimensions and strategic actions to address COVID-19 pandemic

Source: Acciarini C. et al (2021), pp 10

Another set of authors discusses the concept of disruptive innovation (DI) as a possible solution to the emerged crisis. This concept was firstly introduced by Clayton Christensen and is the process of innovation success in creating and maintaining sustainable growth (Christensen and Raynor, 2003). DI is a process by which a product or service takes root initially in simple applications at the bottom of a market and then moves up-market, eventually displacing established competitors. Disruptive innovation leads to relatively rapid and dramatic transformations in manufacturing, marketing, and consumer behaviour (Christensen, and Raynor, 2003).

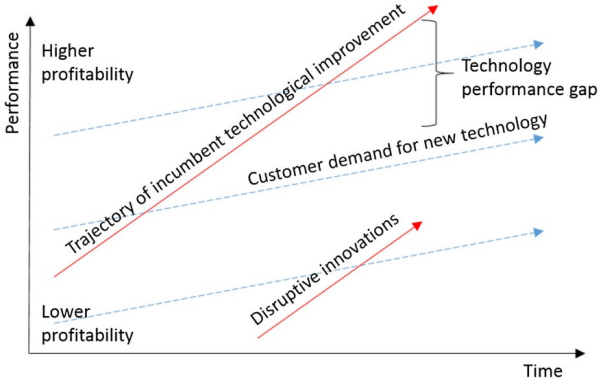
Many authors' analyses disruptive business models. Sordi Schiavi and Behr (2018) reviewed the existing literature and highlighted that disruptive business models arise to replace existing business models, either by their restructuring or by the creation of new models, aiming at a unique value proposition to the market. Hwang and Christensen (2008) emphasize the fact that many companies fail to be able to unite disruptive technologies and innovations to new business models.

For example, e-cigarettes, especially their 'heat not burn tobacco' (HNBT) version, are an example of disruptive innovation as they were launched with the recent concept of tobacco's harm reduction, which created newly competitive tobacco products as a substitute for conventional cigarettes. HNBT as the latest innovation in the e-cigarette market was predicted to become disruptive innovation to replace conventional cigarette (Spielman, 2017).

When a new technology product enters the market, initially it is considered as unpromising investment by existing market players. Once the new market player continue to invest in research and development for creating and proving less harmful product, which becomes more accepted and needed by global customers, the existing dominant player will be disrupted by increasing new product technology legitimation. In the case of e-cigarette technology, the higher the e-cigarette technology legitimacy, the better the people's acceptance of e-cigarette, which leads to an increase in e-cigarette consumption and a decrease in conventional cigarette consumption. (Aminullah, 2019).

The case study about how a tech firm is changing the traditional Taxi service industry highlights how business model innovation can shake the roots of well established firms in any industry, which requires considerable investment in terms of fixed costs. The study stresses the fact that managers should look beyond their traditional perspectives and look for new ways of value creation and value capture. Managers can use business model innovation not only as a source of value creation, but also as a source of sustainable competitive advantage which rivals will find impossible to imitate (Bashir et al., 2016).

Figure 2. Model of disruptive innovation



Source: Christensen, C. et al (2015)

Diagram contrasts product performance trajectories (the red lines showing how products or services improve over time) with customer demand trajectories (the blue lines showing customers willingness to pay for performance). As incumbent companies introduce higher-

quality products or services (upper red line) to satisfy the high end of the market (where profitability is highest), they overshoot the needs of low-end customers and many mainstream customers. This leaves an opening for entrants to find footholds in the less-profitable segments that incumbent are neglecting. Entrants on a disruptive trajectory (lower red line) improve the performance of their offerings and move upermarket (where profitability is highest for them, too) and challenge the dominance of the incumbents (Christensen et al. 2015).

Disruptive technology is an innovation that can greatly change the way consumers, industries, or companies operate. Examples of recent disruptive technologies include e-commerce, online news sites, ride-sharing apps, and GPS systems (Smith, 2020).
In this paper, we bring the story of a small and creative company in Croatia that had time and creativity activated at the right point of time and that so far has succeeded in overpassing all obstacles, proving that engaging all resources in the change of business strategy at the right moment can bring only good.

2.4. Business process reengineering

Before going more into details with our case study, it's important to define the term "business process reengineering". Grover et al. (2015) state that it's no less than a radical redesign of business processes to achieve dramatic improvements in critical aspects like quality, output, cost, service, and speed. It has to be radical with dramatic and drastic changes to be applied and visible after the completion of this process. They add that business process reengineering (BPR) aims at cutting down company costs and process redundancies on a very huge scale. For a company it can mean, especially in the hard period of COVID-19 pandemic, to take an opposite direction and significantly modify all aspects of business implemented so far.

As Grover et al. (2015) warn us, this process must not be confused with the term "business process improvement". As they say, both processes have the same objective – to improve business – but reengineering is an unconstrained approach to look beyond the defined boundaries and bring in seismic changes. While Business Process Improvement (BPI) is an incremental setup that focuses on tinkering with the existing processes to improve them, Business Process Reengineering (BPR) looks at the broader picture. BPI identifies the process bottlenecks and recommends changes in specific functionalities while keeping basically unaltered the process framework. BPR, on the other hand, rejects the existing rules and often takes an unconventional route to redo processes from a high-level management perspective.

The business process re-engineering concepts within the Bank compels the instigation on regular and continuous audit functions and processors and investigates any overlaps and focuses on making recommendations to improve efficacy levels by institutionalizing lean management thinking. The objective is to re-design processes wherever necessary and reduce waste whilst ensuring continuous improvement and automation (Diasz, 2021).

Business Process Reengineering is based around key business process and according to Mohapatra (2013) features of the BPR vision are:

- Shared information – information must be maintained, managed, and made available when it is needed for critical decision making;

- Mission support – when business processes are redesigned they should strengthen mission support. Those that do not add value to mission achievement should be eliminated;
- Functional leadership –surveys estimate the percentage of BPR failures to be between 50 % and 70 %. If there is one message that has been reinforced over and over, it is the need for executive-level leadership and commitment to the process.
- Reduces costs – activities that increase the cost of doing business but provide no benefits to stakeholders are to be reduced or eliminated.

Although it may be a comprehensively hard, risky and complex decision to make and process to initiate, Business Process Reengineering is a well-structured process that can be completed in five steps. Grover et al. (2015) mention that this process can differ from one organization to another, but it always contains five key steps to keep business process reengineering fair, transparent, and efficient.

1. Map the current state of your business processes - gather data from all resources - both software tools and stakeholders – to understand how the process is performing currently.
2. Analyse them and find any process gaps or disconnects - identify all the errors and delays that hold up a free flow of the process and make sure that all details are available in the respective steps for the stakeholders to make quick decisions.
3. Look for improvement opportunities and validate them - check if all the steps are necessary; eliminate the ones outside of the scope that bring no business value or automatize some inner processes in order to reduce process length and gain more business value.
4. Design a cutting-edge future-state process map - create a new process that solves all the problems you have identified. Authors encourage companies to design a brand new process, if necessary and if they are sure that it will work well. For that reason, KPIs should be designated for each step of the process.
5. Implement future state changes and be mindful of dependencies - inform every stakeholder of the new process and only proceed after everyone is on board and educated about how the new process works. Constant monitoring of the KPIs is a mandatory activity, especially in the first months after the go-live of the new strategy.

Authors underline that this process might be very expensive for big companies and that much time would be spent on the adoption of a new strategy, but in difficult times like this COVID-19 pandemic, it might be of high value to enter such risk, which will be well illustrated in the case study that follows.

3. CASE STUDY ANALYSIS AND DISCUSSION

3.1. Introducing ELDA

As announced before, the case study presented in this paper involves a small manufacturing company – ELDA from Nova Gradiška in Croatia. This case is a good example of everything mentioned so far – time and effort invested in building a good business strategy, adapting to a new challenging period during COVID-19 pandemic, taking a risk and redesign a brand new business strategy turning to the production of a new product that turned out to be the next bestseller on the European market.

As mentioned earlier, sources used for the case analysis are different newspaper articles, the company's website, management statements, enterprise information system, annual financial report …

To understand better the starting point – the strategical and structural basis of this company –an interview was conducted with managers that were involved in the redefinition of business processes and the reformulation of a corporate strategy in times of COVID-19 pandemic. The managers interviewed stated that ELDA is the first registered company in Europe that began producing e-liquids for electronic cigarettes in 2008. The main activity of this company is the production and selling of e-liquids, electronic cigarettes and all related equipment.

The mission of ELDA mission is to create high-quality, certified e-liquids for filling e-cigarettes according to customers' needs. Investing in continuous research keeps them improving the general industry of e-cigarettes and contributing to the advancement and success of their buyers. Apart from this mission, the vision at the core of their business strategy implies that by monitoring the latest technologies, by introducing new technological and organizational improvements, and by creating higher added value, they can serve their clients in the best way possible in this young industry with a great potential to change the world.

As already mentioned in the company vision, technology can assure success and guarantee high-quality production in the shortest possible period of time. Managers from ELDA confirm that they're always ready to invest in new machines and high-tech research instruments because in that way they can guarantee a complete service for customers in one single place. They think that this technological aspect is one of the reasons for their leadership in the market.

Apart from investing in the latest technologies, they recognized the need to invest also in highly professional and ambitious young people that would be motivated to work with passion and invest in their business. The company believes that keeping the employees are satisfied (in different ways), they will be more inclined provide new ideas and find the best solutions for any type of work-related problem.

They consider one of their main challenges in everyday business to attract and keep employees with a set level of knowledge and skills. On this topic, they have a lot to say: they grant their employees continuous learning and empowerment processes, a better flow of information within the company, a better balance between work, family, and free time, safety at work, the opportunity to attend specialized congresses and conferences, and many other incentives. It is their way of investing in people and, at the same time, entitles them to have high expectations from their employees – meaning that they will accept all forms of education and training they've been offered, but also engage in self-development and become brave enough to take responsibility for new tasks within their teams.

ELDA's was noticed by the Ministry of Entrepreneurship and Crafts, stakeholders on the European market, leaders of the European Union, and other instances that rewarded their work and confirmed their success. (Poslovni.hr, 2016).

The above-mentioned Ministry provided them with resources from EU funds for further development and investment in new and modern equipment. By investing in technology, they managed to reach a high quality of their products. They confirm that their machinery and

laboratory for the quality control have been standardized by ISO-IEC-17025 regulation. Also, they can show with the relevant certificates that their products satisfy the following standards ISO 9001:2008, OHSAS 18001:2007 and ISO 14001:2004, HACCP and ISO 50001. In that way, they can competitive towards other stakeholders in this market. Also, these certificates are the result of 30 million HRK investments made during the last couple of years. ELDA can also show their HRN EN ISO/IEC 17025:2017 certification for their laboratory and ISO 22301:2012 certification for the continuity of their business activities.

3.2. Adapting ELDA's strategy and operations to the COVID-19 pandemic disruption

As described earlier, COVID-19 pandemic brought about various new challenges to individuals businesses and companies. ELDA was no exception. During the lockdown, when everything stopped, ELDA was still working. It was because they've found a key need on the market and that is why they needed to stay active.

When the first news about COVID-19 disease started coming from Wuhan, the CEO of ELDA was already thinking about it. He recognized the potential threat to the stability of the European (and world) economy and wanted to prepare himself and his business for this new period. Till then, his company had been very successful and tackled much greater competition on the market. In the first interview, he admitted that the competition was very strong, but that they recognized the key element to gain success is the disruptive innovation! Business partners and buyers constantly search for better products and services, and they will always choose the company that can offer that high quality. So, the first business strategy was to provide a new innovative product or service and immediately start thinking in advance and try being always at least one step ahead from everybody else in providing top-quality and new creative solutions or upgrades of the product or service. It was the beginning of the e-cigarettes revolution and they reached numbers that were off all charts.

When COVID-19 pandemic was at its very beginning, ELDA's CEO recognized that opportunities to think again about something new and innovative and to immediately invest in high quality. After hearing the needs of the market affected by the first bad news from Wuhan, ELDA decided to change their business strategy, introduce a new product – antiseptics – and invest in their high quality. By completing these steps, ELDA became one of few companies to work to its full capacity and to hire new employees while others were closing companies and firing people.

ELDA's CEO explains that disease always brings up various questions about fighting the virus causing it and preserving good health. He recognized that there would be a deficit of disinfectants, so he encouraged his completely corporate team to reorganize a part of the production process and their laboratory. That is how they changed their business strategy by introducing a new product and investing in its high quality.

The biggest challenge that COVID-19 pandemic brought was to survive on the market and retain all employees. The company's management predicted that the disease would spread and that soon Europe would find itself involved in a difficult situation with an extreme deficit of antiseptics (which turned out to be exactly what happened within a month). They accepted this new idea, started collecting all necessary documentation, and adapting production capacities to a new production process.

Redesigning one part of the production process was not an easy task. Their chemical engineers needed to find the adequate formula for producing antiseptics and then also for producing antiseptic gels. At the same time, machinery engineers started adapting five lines of production for the bottle-filling process. Additionally, before starting with the production, they needed to fulfil specific conditions and standards, the most important of which were quality standards for their venues and cleanness in accordance with ISO standards. Also, the biocide production requires additional certificates and permissions from the authorities, but the CEO confirms that it all went well and fast since they already possessed production lines that complied with various ISO standards and because the Croatian government reacted quickly to the request for the implementation of this new idea.

They had some initial issues with importing raw materials, like ethanol, which at first came from Albania. Transport lasted 7-8 days with strict surveillance and restrictions prescribed by various standards. It all functioned but it was very slowly and it jeopardized the timeline for the first buyers of the new product. ELDA's CEO Dario Marenić contacted all bigger European buyers to help them find supplies of ethanol (which was nowhere to find at that moment), but soon the Netherlands and Bulgaria stepped in to help them, and most importantly, a domestic facility for the production of ethanol in Županja also joined ELDA in the production process. They found some foreign suppliers for bottles and boxes since such products couldn't be found in Croatia.

The biggest concern of the company during the pandemic has been (and still is) preserving the health of all their employees. Their biggest fear was the penetration of the COVID-19 virus into their facilities. Health measures suggested by the government and appointed epidemiologists were easily adopted since the company was already following these regulations as part of various ISO regulations – all employees wore masks on their faces, washed and disinfected hands multiple times a day and avoided any contact with colleagues. After each shift, the whole facility and the offices were thoroughly disinfected. They organized three shifts each day and each worker got a financial reward for all the hard work invested in those hard times.

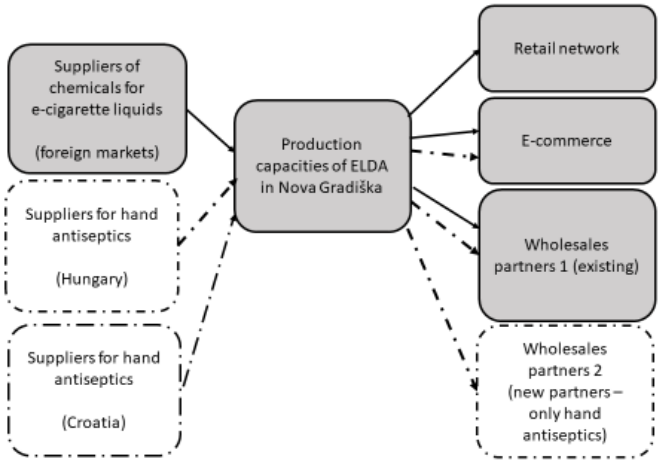
Generally, the idea of the business reengineering came up a month and a half after the first news from Wuhan. A new strategy was developed within the following two weeks it took one more month to adopt it.

On the last week of March 2020, ELDA started to actually produce antiseptics. Thanks to foreign investors and business partners, they managed to get enough supplies and materials to start the production and satisfy the first needs of the market.

Once they started the business, they started exporting immediately – first to countries where they got raw materials and then to others like Slovenia, Slovakia, Bosnia and Herzegovina. Of course, half of the products are sold in Croatia.

From March 2020 until March 2021, they expanded the production facilities, managed to create reserves for at least three months ahead and found a stable source of raw materials. In addition, they hired twenty more people because of the expansion. It's important to say that ELDA didn't only gain success in producing antiseptics, but also their production of e-liquids for electronic cigarettes recovered and got to pre-pandemic levels. Their income rate is still in the ascending curve, which will lead to new hiring and continued development.

Figure 3. AS IS and TO BE model of ELDA



Note: AS-IS model (before reengineering) is marked grey
Source: Authors illustration according to interview with manager

In the figure 3 AS IS – TO BE model gray and uninterrupted represents things before BPR, business model AS-IS (pre-existing state, before COVID-19) and white boxes and dashed lines outline changes added because of COVID-19 disruption and represents TO-BE model.

With same production line, new suppliers and new product company got an additional business process. We can see that the company has intuitively pass through all components of theoretical cycle. They recognized the threat and found a new solution, thus not violating the vision and mission.

ELDA's biggest production facility today is located in the industrial park in Nova Gradiška. Each day, the company produces around five tons of antiseptics, depending on the packaging size. Therefore, when an order is arranged in 1000-liter containers, they can deliver up to 15 tons a day.

Once they started the business, they started exporting immediately – first to countries where they got raw materials from and then to others like Slovenia, Slovakia, Bosnia and Herzegovina. Of course, half of the products stay in Croatia. Countries like Sweden, the Netherlands, Germany, France and Austria remained their buyers with big orders because local distributors switched to selling online.

On a daily basis, they can satisfy 65% of the needs of foreign markets, which helps them succeed in preserving their business and being successful in producing two different products – antiseptics and e-liquids for electronic cigarettes. Although the latter registered a 60-70% decrease in the production, the newest research analyses confirm that the production and market needs are stabilizing and they are getting back to pre-pandemic numbers.

Table 1. Financial statement

Financial statement	2018	2019	2020
Operating income	29.736.712	26.321.921	29.727.907
Growth / decline in operating income	-4,42%	-11,48%	12,94%
Earnings before interest, taxes, depreciation and amortization (EBITDA)	13.051.963	8.432.195	9.203.469
Net profit/loss	6.630.527	4.551.810	5.501.726
Growth/decline in net profit/loss	-2,18%	-31,35%	20,87%
Total assets	32.451.661	35.247.253	42.332.416
Capital and reserves	23.102.766	26.797.750	32.299.476
EBIT margin	22,91%	19,80%	19,11%
Gearing ratio	0,58	1,06	1,02
Return on Equity (ROE)	29,55%	18,24%	18,62%
Current ratio	1,33	1,12	1,69
Financial self-sufficiency ratio	0,71	0,76	0,76
Cash flows from operating activities	11.847.660	7.030.216	2.311.988
Days payable outstanding	13,62	19,87	16,08
Number of employees	49	42	55

Source: The Register of Annual Financial Reports maintained by FINA (2021), pp 2

Table 1 demonstrates that the income was 29.736.712 kunas in 2018, 26.321.921 kunas in 2019, while in 2020 it was 29.727.907 kunas. By introducing a range of products for protection (disinfectants for hands and surfaces), the company did not record a decline in revenue but a growth of 12,94% in 2020 (compared to 2019). Other financial data (EBITDA, net profit…) in 2020 are also better than in the 2019. In 2018 and 2019 there is a decline in net loss and in 2020 growth in net profit in 2020 is 20.87%. Even the number of employees has increased from 42 to 55 in 2020. Accordingly, changing of the business strategy and business process reengineering led to better financial results in the year when COVID-19-related disruption occurred in Croatia.

The second coronavirus wave has once again prompted ELDA's team to focus on how to defend themselves against this ubiquitous disease. They have now launched a new Website www.eldapharm.com where potential buyers can get all the information they need about products and innovations and the supply of antiseptics and gels for hands and surfaces.

The management team confirms that even after the end of the pandemics, ELDA will keep on producing antiseptics. They have been thinking about products of global character. Furthermore, they plan to launch some new products on the European market. Since they also plan further expansion – new facility for the antiseptics production only, new products and exporting to new markets – there will also need to hire new personnel. First, as the CEO stated in our interview, they want to retain all the current working spaces and employees, maintain the existing high-quality levels (and improving them thanks to new technologies) and keep all they have built so far.

4. CONCLUSIONS

This paper presents the theoretical basis of the definition, structure, and value of a business strategy, how it is composed, and the long-term period that can be defined. In the theoretical part of this paper, the authors also describe the challenges brought about by the COVID-19 pandemic and bring an example of a local company that managed to transform all this theory into successful practice.

Based on the story of ELDA, it is possible to fully understand the concept of business strategy, its importance, and duration (in terms of the business value it brings to a company). It shows how it looks when a challenging situation in the country and further beyond makes you change the direction of your business and take risks in moments when no one can guarantee anything positive for your business and company.

This paper analyses the story of the Croatian company ELDA, whose core business activity was manufacturing a liquid for electronic cigarettes. It dramatically changed during the pandemic crisis introducing a new range of products and successfully adopting new business processes in hand antiseptic production. Following this switch, they successfully changed business strategy by incorporating a new market approach and reorganizing their supply chain.

Soon after recognition the threat from Wuhan, ELDA decided to change its business strategy by introduction of a new product to their assortment. By completing all steps of business process reengineering, ELDA became one of the few companies to work at full capacity and to hire new employees when companies were firing people during the COVID-19 pandemic.

ELDA's CEO and management team reconstructed their business strategy within two months after the first news about the upcoming pandemics and they spend one more month in implementation of new business operations, which was completed in March 2020 and from that point gained only success.

Therefore, this example can be useful to illustrate good strategic management approach in times of crisis. Based on the written, the recommendation would be the monitoring of the company's results in 2021 and performing a longitudinal research of resilience of the new business strategy and operations.

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DID COVID-19 ACCELERATED SUPPLY CHAIN DIGITAL TRANSFORMATION?

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Abstract

Under the influence of modern technologies in Industry 4.0, supply chains are experiencing a "renaissance" in terms of digitization. Rapid transformation of functions and processes in supply chains has begun quite recently - in the middle of the last decade. Since then, key decision stakeholders within the value chain managed to implement several digital components in order to overcome the complexity in supply chain relations. Sudden disruptions in the global business environment, such as the beginning of COVID-19 pandemic, can be catalysator for or against accelerated supply chain digitization. Considering the conditions of the pandemic, decision makers are standing in front of the strategic dilemma: to preserve money or to continue to invest financial assets in supply chain optimization in order to achieve future cost savings. The analysis starts from a recent historic overview of supply chain digitization, continues with analysis of its speed and structural digitization before pandemic, followed by stakeholder response to the crisis and summarizing the affection for the acceleration of supply chain digitization. The aim of the paper is to show whether pandemic did or did not have any effect on acceleration of supply chain digital transformation. Conclusion will also provide a quick look on future actions which stakeholders need to take in order to retain and/or advance in supply chain digitization.

Key words: COVID-19 pandemic, supply chain management, digital transformation

1. INTRODUCTION

Global economy has been "under attack" due to outbreak of ferocious Coronavirus. Its participants were already so deeply involved in a saturated business network that many of them were not even aware of the global external risk that could befall them. 2020. outbreak hit business community hard - aggregate supply and demand for commodities got a sudden drop (Seetharaman 2020), businesses are closing for work, critical stakeholders are preserving financial assets and taking care of any expense which can be avoided, etc. Nowadays, companies around the world are still trying to find a proper way to exit the crisis and to stabilize or advance in business operations.

It can be brought to attention that some of businesses are more or less resilient to disruptions like this one due to their nature of business. Supply chains are very common area for any kind of interruptions to show their first effects. Almost all members throughout one supply chain can rapidly feel negative impacts of the pandemic. One question still remains in terms of gathered knowledge and experience in terms of adaptation to crisis: did something positive happened during the pandemic to supply chains and their advancing status regarding digitization? It is of high importance to search and find answers regarding impact of COVID-19 onto supply chain digital transformation.

Most important part of this research has been addressed to acceleration of supply chain digitization. Digital transformation during the pandemic can be one of few positive outcomes

to humankind regarding the circumstances. The aim of this paper is to show whether pandemic have had any influence on digital transformation of supply chain or not. Even more, to show whether or not it had an impact on accelerating the digitization of the supply chain. After introduction, first part deals with supply chain digitization before pandemic. Second part analyses supply chain areas which are under influence of COVID-19 pandemic. Third part reflects on actual effects and acceleration of digitization. Fourth part is focused on prediction of possible long-term digitization effects within supply chain.

2. SUPPLY CHAIN DIGITAL TRANSFORMATION BEFORE COVID-19 PANDEMIC

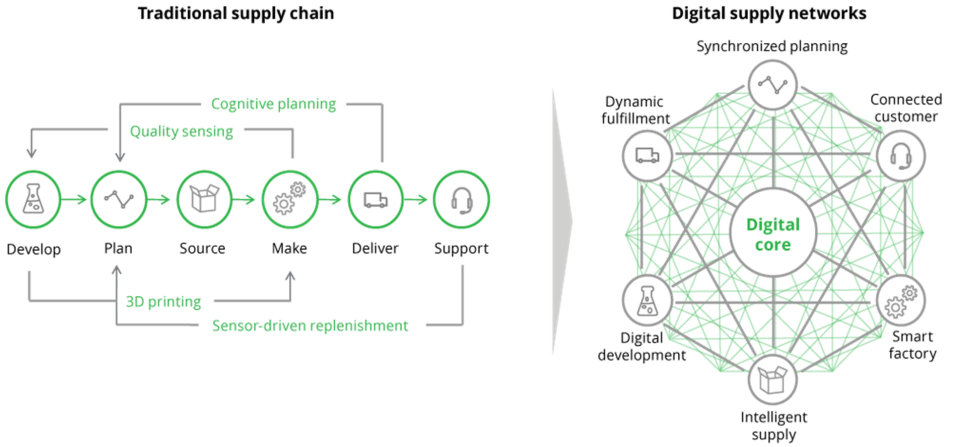
Fourth industrial revolution (Industry 4.0) has been based on innovative technology solutions which commercial implementation is resulted with evolution of doing business. Continued digitization of business functions and processes in variety of industries has been affecting decision makers in order to proactively and strategically make right and on-time decisions based on cost-benefit analysis. The pioneers of business processes technology solutions acceptance are companies which core business is situated in supply chain. Inevitably, implementation of digital business solutions is affecting transformation in functions and processes in supply chain.

Since 2011 rise of digital business solutions has been tremendous. New technological solutions such as blockchain, machine learning, big data, AI, VR, autonomous vehicles, drones etc. have been bastions of changes in business models. Digital transformation started as soon as company leaders started to implement mentioned technologies. Global transformation of primarily production followed by the implementation of digital technologies marks the beginning of digital transformation (Tjahjono et al., 2017).

Supply chains weren't resisted to changes, too. As a matter of fact, they were one of the pioneers in adaption of modern technologies which have been dominated in Industry 4.0. The amount of adopted innovative solutions within supply chain in 2010 – 2015. was so extensive that term of "digital supply chain" became usual amongst academic and commercial members. The vision of digital supply chain can be defined as an upgraded business model in everyday business activities based on intelligent technological innovations with aim on reaching highest performances (Aćimović and Stajić, 2019). The concept of digital supply chain has been researched by academia and broadly accepted by business actors all around the world (Buyukozkan et al., 2018). Transition from traditional to digital supply chain management has been complex task for all members of supply chain. Foundation for knowledge adoption regarding supply chain digitization has to be proper understanding of Industry 4.0 technologies.

Advances in digital technologies are extensive especially in quick restructuring of supply chains (Sang and Trimi, 2021). Figure 1 demonstrates digital transformation of supply chain from traditional to digital business model. The real-time communication within network with reduced time for decision making and transparent tracking of transactions are just a few of many functions represents of supply chain digitization. Regarding current business environment, convergence innovation in Industry 4.0, especially in COVID-19 pandemic crisis should be the future topic for researchers to discover.

Figure 1. Transition from traditional to digital supply chains



Source: retrieved from https://www2.deloitte.com/us/en/insights/focus/industry-4-0/digital-transformation-in-supply-chain.html, (2016).

Research conducted in previous period of time have shown that improved business process competences, faster pace of innovation, new forms of communication and engagement are factors for faster driving digitization (Amankwah-Amoah et al., 2019). Overall flow velocity of supply chain management functioning has been increasing by adoption of digital technologies in terms of product life – cycle. That business trend becomes usual in middle of 2010s especially in demand – sensitive networks (Farahani et al., 2020). In terms of business performance, digital supply chains managed to reduce standard difficulty load for several key services such as lost sale, transport and warehousing, administration and inventory, etc. Cumulative reduced effect of change in standard difficulty load for several services in digital supply chain has been represented in Table 1.

Table 1. Cumulative reduced effect of standard difficulty load for several services in digital supply chain network after the Industry 4.0 technologies implementation

Services and functions			Standard difficulty load before technology implementation	Reduced change in difficulty load after technology implementation	**Cumulative reduced change in digital supply chain after technology implementation**
Services	Agility and cost	Lost sales	100%	up to 50%	from 65% to 70%
		Transport and warehousing	100%	from 10% to 50%	from 15% to 30%
Capital		Administration	100%	from 5% to 10%	from 50% to 80%
		Inventory	100%	from 20% to 50%	from 35% to 75%

Source: Represented by author. Data retrieved from McKinsey & company. Available at: https://www.mckinsey.com/business-functions/operations/our-insights/digital-transformation-raising-supply-chain-performance-to-new-levels#, (accessed 26 August 2017).

The data in Table 1 demonstrates some of key services with standard difficulty load for companies in supply chain before and after technology implementation. After the digitization of key services, members of supply chain can expect reduced difficulty load in range from 5% to 50% for some of mentioned key services. Overall, cumulative reduced effect for all members within digital supply chain can vary form 15% up to 80% for some of mentioned services. So, in terms of difficulty load (cost reduction, time consumption, inventory assets

and management, etc), implementation of digital technologies is proven to be a key result of supply chain digitization in period before COVID-19 outbreak.

Multinational companies have been leaders in implementation of digital solutions in the last decade. Companies such as Walmart, Emerson, Amazon, Alibaba etc., have already been implementing technologies such as blockchain, big data, AI, robots and drones. Emerson, an electronic device producer, has been one of the pioneers in adopting blockchain technology. Their vision with blockchain implementation has been oriented on better supply chain transparency. End to end supply chain visibility and execution reached new levels of certainty by using blockchain in everyday business (Wang, 2019). Amazon has an impressive number of 45.000 different kind of robots in their everyday warehouse operations. In 2020. Amazon launched drone delivery system with goal for product delivery under the 30 minutes in less than 16 kilometres radius. Alibaba implemented smart big data platform, Cainiao merchant, which reduced human errors in more than 40% (Tham Jo Ee and Yazdanifard, 2015). All these examples of function and process digital transformation have represented a true value to the significance of supply chain digitization in the last decade.

The period before COVID-19 outbreak describes several most important barriers regarding supply chain transformation: conceptual (fear of change), societal (human interfering with technology), technical and technological (lack of knowledge) and environmental (side consequences on nature). These barriers hold the most of the reasons against supply chain rapid digitization (Jones et al., 2021). Today, during pandemic, when companies are trying to find new business models to survive, these barriers are facing a sharp contrast and key decision makers are challenging them in more bravely manner. True question still stands: did key decision makers learn to overcome current crisis by trying to digitize their cost centres?

3. MAIN AREAS OF SUPPLY CHAIN AFFECTED BY THE COVID-19 CRISIS – CONCERNING DIGITIZATION

Disruption risks vary, but the epidemic outbreak scale fast and disperse over many geographic regions creating a lot of uncertainty which makes it difficult to fully determine the impact of the outbreak on the supply chain (Ivanov, 2020). The Coronavirus has global impact on economy with measures like trade and transport restriction, border closing, imposed lockdowns, shipment disorders etc. Freight forwarders and logistics face many obstacles to mitigate the impact of the virus (Aćimović et al., 2020). Supply chains in total are facing serious disruptions, but question of success regarding digital transformation opportunity still remains unknown. In order to investigate outcomes of supply chain digitization during pandemic, this research need to show the effects of COVID-19 onto supply chain digital transformation.

Communication and human resource management has been one of the first fields to feel the immediate impact of the pandemic. One of the main characteristics of COVID-19 regarding to possible human consequences has been a need for distancing and transition to remote working. Many organizations shifted to digital channels of communication almost overnight, which was a fertile ground for customers to make a change in their everyday behaviour, as well (Baig et al., 2020). Remote working has shown potential for cost reduction, faster internal communication, more flexible customer relationship management, bureaucracy and even reducing environmental footprints (Hensher et al., 2021). Remote way of communication and tracking of activities swiftly showed importance of using digital technologies in order to safely continue with everyday work assignments. Social distancing impacted on all members along the supply chain. Companies have been reducing number of

on-site employees in factories, warehouses, distribution centres, retailing facilities etc and replacing them with their "digital clones". Reducing number of people engaged in processes of production, loading, routing, transport, forced a way in decreasing of human error. Much of the human-related labour has been replaced by robots (loading – unloading, packaging, routing etc.), drones (last mile delivery), AI and chatbots (customer support centres), autonomous vehicles (in-house transporting system), blockchain (procurement and sales). Reducing of human factor within supply chain accelerated the digitization, but showed vulnerability in terms of blue-collar workers shortage in environment without proper digitization plan.

Procurement during pandemic continued on a digitization road with big data and AI as leading technologies of digital transformation. Advanced analytics in coordination with AI and ERP systems have impacted a steady course for digitization procurement processes. Additionally, e-procurement showed its purpose and significance during COVID-19. E-procurement recently have been on a path for implementation of big data and blockchain as foundations for its future work (Khamis Alnuaimi, 2021). Some companies referred to external partners such as Deloitte on path for identification, triage, mitigation, monitor and alertness for anomalies in supply chain. Deloitte offered their Central Sight analytics tool as a solution for exact same mentioned challenges (Deloitte, 2021).

Manufacturing companies needed a shift to more flexible way of production. Rise of 3D production technology and geographical risks renewed company's opinion on near-shoring. Several authors considered, even before pandemic, that reshoring would take place if organizations excel in 3D production of its products - in full or partial manner (Banalieva and Dhanaraj, 2019). Blockchain and other similar digitization tools helped SMEs connect with suppliers and customers to ensure resilient and sustainable manufacturing through (Bai and Sarkis, 2020). SMEs have proved to be more agile and flexible to crisis, but they lacked financial capital structure for in-depth technology implementation. COVID-19 pandemic showed that there is still a shortage of engineers with digital knowledge in order to adequately respond to demand for digitization (Milisavljević-Syed, 2020).

Inventory management managers during pandemic needed to redesign their models for understanding inventory volatility and management systems. They needed to understand demand volatility, to simulate stock management scenarios and to foresee future disruptions. Material handling is an essential variable cost that is often completely ignored by the industries. It is very inefficient in warehouses. It accounts for 55% of the factory floor, 25% of workers and up to 70% of materials overall cost. During pandemic Walmart included robots in order to overcome inventory material and product managing, and Alphabot (the name of the robot) currently assist to 20% of online ordering purchase (Ammar et al., 2021). Lack of planning capability lead producers to invisible stock in PPE equipment, which was quickly overcome by implementing of 3D technology (additive manufacturing concept) in face mask production facilities. Data on inventory levels, material capacity, materials in transit, consumption levels, and unexpected disruptions need to be available in real-time, consumed by a persistently prepared team of decision-makers in time of pandemic. Companies started to implement AI based solutions for above mentioned challenges (Finkenstadt and Handfield, 2021).

E-commerce gained significant value during lockdowns. For example, e-commerce penetration rate during 2020. increased from 16% to 27% in comparison to 11% gained during 2009-2019 (McKinsey, 2020). Online grocery sales in China increased by 26.4% compared to 20.2% in the same period of the last year (Kang, 2020). Even though e-commerce is firmly established as a known marketing channel, the upgraded system based on big data technology managed to become a powerful tool for organizations to improve their

customer relation systems. Big data and cloud computing used by Alibaba brought them rise within this revenue source up to 37% in first quarter of 2021. Early mentioned, Cainiao network logistics system, gained 4% of revenue increases in comparison to same quarter in 2020. (Businesswire, 2021).

Transport capacities and freight forwarders took a huge hit during pandemic regarding disruptions in demand, routes, groupage cargo, delivery time, cost rates increase etc. There has been a steady growth in digital transformation in field of automatization of shipping portfolio, tracking of parcels and shipments to ensure an end-to-end visibility, temperature control, as well as ensuring fragile cargo integrity and customs clearance management (DHL, 2020). COVID-19 ensured that new digital technologies are implemented so organizations could reduce costs and improve reliability. World first autonomous container ship has been expected to sat sails in 2022; truck platooning in full or partial manner (with fuel savings from 3% to 7%) urged its upcoming in 2021-2022. (O`Byrne, 2020). Urge for digitization in transportation has been on site since the pandemic outbreak.

Delivery has also been under the influence of digital transformation especially during pandemic spikes. Food delivery industry redesigned their delivery software systems in terms of more adequate technologies for purchase ordering and cancellation management. Data management has been improved by integrating data analytics systems and chatbots often on website landing page (Xu et al., 2021). Delivery time has also been a challenge for companies during COVID-19. Pandemic outcomes led to Amazon to receive an approval from the FAA (Federal Aviation Administration) regarding their license for Prime air program (drone program) in 2020. Even though they have more business to cover before launching, COVID-19 excel their efforts for digitization of last mile delivery system (Chen, 2021). Modernized models of last-mile delivery services, especially in B2C terms, gained in importance. Last-mile delivery model, *crowdshipping*, especially arose as a new model for organization`s cost reduction. Model includes two-side platform (sender/retailer and transporter/shipper) where shippers (often ordinary people with bikes, motorbikes, and cars as a transport vehicles) are taking sender`s offer to transport any kind of good on arranged location. This model has been used mostly in part of city logistics. Nevertheless, crowdshipping model gained on attention during pandemic (Pourrahmani and Jaller, 2021). Domino’s pizza delivery robot, Nuro, has been on public roads for almost 2 years now. These robots are self-driving vehicles who delivers pizzas to the customer front door. These kinds of robots are being used for last-mile delivery during pandemic (Kapser et al., 2021).

Payment systems regarding cashless payment based on smart mobile technology has been on a surge since pandemic outbreak (Xiao and Chorzempa, 2020). Fintech companies have been on an urgent task to provide solutions for mobile payment. Contactless payment considering supply chain transformation is mostly focused on consumer preferences. Delivery units such as early mentioned Amazon`s Prime air program, developed an option for contactless payment. Cashless payment got even implication on country level since governments have noticed that these kind of automatic payment methods are not totally regulated. The question remains what will be governments response regarding digitized cashless model of payment (Ng, 2021).

Additionally, large affection of pandemic onto upstream and downstream supply chain is visible and represents direct cause for even more urged – process of digitization. Next chapter will show the visible effects of COVID-19 onto acceleration of supply chain digital transformation.

4. POSSIBLE EFFECTS OF COVID-19 ON ACCELERATING SUPPLY CHAIN DIGITIZATION

Digitization is seen as an essential driver for further development of infrastructure and transactions within the supply chain (Rachinger et al., 2019). Some authors claim that COVID-19 pandemic has been stimulating accelerated adoption of technological advancements within value chain while digital technologies are facilitating consumer management (Willems et al., 2021). Stakeholders tried to adapt and overcome the crisis with main goal – to survive and continue with doing business. On one side, many of them, mostly ones with lower capital capacity, reached for cost reduction and cash perseverance as primary defence system. However, there has been a significant number of key decision makers whose strategy relied upon improvement of function and processes in order to secure certainty during pandemic. The outcome of that strategy has been increasing the speed of digitization.

Technologies 4.0 have been used more significiantly with pandemic outbreak. Some areas of supply chain are being under higher level of digital acceleration (e.g., delivery) rather than some with lower level of acceleartion (e.g., payment). The decisive factors for accelerated digital impact ranking, shown in Table 2 (Low – Medium – High) have been adressed as followed:

- transition level from traditional to digital solutions within area, function or process;
- redesign of business model for some/whole business units/products;
- change in level of human labour – to machine working hours;
- technology 4.0 adoption speed and daily usage afterwards;
- cost reduction within individual company or part of/whole supply chain;
- level of digitization/automatization of area, function or process within supply chain;
- increased level of transparency and visibility of supply chain;
- accelerated mitigation consequences of COVID-19 pandemic;
- accepted technologies 4.0 as the main tool for the future conduct of business.

Based on previous mentioned decisive factors Table 2 shows most important pandemic effects which are representing drivers for accelerated digitization within supply chain. The following analysis is based upon literature review, case study review and available data and publications regarding multinational company digitalization plans and results. This analysis can be used as a foundation for further empirical analysis regarding the subject.

Table 2. COVID-19 effects as drivers for supply chain accelerated digitization

Supply chain COVID-19 affected area	COVID-19 effects as drivers for supply chain digital acceleration	Digital technology/ies as a "cure" for affected area	Digital acceleration outcome level (Yes/No) Low (L) – Medium (M) – High (H)
Communication and HR management	● "Overnight" shift toward remote working ● Flexible CRM ● Paper based – electronic based procedures and processes ● Video conferencing instead of face-to-face meetings ● Logistics workforce layoff	● Online communication platforms (Zoom, MS Teams, customized platforms etc) ● AI ● Chatbots ● Blockchain ● Autonomous vehicles	Yes (H)
Procurement	● Higher cost of procurement management ● E-procurement disruptions ● Unexpected anomaly alerts ● Supply of raw materials/goods visibility	● Big data ● Advanced analytics ● Cloud platforms ● Blockchain	Yes (M)
Manufacturing	● Higher cost of continuous production ● Necessity for lower cost of raw material	● 3D ● VR	Yes (M-H)

	and parts ● Necessity for production flexibility ● Workforce layoff ● Automatization	● AI ● Robots ● Blockchain	
Inventory management	● Inventory management automatization ● Redesign of inventory management strategy model ● Uncertain stock management due to demand volatility ● Material handling rise of cost ● Invisible stock possibility for certain products ● WMS more directed with suppliers ordering networks ● Re-evaluation of stock-outs ● Direct connection with real – time ordering purchase ● Necessity for more real – time stock management ● Warehouse workforce layoff	● 3D ● Advanced analytics ● Robots with smart sensoring systems ● Real -time ordering platforms ● AI ● IoT ● RFID	Yes (H)
E-commerce	● High percentage of new customers at ● High rise of online grocery sales ● Demand for next level data analytics ● Higher scale of e-commerce platform daily visit ● Necessity for better distribution planning ● Better UX models for e-commerce platforms	● Real -time network communication platforms ● Big data analytics ● Advanced analytics ● VR ● AI ● Cloud computing ● IoT	Yes (H)
Transport	● Intensive planning of routing, loading and delivering ● Lockdowns and increased state border waiting time ● Fall of profit rates (dollar per mile / euro per km) ● Necessity for real-time service ordering management ● Need to reduce the time required to collect transport documentation ● Increase of cargo delivery costs ● Possible delivery time disruptions ● Last-mile vehicles model redesign	● Platooning ● Robots ● VR ● Smart document collection platforms ● Blockchain ● Autonomous vehicles	Yes (M-H)
Delivery	● Higher demand for real-time connection with customer ● Higher demand for direct communication between e-commerce platforms and delivery service providers ● Demand for better data management ● Demand for better tracking and monitoring of delivery ● Contactless last-mile delivery ● High demand for delivery cost reduction ● Demand for business model redesign ● Demand for more advanced automatization	● IoT ● Drones ● Autonomous vehicles ● Smart monitoring platforms ● Real – time network communication ● Chatbots	Yes (H)
Payment	● Rise in demand for cashless payment ● Rise in demand for smart mobile payment services ● Connected device to payment technology innovations ● Model of virtual currencies payment	● IoT ● Advanced analytics ● RFID ● AI ● Blockchain ● Chatbots	YES (L-M)

Data collected throughout literature review, case study and available company data and publications regarding acceleration of supply chain digitization suggest that businesses are facing rapid digital transformation during/post COVID-19 period. Table 2 represents

summarization of the most important aspects regarding acceleration of supply chain digitization. First, one has identified the main areas of pandemic impact on supply chain ordinary way of conducting business; second, COVID-19 effects are being resonated as a drivers for change; third, usage possibility of several Industry 4.0 technologies have rised since pandemic outbreak; fourth, there is solid unquantified conclusion regarding level of digitized acceleration outcome ranked from low to high. Ranking of acceleration drivers in specific area of supply chain is something that cannot be entirely quantified since it is still to early to collect viable data.

In this case, qualitative methods of presenting the results are more convenient considering scarce of raw numerical data. Responsible and proactive desicion-makers resonated the crisis as a model for function or process inovation. They have accepted or internally developed digital solutions (mentioned in Table 2) in order to overcome disruptions caused by pandemic outbreak.

Many industries downstream supply chain accepted new trends which are currently mostly relied on digitization in times of pandemic. According to survey conducted in Q4 of 2020. by consulting company EY, the pandemic has indeed accelerated many pre-existing trends, and supply chain is no exception: 64% of surveyed supply chain executives confirmed that digital transformation has accelerated due to the pandemic. The race is on for digital enablement and automation: 52% of executives say that the autonomous supply chain (e.g., robots in warehouses and stores, driverless forklifts and trucks, delivery drones and fully automated planning) is either here or will be by 2025 (EY, 2021).

Considering decisive factors for accelerated digital transformation of supply chain during COVID-19, Table 2 can show following conclusions:

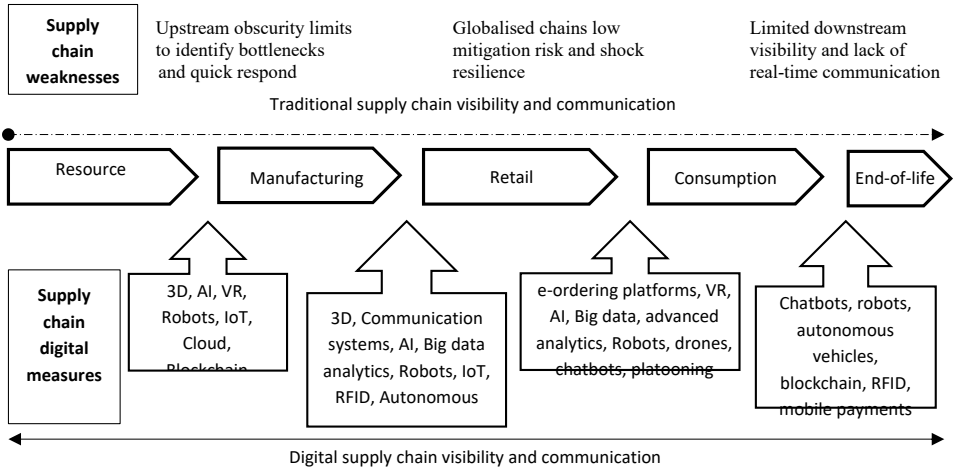
- almost every area of supply chain „suffered“ with some form of digitization;
- almost every area of supply chain gained acceleration of digital transformation;
- COVID-19 effects are being used as a drivers for accelerated digitization;
- digital transformation of supply chain in the times of COVID-19 pandemic is mostly focused on distancing, automatization, risk mitigation and big data analysis;
- majority of forced lay off labour has been replaced by technology 4.0 solution;
- production flexibility using 3D technology rather than production outsource (Shokrani et al., 2020);
- accelerated usage of online tools for communication and administrative ordering with aim to stay reluctant to change (Wilson & Chen, 2020);
- accelerated usage of drones, autonomous vehicles, robots, and other technologies in order to increase contactless manipulation of materials and goods;
- creating new online shopping platforms or upgrading the existing platforms with direct connection with distributers or shippers;
- accelerated usage of robots and autonomous vechiles in transportation area;
- accelerated usage of IoT, drones and smart networking regarding last-mile delivery;
- increased demand for using of contactless payment, mostly regarding IoT, RFID and mobile device payment (Mollenkopf et al., 2021);
- increased usage of blockchain in order to maintain or upgrade transaction security;
- increased visibility and transparency of downstream supply chain (Gunessee and Subramanian, 2020);
- communication, HR management, inventory management, e-commerce and delivery are areas with highest digital acceleration outcome level (H) considering decisive factors of supply chain digitization during pandemic;

- procurement, manufacturing and transportation are areas with medium to highest digital acceleration outcome level (M-H) considering decisive factors of supply chain digitization during pandemic;
- payment is the area with lowest to medium supply chain digital acceleration outcome level (L-M) considering decisive factors of supply chain digitization during pandemic;
- digital transformation of supply chain during pandemic has been oriented on accelerated smart network organizing of communication, function and processes.

5. EXPECTATIONS FOR LONGTERM POST-COVID SUPPLY CHAIN DIGITIZATION

Disrupted areas of supply chain network are being digitized since pandemic outbreak. Synergetic effect of digitization in each and every mentioned area leads to higher pace of supply chain digitization in whole. Accelerated digitization of some areas, such as e-commerce, lead to digitization of delivery, and vice versa. Multinational companies, such as Walmart, Amazon, Alibaba, Emerson etc, have proven that COVID-19 affected their supply chains in terms of digitization pace. Authors are anticipating that accelerated implementation of digital technologies will be especially important for **understanding future visibility and communication in after pandemic period.** Kenco's 2020 SC innovation survey showed that 90% of participants considers visibility for digitization's highest priority (Kenco, 2020).

Figure 2. Supply chain weaknesses and possible digital measures in order to improve supply chain visibility and communication



Source: adapted by authors, Sarkis et al., 2020.

Figure 2 represents identified supply chain weaknesses and possible digital resilience measures in order to improve visibility, automatization, predictability, risk mitigation and cost effectiveness. Traditional supply chains are usually described as a one–way street in terms of visibility and communication. Therefore, disruptions such as the bottlenecks are often to see in these cases. By implementing Industry 4.0 technologies members within supply chain are gathering and sharing information in real-time, and there is a high visibility downstream of the supply chain. Mitigation of risk is often mutual, so supply chain members can always be

prepared for a possible crisis. This figure represents a model for better understanding a post pandemic supply chain digitization.

Long-term expectations regarding supply chain digitization are almost completely focused on gaining higher level of visibility downstream supply chain and achieving real-time communication between companies.

6. CONCLUSION

COVID-19 disrupted supply chains with significant impact. Structural distortions within supply chain areas are obviously present today. In terms of digitization, these disruptions can also been resonated as a drivers for accelerated digital supply chain transformation. Disruptions as a drivers and implementation of technologies 4.0 in common business operations can lead to gaining faster digitized society.

Authors have identified crucial areas of supply chain and technologies within Industry 4.0 which together have already made an impact on digitization during pandemic. These technologies are not just being used as a tool for healing the problems started with the pandemic, but more as a viable asset for future business conduct. Although, there is a lack of quantitative data for possible in-depth analysis, this research showed that companies have willingly, on their own, started with implementation of Industry 4.0 solutions in order to overcome COVID-19 crisis. Rapid adoption of digital technologies amongst companies lead to accelerated digitization of their supply chains.

In order to retain their positions and keep their digitization pace, supply chain stakeholders need to adjust their digital strategies with focus on:

- overall business analysis for potential areas with need for digitization;
- redesign of business models, units, products or services in terms of digitization;
- cost reduction based on technology 4.0 implementation;
- risk mitigation based on technology 4.0 implementation;
- finance plans adjustments considering investment in digital technologies;
- raising employees' awareness of the opportunities that digital technologies brings.

This analysis can serve as a foundation for further empirical research, considering a lack of quantitative data at this moment. The long-term expectations and possible post COVID-19 outcomes regarding digitization of supply chains are turned to visibility and transparency.

Post pandemic supply chains are expected to be more visible and transparent. Accelerated technology 4.0 implementation is transforming supply chains into digitized cooperation networks during COVID-19 pandemic even faster than anticipated.

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EFFICIENT B2B ACCOUNT-BASED-MARKETING RESPONSE FOR COVID-19 TIME AND BEYOND

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Abstract

This is a time of challenging and turbulent transition from traditional to digital business in the context of the global COVID-19 pandemic. More efficient and effective business solutions are needed, which overcome the traditional mismatches of business functions. Harmonization and integration of sales and marketing in supplier organizations is a worthwhile task in terms of improved sustainable business results. The traditional spark between sales and marketing is too expensive for conscious market players. The solution lies in the development of a strategy and business process that harmonizes the market performance of supplier organizations towards increasingly demanding customers. The right approach is the formulation of tailored business plans according to the requirements of recognized and profiled customers, with a unique marketing and sales performance. Account based marketing offers a better business perspective and better market share as a whole. On the other hand, there are shortcomings of traditional general messages and offers. Traditional key- account- management gets a new dimension, with a more certain perspective of long-term customer satisfaction.

Key words: customer, marketing, sales, account-based-marketing, efficient approach, sustainability

1. INTRODUCTION

COVID-19 pandemics brought many healthcare challenges, along with many others, including the need of supplier organizations to adapt to extremely challenging sales environment. Physicaldistancing and supply chain hardships, coupled with work-from-home approach and data processing automation, have significantly challenged traditional work ethics and cooperation. In addition, online searches and remote procurement decisions are becoming increasingly important, with the convenience of an adapted search (Petkovic *et al*., 2020; Petkovic *et al*., 2018). Strategies that meet mentioned requirements, as well as certain others, have a bright business perspective, which is somewhat confirmed by the findings of this paper.

This paper comprehensively analyzes the latest B2B shifts in an integrated approach to customers, appropriate to the possibilities of digitalization and the requirements of efficient marketing budgeting at the moment. The objective of the research is to conceptualize the currently affirmed, and insufficiently theoretically and practically considered account-based-marketing (ABM) strategy, with the intention of explaining the phenomenon and affirmation in marketing channels in the context of long-term changes in the balance of power and customer treatment, at all levels of business. The intention is to provide answers to a number of questions related to the nature of the ABM approach to customers, which according to numerous reports currently brings significant benefits. We will define the ABM efficiency of customer relations, the position of the innovative strategy in relation to traditional customer care practices, the combined organizational layering of ABM practices and the perspective of

approach during the COVID 19 pandemic. This will contribute to the theoretical and practical standardization of the ABM approach.

Traditional focus on key customers requires significant innovation in the direction of a more efficient model and more precise targeting of desirable contacts. A new light is being shed on the behavior and care about B2B customers (Wilson, 2014, pp. 495-514), accompanied by significant innovations in terms of treatment of B2C customers. This is a kind of the evolutionary symmetry confirmation of changing attitudes towards B2B and B2C customers.

ABM is a customer relationship strategy that changes the traditional approach to investing from "broad range" of customers towards the direction of targeted investments in customers who are recognized as promising. Marketing investments in this sense are becoming more efficient, and the development of an integrated business process of sales and marketing in the function of cooperation with the customer leads to achieving significant economies (Vajre and Spett, 2019, p.34). It should be noted that the ABM approach is a young concept that is still evolving, which prevents its standardization, and thus possible "hard" conclusions about its place and position within the existing organizational structures of suppliers.

ABM practice can be implemented at different levels of selected customer treatment, which largely determines the investment level, as well as the expected results. ABM practices contain a greater or lesser degree of personalization of relationships with selected customer representatives. Relationship personalization as a primary activity in ABM is synergistically realized in terms of sales and marketing functions. On the other hand, personalization, thanks to the current possibilities of digitalization, analytics (Buttle and Maklan, 2015, pp. 248-251) and automation, is a very promising area for further deepening of relationships with customers.

Leading ABM practice gives great business results, such as the extension of relation with existing customers (80% of respondents), improved acquisition of desirable customers (86% of respondents) and an increase in ROI (76% of respondents) (Vajre and Spett, 2019). Doing business during the COVID 19 pandemic further adds to the value of ABM concept. It is a business solution whose efficiency is gaining in importance with the requirements of monitoring changing customer profiles (e.g., who, how, when and by which way shops) and changes in communication channels, where omni-channel optimized communication becomes a requirement of all customer structures. ABM provides answers to such requirements, which is especially important for larger organizations, which suffer greater pressures and have greater potential for valuing, investing and managing global data, predictive analytics and personalized collaboration with key business partners (Brady, 2021).

2. EVOLUTIONARY SYMMETRY OF CHANGING ATTITUDES TOWARDS B2B AND B2C CUSTOMERS AND THE EMERGENCE OF ACCOUNT-BASED-MARKETING

The bargaining power of supplier and trade organizations in marketing channels traditionally determines the behavior of actors, the implications of business agreements and the attitude towards changes and innovations in business (Berman *et al.*, 2018, pp. 385-387). Traditional theory of marketing and management has developed in the decades of dominance of manufacturing companies in the market, which, thanks to negotiating strength, capital, opportunities and associated business risk, have decisively influenced the initial development of many disciplines of business economics and related consulting. Knowledge developed in

the triangle of the company, consultants and scientific work is the fundament of a new view of business economicsdevelopment, embodied in modern theory of trade management and marketing.

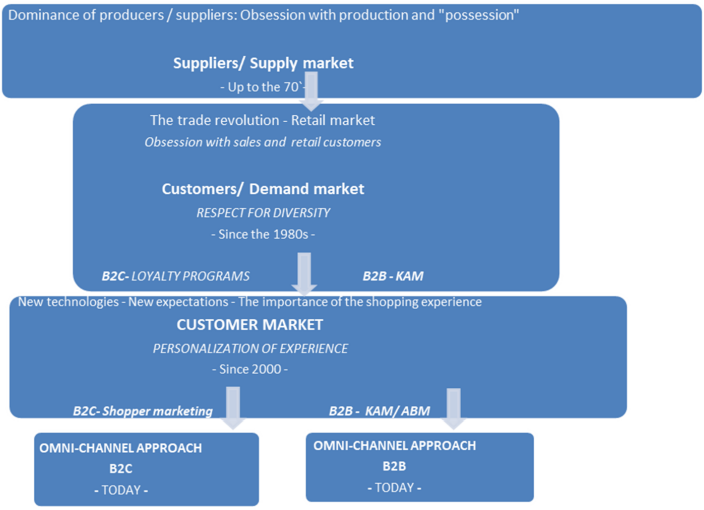
During the seventies, with the innovation in the business of the Sun supermarket from Ohio, the so-called trade revolution began (Lovreta *et al*., 2019, pp. 523-542), which quickly brought the predominance of power and influence in marketing channels to retailers. However, retail, thanks to direct contact with final customers and the possibilities of applying information technologies, quickly realized the value of understanding individual purchase models.

Collecting data on customer behavior and developing the possibility of analyzing the collected data, retailer's position in marketing channels has strengthened due toincreasing power of information and capital in negotiations with suppliers (Palmatier*et al*., 2020, pp. 199-205). The retail initiative to personalize the demand of final customer resulted in the supply side's understanding of the purchasing behavior of retail organization, as a sui generis customer. B2C initiatives for individualized demand, adaptation of sales facilities, and the development of loyalty programs have resulted in the emancipation of retail organizations. The respect of strengthened retailers by suppliers is concretized by the strategic care of the most important customers (Rogers, 2007, pp. 137-152). Thus, in the 80's, widely present and already standardized concept of key account management (KAM) (Lovreta *et al*., 2019, pp. 265-291) appeared and developed, in the function of getting to know each other, getting closer and improving cooperation.

Naturally, according to the logic of B2C actions -B2B reactions, on the supplier side came the emergence of a strategy for nurturing the most important resource of the company, represented by their selected customers. The trade revolution brought a new balance of power and behavior in marketing channels, which "transferred" to the B2B sphere of business, where supplier organizations began to work intensively on developing adequate access to the most important customers. Over time, partnering with stronger and smarter retailers has become a condition for achieving good business results, with the perspective of development and sustainability.

The beginning of 21st century is in many ways a turning point in the development of positioning within marketing channels. Driving market competition in the direction of perceiving the specifics of individual customers in all business segments became the function of focused shopping experience management (Bogetic, 2017). The leading position of retail in marketing channels comes to full expression, when retail demonstrates its strength leading to a change in business priorities (Palmatier*et al*., 2020, p. 113), from a brand consumer to a storecustomer. The natural focus of retail comes to play, while the importance of consumers "slips" into the background. The concept of shopper marketing is being developed and affirmed, which with its efficiency and effectiveness is attracting more and more attention from market leaders, leading to increasingly intensive investments (Lovreta *et al*., 2018, pp. 344-375). The digital revolution and the application of sophisticated analytics in the retail business are gaining in importance (Hagberg *at al.*, 2016). The goal is more efficient sales to recognized customers and an overall better shopping experience, which loyalizes the store customers. In terms of shopper marketing, supplier organizations actively participate, often taking the lead in developing and implementing various strategies and tactics (Bogetic*et al*., 2016).

Figure 1. Stages of the supply market, demand market and omni-channel shopping experience



Source: authors

On the other hand, digitization and data processing automation tools also enable significant advances in the relationship with customers in B2B context, starting from approach, selection, understanding, all the way to the attention paid to them (Choe, 2016). A new approach to attracting customers and their treatment is being developed, which represents a significant shift towards a more efficient marketing budgeting. It is a transition from broad communication with all customers, to a more efficient access to information-based selection of the most promising potential customers, who are planned to be contacted and with whom business cooperation is thoughtfully started and developed. It is an affirmation of the concept of account-based marketing, which represents an innovation of the existing KAM concept, in the direction of using the advantages of digitalization and analytics in working with customers.

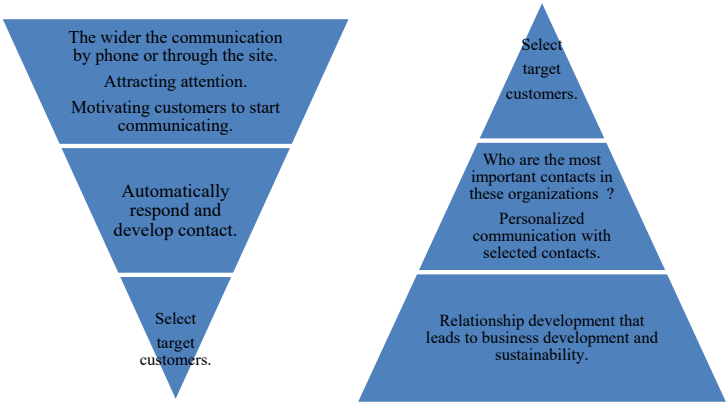
In the last ten years, there has been a stronger affirmation of multichannel businesses, both in the B2C and B2B market segment (Palmatier*et al*., 2020, pp. 237-340). Aspects of procurement and sales are equally touched, with a wide proliferation of both communication channels and related opportunities. Thus, we are witnessing almost synchronized steps in the development of multichannel performance towards individual and business users.

3. EFFICIENCY OF INVESTING IN SPECIFIC CUSTOMERS BY APPLYING ACCOUNT-BASED MARKETING

The consulting company Drift introduced a comprehensive approach to sales in the early 2000s, when supplier organizations used "super-wide nets" to get as many potential customers as possible. The idea behind the approach was to attract all possible customers (Flannery, 2020). This approach to customers often neglects those particularly important customers, whose value is obscured by dealing with a large number of all kinds of customers. Hence ABM was developed as anadvancedbusiness concept that treats each customer individually, as well as the important contacts associated with it. Precisely such an approach to the B2B

market in the early 2000s began to be nurtured by selected market leaders, noticing the shortcomings of the traditional marketing orientation.

Figure 2. Traditional marketing funnel and inverted funnel of account-based marketing



Source: Adapted from FlipMyFunnel Model for ABM by Sangram Vaire (https://terminus.com/flip-my-funnel/; 20.8. 2021.)

The traditional marketing approach to customers emphasizes a wide range of customer profiles, according to the model "the more the better". If the supplier organization communicates its brand and the contained products and services through the website, the goal is to attract attention and lead the visitor to send an appropriate request. Contact is accepted and communication or acquaintance is initiated, according toprofiling and selection of customer.

On the other hand, the ABM solution stipulates ranking of the business opportunities, followed by a focus on the best contacts and the development of personalized communication, which enables trust development and conditions for the best business results. From the beginning, marketing investments are clearly directed, in order to avoid frequent losses related to "dispersed" investment, typically present in traditional marketing. The focus is on specific people and specific companies, expecting the delivery of specific content (Flannery, 2020).

The active adaptation of the ABM approach to the technological and market opportunities of omni-channel business is underway, which led to the development of a number of elaboratedprograms and additional tools. An example is the prestigious MRP Prelytix ABM solution to support existing programs. It is a very fast real-time predictive ABM platform for analytics and data management (support to implemented ABM programs) which simplifies work in marketing and sales for employees in a complex business environment, providing customer acquisition, communication speed and results.

We note two significantly different strategic approaches to initial customer treatment, traditional broad-based marketing and ABM. These are not opposing strategies, but options that often synergistically intersect. Access to the multitude of traditionally “caught” customers has been significantly improved by ABM innovation and related tools, which can actually be used to select the most valuable ones to work with individually.

4. ACCOUNT-BASED MARKETING: DEFINITION AND BENEFITS

The term account-based marketing was defined in 2004 by The Information Technology Services Marketing Association (ITSMA). It is a matter of seeing ABM as "treating individual accounts as markets in their own right", which indicates the closeness of the concept with the widely established strategy of key-account-management (KAM) (Rogers, 2017). This indication imposes the requirement of theoretical and practical demarcation of the old and new concept of customer care in a B2B environment.

The pioneering definition of the ABM concept after just over 10 years has gained worldwide recognition in the B2B business segment thanks to benefits that are clearly recognized. According to the words of the well-known researcherKadhyap, ABM ″ … has become one of the most trending keywords in the digital marketing world since 2014″ (Kadhyap, 2020). Newer, broader view of ITSMA sees ABM as a strategic approach of combined insights-based marketing and sales, to enhance brand awareness among customers, strengthen relationships and encourage growth among selected new and existing customers.

The basic principles of ABM include (Burges, 2017):

- *Focus on the client and insights about him*. The emphasis is on meeting the needs of the customer, rather than on what the supplier organization currently offers and wants to sell. Customer needs are a priority.
- *The focus is on reputation and relationships, and then ROI*. The focus is on the customer lifetime value. Starting from that goal, awareness among the customer is developed, followed by stronger and longer relationships, which result in better returns on invested funds.
- *Customized programs and campaigns*. Related sales and marketing develop personalized offer, based on insights about the organization, the market and the contacts themselves.
- *Partnership work of marketing and sales in the function of the client and improved cooperation*. It is a fundamental ABM principle that significantly differentiates the concept from other approaches. Coordinated team work of marketing and sales is promoted, for a prestigious customer service.

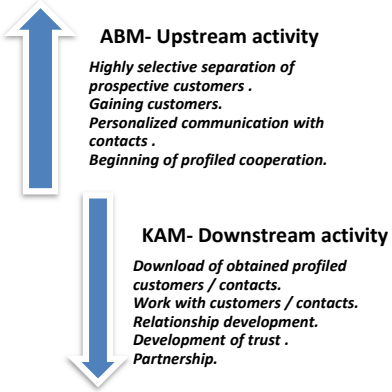
It is obvious that in the foundations of the stated principles of ABM lies a business wisdom that the quality of work leads to significant quantitative results of business cooperation. The strategic imperative is to take care of the customer and his personalized needs, in the full sense of the word, starting from the integrated functioning of the supplier, primarily in terms of marketing and sales. The goal is the long-term exploitation of the potential of business with carefully selected customers from the “blue ocean”.

ABM is a young business concept that has not yet reached an important stage of standardization, which would facilitate understanding, dissemination and implementation. One of the issues that most intrigues the business and scientific public is the relationship between this new concept and the established KAM concept (Lovreta *et al*., 2010, pp. 293-307), which is evidently in the stage of maturity (Buttle and Maklan, 2015). According to Kapta, both ABM and KAM are two sides of the same coin. On the one hand, ABM's task is to discover and start working with prospective customers, after which KAM "comes into play" and continues to exploit and develop customer relationships.

The goal of ABM is to develop personalized attention to selected customers and retain them. This view of ABM emphasizes the function of a proper selection of a small number of highly valuable potential customers, which the company should service and with whom communication is achieved in this first phase and cooperation begins. After that, the customers are taken over by the KAM part of the company, for further action. The traditionally based KAM concept, according to the above solution of ABM's organizational

positioning, represents a broader framework of innovations, including ABM advances (Raymond, 2021).

Figure 3. ABM upstream andKAM downstreamactivity



Source: Modified from Raymond (2021)

With ABM innovation, the concept of customer management acquired the character of a marketing process (Buttle and Maklan, 2015, pp. 215-216). Well-selected contacts in prospective customer organizations are key. ABM initially, thanks to technological capabilities, filters numerous information about the market and customers, setting priorities for communication. Further selection leads to the most valuable customers, such as contacts in purchasing and other services. By using omni-channel possibilities, at the level of simultaneous synchronized communication (Vajre and Spett, 2019), contact is established with representatives of prospective customers and trial cooperation is initiated. A successful start of cooperation means the next step of "transferring" contacts and customers to the jurisdiction of the KAM organization in the company, which further nurtures the valuable resources of the company.

Serious suppliers know well the value of continuity of communication with customers. Stable personalized communication with the customer, regardless of the organizational part of the supplier at a given time, only offers the possibility of harmonious business results. When the customer is recognized, contacted and interested by ABM and "forwarded" to the organizational unit that works on customer relationship management, it is desirable to avoid any stress in further communication. The close cooperation of ABM and KAM employees, as well as well-designed motivational packageencourages constant exchange of full information about contacts and the customer, making communication smooth at all stages.

The presented consulting solution for positioning ABM and KAM organizational units within the supplier organization is significantly recognized and accepted by other authors. Well-known author in the field of KAM strategy Beth Rogers states her position on ABM's predominantly indirect contribution to the good results of the organization, primarily based on precise insights about customers and the opportunities they mean (Ryals and Rogers, 2007). Rogers sees ABM as part of a broader KAM business, tied to the wave of digital marketing implementation in B2B business (Rogers, 2017). The technological role of support in the work of teams dedicated to strategically important customers is gaining in importance, making work more efficient and effective. Rodgers talks about a new wave of technology-enabled business processes focused on customers, which is leading to a revolution in B2B

marketing. She emphasizes the role of ABM in better selection and service of important medium and small customers, pointing out that working with smaller customers creates the biggest portion of the benefits provided by the implementation of the approach.

According to Rodgers, the integrated work of marketing and sales leads to the synergistic exploitation of separate customer expertise (Rogers, 2007, pp. 197-216), which is finalized in a well-designed and integrated campaigns. The goal is better brand perception, relationship development and identification of opportunities, all based on the development of customer knowledge in the function of better relationships and sales. The wealth of data is the starting point for valuable knowledge, customer decisions and related campaigns, which is all part of a specific marketing plan whose development and implementation is dedicated to teamwork (Vajre and Spett, 2019, pp. 57-92).

The mentioned views of ABM approach are treated as a more or less important part of the overall KAM activities of the supplier organization, pointing to the conclusion of refreshing the established strategy, primarily by applying digitalization, automation and personalization of relationships in omni-channel communication conditions. Flannerey has a different opinion, seeing ABM much more comprehensively, including both personalized activity in defining and communicating new promising customers, and working on untapped opportunities that are on the development side of existing customers (Flannery, 2020). Thus, Flannery indirectly hints at the perspective substitution of established KAM practice with a new, more focused and thus more efficient concept of account-based marketing.

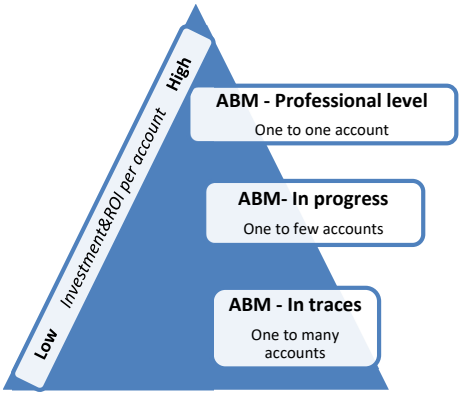
On this occasion, four key benefits of the ABM approach are highlighted. The first benefit of applying ABM is that it contributes to overcoming the traditional tensions between marketing and sales, which now form a single organizational unit. The integrated work of marketing and sales on customer satisfaction leads to another important benefit from ABM and that is efficient and Optimized Marketing & Sales Funnel. The third benefit from ABM is actually derived from the first two benefits and that is a better integrated customer experience in collaboration with the supplier, thus tracing the loyalty of the collaboration and the sustainability of the joint venture. Personalized, noise-free communication, which often occurs in the traditional business division of marketing and sales tasks, achieves enhanced collaboration and sales results. Finally, equally important, as a fourth benefit, ABM brings significant benefits to all parties involved. An enhanced ROI is the expected effect for a vendor applying ABM (Flannery, 2020). Concretizing the comment on the benefits of applying the ABM approach, we list the results from 2019: 60% reduction in the cost of acquiring customers, 4 times higher sales to new customers, 81% lower cost of sales to new customers and 32% less time required on average to agree on a deal (Vajre and Spett, 2019, p. 42).

5. ABM LEVELS, INVESTMENTS AND EXPECTATIONS

The ABM experience of the companies covered by the research conducted in 2016 indicated three varieties of ABM practice. ABM's goals are the number of clients it cooperates with, the organization's capacity to focus on customer service, financing, marketing content and key tactics (Burgess, 2017, p. 5). The initial level of ABM implementation or ABM in traces thus implies technologically enabled generic marketing campaigns for named customers on the list. ABM practice, which is already being implemented and is in the development phase, implies clustering of customers at the level of similar situations and needs, and the creation and implementation of somewhat customized programs for such integrated customers. Finally, closest to the projection of optimal ABM

practice, there is ABM professional level practice of creating and applying highly customized programs for individually recognized and treated customers.

Figure 4. Three levels of ABM



Source: Adapted from Burgess (2017, p. 4)

In ABM practice applied in traces there is a small level of investment as well as accompanying expectations. The supplier assigns a large, undefined number of customers to the responsible manager, with the aim of reviewing the situation and highlighting the most interesting ones, for which an appropriate marketing budget is allocated and repurposed content, previously developed for another similar business situation. The supplier uses email marketing, direct mail, blogs / social networks and direct meetings to communicate with such customers. Most of the attention (51%) is given to existing customers, and the rest to new customers. Marketing in this phase of "refining" ABM practice coordinates its activity with sales working on improving sales results.

Advancing in ABM practice, the supplier is slowly reaching the stage of cooperation with recognized and grouped customers to whom it adapts the communication and offer to some extent. The supplier increases the attention it pays to existing customers, significantly investing in finding new customers (44%). The primary goal is to build relationships and identify opportunities. Marketing coordinates work with sales, working on the closer connection of mutual business. Communication is rising to a slightly higher level, including the appropriate development of communication plans with valuable contacts at the customer level by cluster. A clearer initiative is to personalize messages and offers. ABM practice, which is in the process of implementation, is more related to technological possibilities, which help to automate access to customer insights, develop and execute campaigns, and measure the performance of the practice.

Professional ABM is realized with the dedicated attention of the responsible manager to each of the small number of assigned customers. Each customer is individually monitored one-on-one, when customized programs are developed for a leading shopping experience. Most of the attention (70%) is dedicated to existing customers, with whom a deep long-term partnership is being developed. Marketing is integrated into a strategic team dedicated to the customer, so that the flow of personalized relationship is continuous. The customer relationship is invested at the business unit level, including integrated sales and marketing functions. Communication is one-on-one, leadership dedicated to a specific customer, cooperation plans for specific carefully defined contacts, private events, etc. Key performance

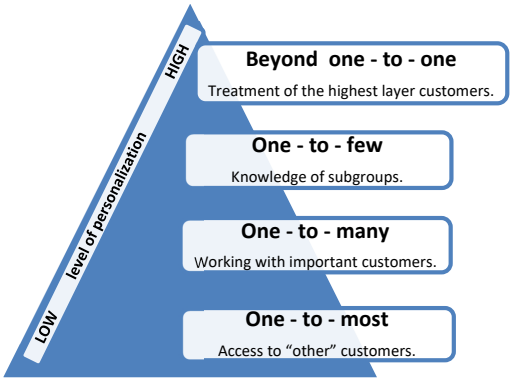
indicators such as brand perception, depth and breadth of relationships, and strides in collaboration are being carefully developed. Companies that have a professional ABM practice or an original version of a defined business concept, often additionally practice lower-level ABM practices for less important customer segments (Burgess, 2017, pp. 5-7). Thus, the previously mentioned views of Beth Rodgers on the importance and effects of the ABM concept at the level of smaller customers are justified.

Overcoming business challenges due to the COVID-19 pandemic requires suppliers to take a step forward in further personalizing relationships with key customer contacts. We find the basis for this view in the dominant attitude of business people that personalized content (56% of respondents) and leading data management (43% of respondents) are key to ABM success factors (Brown, 2021).

Given the nature of the ABM strategy, a further step in that direction can be characterized as a hyper-personalized approach to stakeholders (Brown, 2021). When the supplier knows better who the key contact is, what he/she expects and what he/she follows, more efficient communication can be developed. Hence, as a logical ABM step forward, the development of persons-based-marketing (PBM) is mentioned, which puts the human being in the focus of the strategy (Lees, 2018). According to this approach, stakeholders or decision makers are naturally at the center of marketing and sales activities, which are thus more precise and consequently more efficient and effective (Crater, 2016). PBM implies the development of messages tailored to the profile of the target contact, and placed through the media he/she prefers, regardless of whether it is an ad, blog, website or social network. The goal is to know who reads the post, when, how many times the page was visited and since when, and what the possible reaction is, all at the level of detailed information including name, contact, organization, job, etc. (Khozroshynka, 2017).

The starting point for steps in individualization and personalization, such as the development of an adequate structured approach to different "layers" of customers can be found in their systematic classification according to the degree of importance, from less important to the most important. Accordingly, it is useful to look at the growing levels of individual personalization, more precisely the strategy of individualized treatment of customers according to their defined importance.

Figure 5. ABM levels of relationship personalization



Source: Adapted from Brown (2021)

There are four levels of ABM activity, where hyper-personalization at the highest level of practice indicates the greatest possible effort to develop relationships with contacts, both privately and in business, covering all important points of possible importance for the business. The previously given gradation of ABM practice on three levels (Figure 4), developed based on ITSMA findings, is now extended by the gradation approach of personalizing customer service in ABM practice, depending on which level of practice is involved and how much resources are invested.

Alternative terms for the highly personalized future of ABM practice, including account-based marketing for the individual (ABM-i), persons-based-marketing (PBM) or response-based-marketing (RBM), are linked by the essence of opportunities based on digitization and data analysis, or ABM automation. On this premises, the "new" ABM enables precise personalized communication with representatives of all layers of customers. The vision is adequate sales and marketing readiness for customers on all levels, appropriate to their ranking and budgeted resources.

Market leaders currently very successfully use dynamic content of sites, emails and advertising for targeted messages which adapt automatically to the characteristics and requirements of targeted customers. Hence the organization of large personalized campaigns for a large number of contacts that place individually adapted content.

Beyond the one-to-one level of ABM is the level of hyper-personalization of customer relationships, the treatment of customers of the highest level. Key contacts in such organizations should be well known both privately and commercially to sales and marketing managers employed by suppliers. Leading authorities in the field of ABM Vajre and Spett emphasize the importance of an absolutely rounded view of the customer (360-view of your accounts) (Vajre and Spett, 2019).

A good example of digital one-on-one counseling is V-Hub, which is provided by Vodafone to its small and medium-sized clients who have been particularly affected by the current pandemic crisis. Such clients include retailers who were not ready to face the business challenges related to the COVID 19 pandemic and the change in the business environment, having previously ignored the possibilities of e-commerce development (Small-medium business support by V-Hub, 2021).

One-to-few campaigns also represent deeply tailored communication with particularly important customer representatives who are ranked as key customers. ABM one-to-many campaigns are based on knowledge of the similarities of business needs and personal interests of key contacts in the organizations of the covered customers, which is the basis for "producing" messages that can be used multiple times for different customers. Access to "other" customers involves personalization at the level of basic contacts and their basic similarities. Here, possible similarities with employees in different organizations are considered, and the goal is to recognize similar interests (sports, fishing, horticulture, etc.), similar business needs, similarity of the organization of purchasing work and similarity of business habits.

When analyzing types or levels of ABM practice, it should be noted that the potential for expanding the strategy is great, because relatively few companies implement ABM in full capacity (13%), while next20% are in the development phase of their ABM programs. The growth and development potential of ABM solutions in COVID 19 time is evidently great, which requires a broader awareness of the possibilities of the strategy for improved selection and customer service, in the new possibilities of digitalization (Heys, 2021).

6. ABM PERSPECTIVE DURING THE COVID-19 PANDEMIC AND BEYOND

The COVID-19 pandemic has brought some severe business challenges, including problems at the level of numerous global supply chains, requiring responses from market leaders appropriate to the business conditions, which are likely to last. On the other hand, there are great opportunities for the modern technological revolution and the accompanying digitalization of business, leading to significant changes on both the demand side and the supply side. The B2B market is experiencing major changes both on the side of purchasing activities and on the side of sales, all in the direction of cooperation at a distance and improving business efficiency.

In the new business conditions, ABM has a great development chance, because all the specifics of the strategy and the accompanying platform and solutions support the conclusion that the approach is appropriate response to COVID-19 challenges.

In order to assess the impact of the COVID-19 pandemic on the business of leading supplier organizations, a global online survey was conducted in April-May 2021 (Brady, 2021). Of the total number of surveyed B2B market leaders, 96% state a minor or major disruption of sales and marketing efforts due to the COVID-19 pandemic, of which 83% of surveyed enterprises detect a significant increase in marketing efforts in 2021 compared to last year. It is worth noting that almost half of all surveyed organizations (49%) report dramatic disruptions in their work with B2B customers. Leading marketers in 39% of situations observea change in customer profile, including changes in decision makers, changes in the procurement process and changes in media performance. In addition, supplier organizations to a large extent (37.5%) (State of ABM 2021, 2021) notice a change in communication channels and the achievement of goals (Palmatier*et al*., 2020, pp. 345-358). These changes caused by the COVID-19 pandemic crisis require an appropriate response in the function of adaptation and development of new business opportunities (Brady. 2021).

The difference between large organizations and small and medium-sized businesses (SMBs) in perceiving the changes that occurred due to the COVID-19 pandemic is also indicative. Differences in perception of changes in customer profiles and communication channels include:

- 42.9% of large enterprises declare a change in customer profiles, and 29.8% of them recognize a change in the channels used to achieve goals;
- 35.1% of SMBs see a change in customer profiles, while 24.6% of SMBs recognize a change in the channels used to achieve goals.

A significantly larger number of supplier organizations at the enterprise level see changes in customer profiles and communication channels. Of organizations that are more affected by changes in the business environment, 80% of companies are ready to increase investment in ABM solutions in 2021, unlike small and medium-sized businesses (SMBs) where 66.9% of organizations intend to increase ABM investment (State of ABM 2021, 2021). Obviously, the most successful organizations will redefine the profile of their customers, increase ABM investments and enable omni-channel communication with their potential and current customers.

For most global suppliers, COVID-19 pandemic has demanded the restructuring of sales and marketing operations, in the direction of more significant use of digital sales and marketing tools to serve key customers (Heys, 2021). Under the influence of digitalization, the procurement process also changes, including changing roles, behaviors and priorities (Brady, 2021). Even before the COVID-19 pandemic, there was a significant shift towards digital procurement. According to research conducted in the eve of the COVID-19 pandemic, most of the resources invested in procurement wererelated to online initiatives, on which

individuals and procurement groups spend about half of the time they devote to procurement. A small part of the time (17%) wasdevoted to meetings with suppliers (Heys, 2021). The COVID-19 pandemic only accelerated such a trend, in a way that clients of the consulting company Jambo increased their investments in ABM solutions by 75%, in order to gain more customers, accelerate sales and increase the size of orders. Preliminary observations justify the claim that ABM is now the best strategy for gaining desirable customers and effectively improving cooperation with existing ones (Heys, 2021).

This is a good situation for ABM, which is gaining in importance. New ABM solutions ensure quality contact with target customers and integrated marketing and sales on a basis of more efficient personalized service. According to Golden, for the success of ABM at the moment, the most important thing is to continue to improve the use of "... global data, predictive models, and robust collaboration innovated in the pandemic…" (Bon and Herman, 2015, pp. 89-113), in the function of new value and good business results (Brady, 2021). Support for improvements is a widespread awareness of the need to improve the applied ABM solutions, which is declared by 72.5% of marketers who apply the practice (State of ABM 2021, 2021).

7. CONCLUSION

In given research, we theoretically allocated ABM innovation in the context of changes of marketing channels, from the perspective of evolutionary symmetries of changes on diferent markets, such as evolution in customer treatment on B2B and B2C markets. The theoretical framework we provide points out the crucial importance of changes on the suppliers' side caused by empowered retailers. This process caused the inovations of customer management practices, including key-account-management approach and account-based-marketing practice. This theoretical foundation of the ABM approach enables a deeper understanding of the content and value of practice. This is tracing the path for the future organizational positioning, all the way to the standardization of ABC practice. In this context, we came to a clear conclusion about the important innovation of traditional KAM practice. In addition, we give a conclusion about several levels of B2B customer relationship personalization practices, which can be combined within the same organization.

The paper distinguishes three important starting points for the appearance and affirmation of account-based-marketing. At the beginning, we mention the focus on precisely selected, most important contacts, as a natural necessary turn in relation to the traditional marketing practice of attracting all customers, in every situation, with significant uncontrollability of investments and effects. Contrary to traditional gallantry and inefficiency in marketing investments, the new era requires a sharpened marketing focus, including appropriate budgeting and investment control. An integral part of this "natural need" to tighten marketing investments is the integration of marketing and sales, whose mutual traditional tension is a decades-long neuralgic point in the business of market leaders. The result of teamwork, equal marketing and sales functions is a consistent service, based on a continuous flow of personalization of relationships with the most important contacts, of the most important customers.

ABM success is based on another wisdom of modern business, which consists of individualization and personalization of treatment of key contacts. This approach to customers is a prerequisite for the development and offering of a unique procurement experience that should be offered and delivered by prestigious supplier organizations. The difficult-to-grasp notion of the procurement experience, through which a very large number of influencing factors permeate, ABM's focus on personalizing relationships, becomes significantly

manageable. The presented analysis of customer levels and ABM practice levels provides a clear framework for developing different approaches for different stakeholders, including the possibility of focused elaboration of required investments and measures of achieved results. These guidelines for developing an action program to achieve a prestigious personalized purchasing experience in cooperation with the supplier, represent an important feature of ABM, making the strategy applicable and adaptable.

As a third starting point of the ABM approach, we notice that it is a business practice that mostly exploits possibilities of digitalization and business automation. New technologies and related tools represent a fundamental precondition for the realization of attractively placed promises related to the ABM approach. Efficient data analysis, predictive analysis models and omni-channel communication are important, and followed by implementation of integrated and efficient sales and marketing programs focused on specific contacts and customers, anywhere in the world, at any time.

Finally, above all, the current time of the COVID 19 pandemic has confirmed the value of the ABM practice. The circumstances of the COVID-19 pandemic and the increasingly stringent demands for online efficient business, largely justify the essence of the ABM concept. Larger organizations, which also carry higher business risk, are also suffering greater pressures from changes due to the pandemic, so a significant increase in investment in ABM solutions should be expected on that side. Organizations that apply the ABM approach to customers, in addition to the undoubted effects of accelerating business, more efficient budgeting and improving business results, achieve an important goal of implementing current ranges of digitalization, accompanying analytics and business automation in omni-channel business conditions. This raises significantly the market status and value of the company, which operates modernly, in line with the current situation.

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MANAGING THE SUPPLY CHAIN RISKS CAUSED BY THE COVID-19 PANDEMIC

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Abstract

Pandemics like the one started at the beginning of 2020 can cause the plethora of challenges for businesses globally. Risks that can affect businesses are a very significant factor for operations of a company supply chain. The aim of this paper is to highlight the importance of risk awareness and knowledge for the adequate management of the companies' supply chain performance in the period of disruptions caused by the COVID-19 pandemic. Also, the COVID-19 pandemic emphasizes the meaning of supply chain operation flexibility. The results of the carried out analysis, based on secondary data sources, show that the consequences of risk mismanagement can be serious and cause the operations interruption. Basically, the whole supply chain can suffer if one business ends its operations. Thus, risk strategy and risk reduction determine whether a company will suffer seriously during the COVID-19 pandemic or not. The importance of a specific type of risk is defined by the industry and the market the business operates in. It can be concluded that among all businesses it is of paramount importance to be aware of consequences and to take into consideration all aspects of business surroundings.

Key words: risk management, *COVID-19* pandemic, supply chain operations, strategy.

1. INTRODUCTION

Nowadays, supply chains often consist of many suppliers, manufacturers, distributors, customers and many other stakeholders. Also, supply chains are spread across many countries and continents, thus exposed to many supply chain risks. Global economy is very connected and dependable on resources from all over the world. Therefore, their supply chains are extremely vulnerable to disruption risks that can negatively affect or shut down their businesses. Many factors can be the cause of disruption, ranging from human errors to pandemics. If a global pandemic hits the world almost every supply chain would face disruption more or less depending on the industry, with the influence being inevitable. Thus, since the outbreak, the COVID-19 pandemic has had severe effects on supply chains and the economy as a whole.

Managers of companies are trying to overcome the problems arising from the pandemic and to figure out how to save the companies' operation potential. Likewise, the position the company has in the supply chain is also important, so the company's management is devoted to retaining the position. Consequently, with the goal to ensure the survival of a company, different strategies have been created since the beginning of 2020.

2. LITERATURE REVIEW

In order to develop and achieve its business goals, enterprises must integrate into the big economic environment, which also leads to the increasingly complex supply chain of

enterprises, and enterprises are vulnerable to sudden risks (Huo et al., 2020). By spatial extension and number of members increase, supply chains became larger but dependable on situations in more than one region. Consequently, vulnerabilities of supply chains have amplified as they have become more complex, and the need for improving efficiency and delivery time has increased compared to the past (Bottani et al., 2019). Thus, today's globalized, leaner and just-in-time supply chains are more vulnerable to natural and human-made disasters (Soni & Jain, 2011).

Different events can threaten a supply chain, including internal sources (e.g., human errors, improper operations, communication problems) and external sources (e.g., natural disasters, terrorism, economic difficulties) (Lei & MacKenzie, 2019). The supply chain is inevitably fragile because it has a very convoluted structure with a complex relationship dependance among participants. A change in one element or component can induce changes in other components within the supply chain (Christopher, 2012). In 2020 the majority of supply chains all over the world faced one type of supply chain disruption caused by the COVID-19 pandemic. Despite the belief that future events need to be predicted, events like the COVID-19 pandemic cannot be predicted. Nobody can predict such a crisis scale and timing; neither can we specify the best response strategy for such an event (Ker & Cardwell, 2020). The only possible solution is to adapt to new circumstances by developing novel strategies and operational shifts on short notice, if it is feasible.

A supply chain disruption is defined as an event that disrupts the flow of goods or services in a supply chain system (Revilla & Saenz, 2017; Truong & Hara, 2018). Any problem in any link might endanger the normal operation of the whole supply chain, or even lead to the disintegration (Wang et al., 2021). Also, any serious stoppage in the functioning of supply chains has a very significant impact on the performance of the entire global economy. Generally, the epidemic outbreaks start small, but scale fast and disperse over many geographic regions creating a lot of unknowns which makes it difficult to fully determine the impact of the epidemic outbreak on the supply chain and the right measures to react (Ivanov, 2020). Particularly, the characteristic of these events is unpredictability and their lasting effects on supply chains.

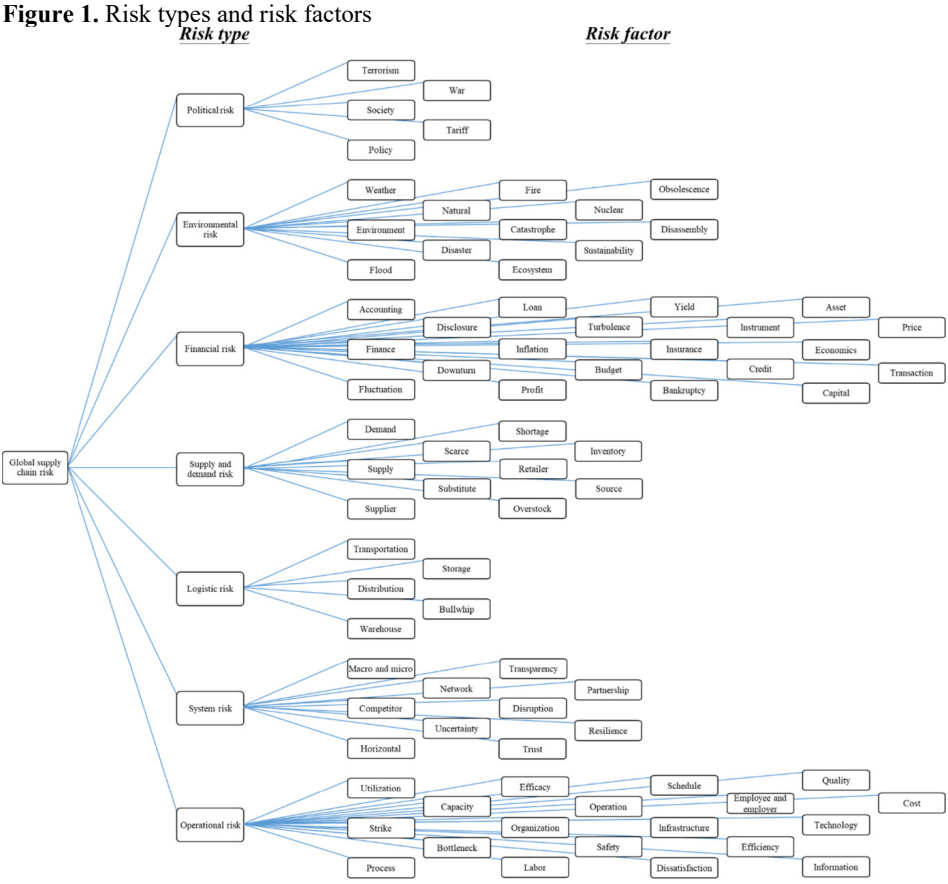
To provide safe and reliable products, every supply chain member must recognize risks both within and outside of their networks (Ali et al., 2019). So, it is essential for all members to build trust among them and strengthen cooperation. Also, the partners' acts in need should be understood and not be an obstacle to future cooperation. Supply chain risk is untimely supply which can lead to a decline in the quality of goods and services (Zsidisin et al., 2019). Effects of quality decline can transfer to all supply chain members and processes. As a result, the whole supply chain could lose the recognizable quality which leads to a market share decrease. It is worth mentioning that the companies suffer more from losing their market share to the competitors compared to the physical damages to the facilities after a disruption (Rezapour et al., 2017).

3. THE GLOBAL COVID-19 PANDEMIC SUPPLY CHAIN RISKS

Supply chain risk is the potential occurrence of an incident or failure to seize opportunities in supply chain in which its outcomes result in a financial loss for the firm (Prakash et al., 2018). The COVID-19 pandemic has disrupted all business operations worldwide (Choi, 2020; Queiroz et al., 2020). The impact of the pandemic is so deep that no industry has been spared at least one imposed anti-pandemic measure. In an event of sudden disruption, the immediate impact on a material supply chain is experienced in both demand and supply (Guan et al., 2020; Sprecher et al., 2017), due to abrupt suspension of or changes

to mining, processing, and manufacturing activities (Dente and Hashimoto, 2020). Furthermore, the risk aversion of the buyer matters for purchasing decisions (Di Mauro et al., 2020). According to Cannella et al. (2019) risk averse buyers display a hoarding behavior when replenishing purchased items, in order to reduce the risk of running out of stock. In the same way, the herd mechanism affects every individual and group that blindly follows the trend (Huo et al., 2019). For those reasons, some companies started building an inventory of both finished goods and raw materials during COVID-19 pandemic. This can lower supply chains' risk of stock-out of important goods both for themselves and their customers. The opposite is also happening, where customers are not allowed to go shopping which creates a goods surplus that induces financial consequences. Additionally, the COVID-19 pandemic has highlighted problem areas in supply chains regarding labor practices and a lack of health and safety.

Figure 1. Risk types and risk factors



Source: Chu, Ch., Park, K., Kremer, G. (2020).

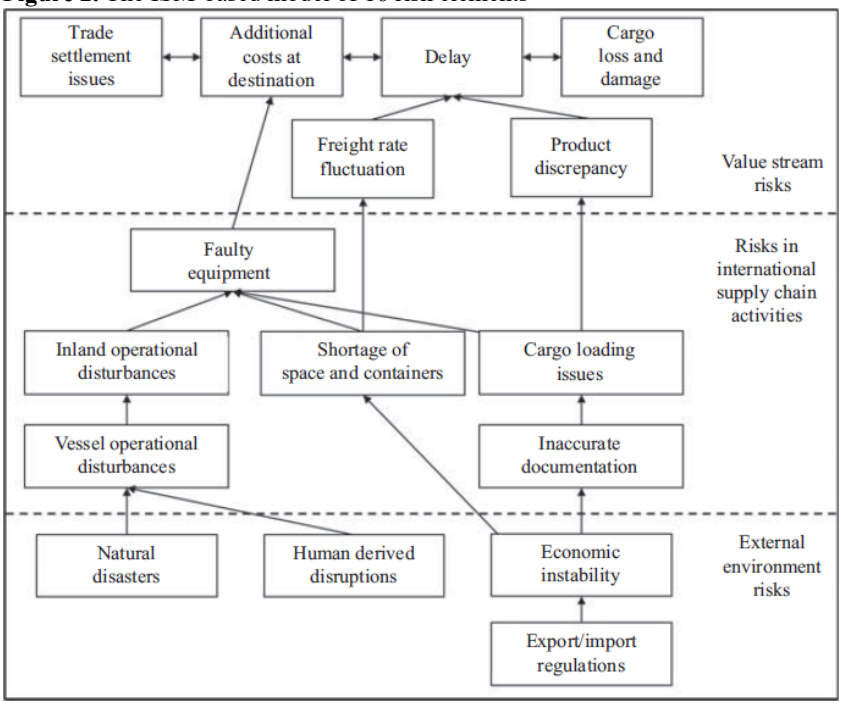
In supply chain risk management, the first and most significant step is the identification of risk factors (Hou & Zhao, 2021). Figure 1 shows risk types and risk factors. After implementing frequency and correlation analysis and topic modeling on a total of 911 journal articles related to global supply chain risk, a holistic risk categorization of seven risk types

and 81 risk factor terms was developed (Chu et al., 2020). By identifying risk factors, companies can recognize risk types more accurately. Therefore, the reaction could be in a more adequate and timely manner.

Supply chains are becoming more vulnerable due to an increase in disruptive events from man-made and natural causes (Ali et al., 2018; Govindan, 2017). Incidents such as pandemics, epidemics, natural disasters (such as earthquakes), socio-political instability, economic downturns and terrorist attacks are examples of environmental disruption (Parast, 2020; Gunessee and Subramanian, 2020). Environmental disruptions, like COVID-19, have short-term and long-term impacts on global supply chains and disrupt economic activities across the globe (Parast & Subramanian, 2021), which can determine the approach when creating a business strategy. Also, to respond to these risk drivers, supply chains should develop strategic response capabilities to assess and mitigate disruptions (Singh & Singh, 2019). Healthcare supply chain managers daily deal with the dilemma of mitigating risks costs versus costs and losses caused by the risks (Senna et al., 2021).

In order to better understand supply chain risk, it is important to perceive the interaction between different types of risks. Interpretive structural modelling (ISM), shown in figure 2, is used to develop a better understanding of supply chain logistics risks and interactions. The ISM-based model demonstrates the hierarchical structure of risks in international logistics and highlights their interrelationships with the dependence and driving power of risk elements (Kwak et al., 2018). Since the risks are banded, one risk can lead to another and trigger a chain reaction.

Figure 2. The ISM-based model of 16 risk elements



Source: Kwak, D.W., Rodrigues, V.S., Mason, R., Pettit, S., Beresford, A. (2018).

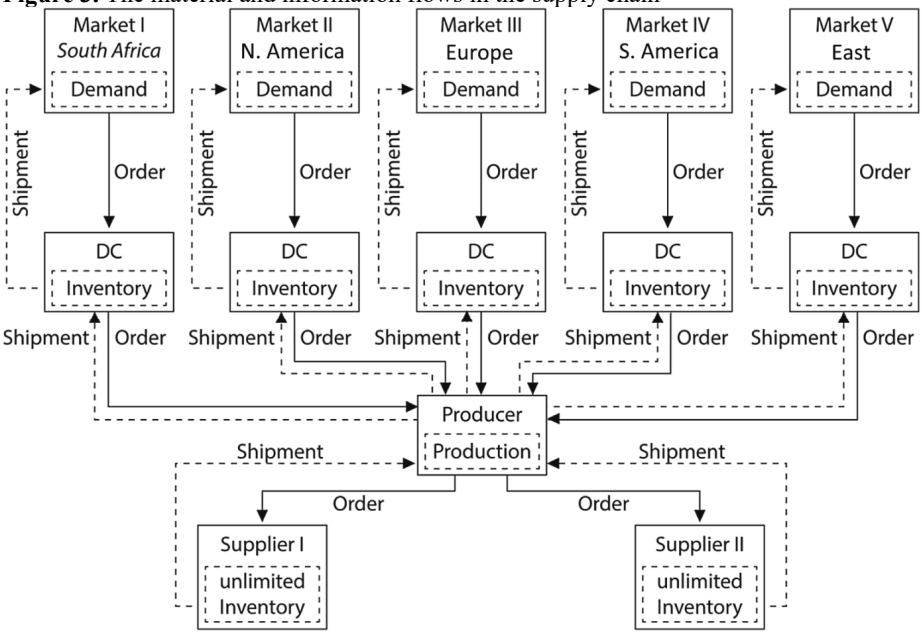
The problem for supply chains could also be a lack of skilled workforce due to COVID-19 measures. The findings from one study for food industries showed that the lack of skilled personnel has the highest influence on the risks (Ali et al., 2019). Moreover, the absence of employees due to illness limits the companies' ability to function adequately and respond properly. Other restrictions (WHO, 2020) like the limitation of the number of employees at the workplace and work from home also lower the ability of a company to react properly.

4. STRATEGIES AS A RESPONSE TO THE GLOBAL PANDEMIC CRISIS

The current situation in the world is very complex for businesses. Every region has its own pandemic measures and health politics. Uncertain regional factors regarding global business and logistics such as government stability, insufficient infrastructure in a country, and trade barriers may make it difficult to have successful supply chain management (Park et al., 2018). That determines what strategy should be applied and in what manner. Thus, the struggle for survival forces the market subjects to respond adequately to the given circumstances and consequently new business models could be developed. A lot of information and knowledge is required for strategy creation and implementation which emphasizes the importance of a reliable information system in the supply chain (Modgil et al., 2021; Nayal et al., 2021). Furthermore, besides information systems, the skilled workforce is of paramount importance when distribution sources and channels are changing constantly.

The importance of material and information flow in a supply chain is depicted in figure 3. Firstly, through the information system orders need to be made. Secondly, the flow of physical goods is engaged to fulfill those orders. In general, the material flow can be seriously disrupted by the anti-pandemic measures imposed by many governments, and thus the fragility of the global supply chain is exposed.

Figure 3. The material and information flows in the supply chain



Source: Ivanov, D. (2020).

Disruptions like COVID-19 pandemic require proactive, as well as reactive planning for mitigation and preparation (Yao et al., 2018). Efficient performance of the supply chain is hampered unless risks are properly managed (Raghuram et al., 2021). In practical life, managers face enormous difficulties in improving appropriate risk mitigation strategies because of continuous escalating risks (Chang et al., 2015; Kurniawan et al., 2017). Ivanov (2019) expresses that proactive and reactive strategies are the two main policies that can lead from resilient supply chains to disruptions and ensure effective actions will be taken in case of disruption occurrence.

It is crucial to understand the pandemic scenarios to be able to manage risk properly and to establish the right strategy. A baseline scenario is created to represent normal risks while the remaining five scenarios reflect different types of risks that could be created by sudden disruptions like the COVID-19 pandemic (Althaf & Babbitt, 2021). Those scenarios are shown in table 1.

Table 1. Disruption scenario descriptions

Scenario	Description
Baseline	Supply, demand, sociopolitical and environmental factors represent equal risks to sustainability in electronics sector.
1	*Supply cannot meet increased demand*. Pandemic mitigation measures (lockdowns) result in increased demand for electronics and decreased production of needed materials due to closure of mining sites and metal processing units.
2	*Demand fluctuation leads to economic volatility*. Pandemic lockdowns lead to economic downturns followed by material surges as economies open back again, causing price hikes.
3	*Pandemic gives governments ability to overreach*. Government overreaches cause domestic conflicts in countries with political instability and governance issues, leading to social risks especially from forced labor, layoffs, poor working conditions, and worker illness.
4	*Pandemic causes geopolitical tensions*. Lockdowns, border closures and travel bans impact trade relations among global economies and associated metal flows.
5	*Environmental concerns take a back seat during pandemic*. As countries struggle to keep their economies stable, environmental regulations become low priority, exacerbating environmental risks from material production.

Source: Althaf, S., Babbitt, C.W. (2021).

The results of one study conducted by Kumar et al., (2021) show "Collaborative Management", "Proactive Business Continuity Planning" and "Financial Sustainability" to be the best three strategies followed by "Digital and Technological Transformation", "Central Response Team", "Enhance Transparency", "Information Management", "Flexible Business Model" and "Training and Communication". Firstly, "Collaborative Management" improves operational capabilities and processes of organizations by making cooperation among partners horizontally and vertically. Secondly, "Proactive Business Continuity Planning" means that constant assessing and planning on operational level makes the whole process go smooth, as much as possible. Finally, "Financial Sustainability" implies that organizations should be able to handle financial shocks. Another study shows that both supply chain resilience and supply chain responsiveness have a significant positive effect on the supply chain risk management performance, while no significant effect of flexibility, which is another independent variable, on supply chain risk management performance could be found (Saglam et al., 2021).

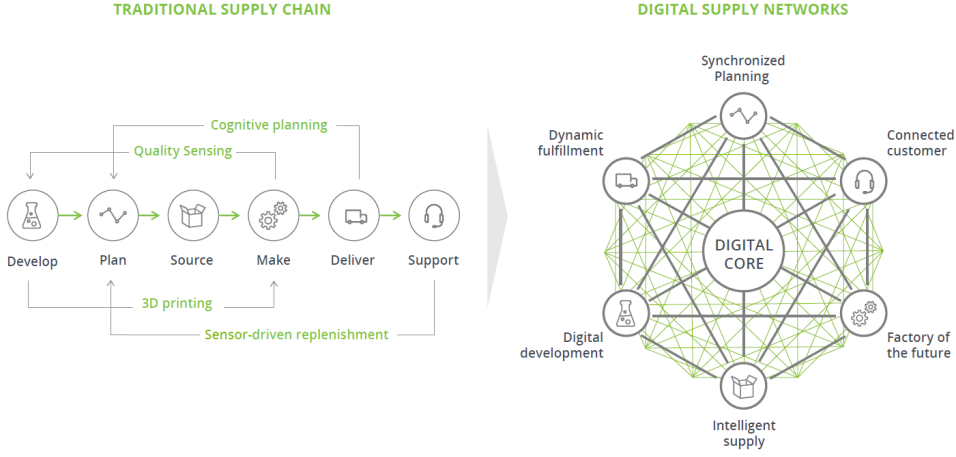
Risk is very important factor in every business. Thus, it is of paramount importance to treat risks properly (Lahane & Kant, 2021). As firms endeavor to reduce supply chain risk by employing various risk mitigation strategies, it becomes important for researchers to re-

examine the choice of strategies and their implementation in the context of a specific business setting. Some of supply chain risk mitigation strategies are (Woong & Goh, 2021):

- *Increasing Capacity* - The most direct way to support a demand surge would be to increase production capacity during the risk event.
- *Diversifying Single-Product Categories* - During the COVID-19 pandemic, single-product companies expanded their product lines, to offset losses from products with low demand with the gains from those in higher demand.
- *Local Sourcing* - To support their operations, companies turned to local businesses and suppliers.
- *Prioritizing Critical Categories* - Companies with a mix of poor-performing and well-performing segments during the pandemic tended to focus on fulfilling outperforming products/categories.
- *Repurposing Assets* -Many companies redeployed assets from poor-performing segments to support the overwhelming demand at better-performing segments.
- *Establishing Partnerships* - The pandemic prompted many businesses to work together, leveraging each other's functions and capabilities to enhance their operations.
- *Leveraging Social Media Influence* - Leveraging a global surge in consumption of online content during COVID-19, companies such as in the agriculture industry took to social media to shape demand during the pandemic to raise awareness on the issues they faced.

Leveraging advanced technologies such as the Internet of Things, artificial intelligence, robotics, and 5G, digital supply networks are designed to anticipate and meet future challenges (Deloitte, 2020).

Figure 4. The switch from traditional supply chains to digital supply networks



Source: Kilpatrick, J. (2021). COVID-19: Managing supply chain risk and disruption, available at:https://www2.deloitte.com/global/en/pages/risk/cyber-strategic-risk/articles/covid-19-managing-supply-chain-risk-and-disruption.html (accessed August 30, 2021)

From a risk management perspective, the key will be to build a "resilient" supply chain that not only seeks to reduce risks but also is prepared to quickly adjust and recover from any unanticipated supply chain disruptions that occur. By the swift to the novel way of processes, numerous risk types can be reduced, which would prepare companies for the future. The difference among approaches is shown in figure 4.

Managing risk in supply chains is a demanding job. Many strategies are developed and many novel are about to be created. Thus, the good decision-making model is required (Fagundes et al., 2020). Circumstances in which the strategy is created reflect specifics of the industry and the region of business operations. Not all the strategies can be utilized for every supply chain worldwide. Hence, the most important part of strategy developing and implementation is comprehensive consideration of the surroundings and the current circumstances affecting the supply chain.

5. CONCLUSION

The global market has felt the strong impact of the COVID-19 pandemic. Supply chains of all industries face similar anti-pandemic measures, but the impact on their functioning can be different to some extent. This pandemic disrupts both sides of the global supply chains simultaneously, the supply side and the demand side. At the same time, companies struggle to sell their products and to procure required inputs for the production process. The risks that can endanger supply chains are: political, environmental, financial, supply and demand, logistic, system, and operational risk. In other words, different events can threaten a supply chain, internally or externally. Generally, supply chains are fragile due to a complex relationship structure among participants where the change in one element or member can induce a chain reaction the supply chain. Primarily, the reason lays in the specifics of different industries, for instance fashion and health industry.

Supply chains are a very complex system to manage, especially in the wake of a pandemic like the COVID-19 pandemic. To address the problems and obstacles toward sustainable and profitable supply chains proper strategies need to be developed and implemented. It requires skilled employees and management. With the right strategy followed by the constant process of learning and accepting innovations, supply chains can survive and progress in new highly risked circumstances.

6. LITERATURE

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ORGANIZATIONAL RESILIENCE AND COVID-19 PANDEMIC: THE CASE OF CROATIA

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Abstract

The COVID 19 pandemic was an unprecedented event that led to government lockdowns and quarantines, disrupting the global supply chains, and acting as an external shock to international markets. Most business organizations faced special circumstances caused by the imposed public health measures and their ability to conduct day to day operations was negatively impacted. To counter the negative impact of the pandemic, governments around the world initiated various financial aid schemes aimed at helping organizations to cope with the unwanted effects of the pandemic. The Croatian government implemented a public grants program aimed at preservation of jobs for employers whose economic activity has been disrupted due to special circumstances caused by COVID -19 as well as COVID – 19 loans and supports for part-time work. Following the start of the pandemic, the concept of organizational resilience came into the forefront of business research. Resilience can be broadly defined as an ability of an organization to absorb stress and function in changed circumstances. However, the relationship between various public policies aimed at helping business organizations during the COVID 19 pandemic and organizational resilience is still unexplored. The aim of this exploratory paper is to discuss the potential effects of pandemic-induced public grants on business organizations resilience and survival, with a special emphasis on Croatia.

Key words: COVID 19 pandemic, economic policy, public grants, organizational resilience

1. INTRODUCTION

The COVID 19 pandemic has thoroughly changed and shaped the conditions on global market in the past two years. Growing uncertainty and lack of similar past experiences has led to a variety of responses to the unwanted effects of the pandemic. The beginning of the pandemic in March 2020 saw an abrupt halt of business activity on international markets due to imposed public health measures. This led to a worldwide supply chain disruption followed by a global decrease in demand, both on B2C and B2B markets. The manufacturing and hospitality sectors were most affected by the pandemic. China was the first country in the world to introduce strict public health measures that led to a significant decrease in the manufacturing sector output. This later spread to other East Asian countries, and then to the rest of the world. The pandemic also had a significant effect on manufacturing sectors inputs, i.e., raw materials and other supplies, leading to a surge in their prices. All these effects led to a significant decrease in the global GDP. Although it is difficult to assess the overall effects of the pandemic, early estimates predicated that, most major economies will lose at between 2.9 – 4.5 percent of their gross domestic product over 2020 (OECD, 2021). The Croatian economy was no exception.

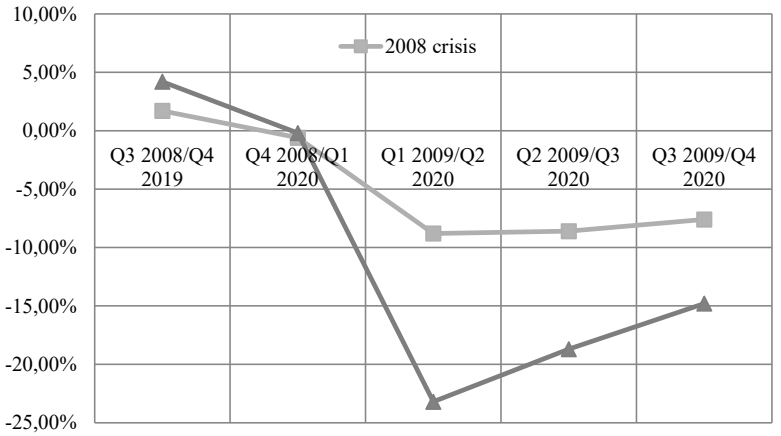
One of the organizational traits that was identified as important in helping firms survive the COVID 19 pandemic related economic crisis was organizational resilience. Organizational

resilience refers to the process in which organizations use their resources and abilities to interact with the environment in a way that will allow them to positively adjust and maintain functionality before, during, and after the occurrence of an adverse event (Dunchek, 2020). According to Linnenluecke (2017) resilience research can be divided into five research streams, which view resilience as (1) organizational responses to external threats, (2) organizational reliability, (3) employee strengths, (4) the adaptability of business models or (5) design principles that reduce supply chain vulnerabilities and disruptions. Although there exists a significant body of literature on organizational resilience, there is still a lack of research regarding the relationship between organizational resilience and public grants. Therefore, the aim of this paper is to discuss the role of COVID 19 induced public grants in building organizational resilience. To do this first the policy response to COVID 19 pandemic in Croatia was analyzed. Second, the concept of organizational resilience was explained. Thirdly, the possible outcomes of pandemic-induced public and economic policies in terms of organizational resilience and survival were discussed.

2. POLICY RESPONSE TO COVID 19 PANDEMIC IN CROATIA

Croatia saw a period of constant GDP growth since 2015, with yearly growth rates ranging from 2,43% to 3,50% (Croatian bureau of statistics, 2021). The start of the pandemic in March 2020 influenced the cooling down of Croatian economy. It was estimated that Croatian GDP in second quarter of 2020 was down by 14,4 % compared to the same period in 2019 (Croatian bureau of statistics, 2021). This was the largest quarter GDP decline since 1995. Wholesale and retail, transport and storage, accommodation and food service activities as well as manufacturing have shown the largest decline in business activity. On the other hand, information and communication, public administration and construction recorded growth (Dumančić et al., 2020). The effect of COVID 19 pandemic on the Croatian economy was nearly twice greater than the impact of the global financial crisis of 2008 which led to a quarterly decline of 8,8% for the first quarter of 2009 as shown in graph 1.

Graph 1. Real GDP growth rates in the financial crisis of 2008 and COVID 19 crisis of 2020



Source: Croatian Bureau of Statistics (https://www.dzs.hr/Hrv/Covid-19/bdp_2_q.html)

The effects of the 2008 crisis were felt for a long period and the country struggled to exit the economic downturn for the next five years. This negative experience as well as potential economic consequences of COVID 19 pandemic have prompted the Croatian government to respond by implementing a public grants program to prevent massive layoffs and firm shutdowns. This was a well-known route taken by most central governments around the world. Key government measures were aimed at job retention and prevention of firm insolvencies. Official figures state that around 2,4 billion € was spent in supports for job retention alone (salaries and income taxes) (Croatian labour bureau, 2021). The total impact of the COVID 19 pandemic on Croatian economy was estimated at around 5,3 billion €. The national budget was estimated to have suffered a decline of around 1,75 billion € due to tax write-off. Healthcare costs increase was measured at around 700 million €. The rest of the costs can be attributed to state budget transfers to the local government and various institutions included in the public grant program implementation (Croatian bureau of statistics, 2021).

2.1. Support for job retention

Job retention support makes up for the largest part of the total fiscal response implemented by the Croatian government following the COVID 19 pandemic. The support was made available to employers in March 2020, immediately after economic activity was disrupted due to special circumstances caused by the coronavirus. The government paid up to 3.250 HRK per employee to all employers that could prove they had a drop in revenue higher than 20% compared to the same period last year. The amount of support was raised to 4000 HRK in April 2020 and remained at the same level till November 2021. Criteria for support eligibility were tightened in June 2020, and only employees with a revenue decline higher than 60% were eligible for the support. In October 2020. the amount of support was divided in different groups depending on the decline in revenue. Employees that had a decline lower than 40% compared to last year were not eligible for support, while others received the following amount of support:

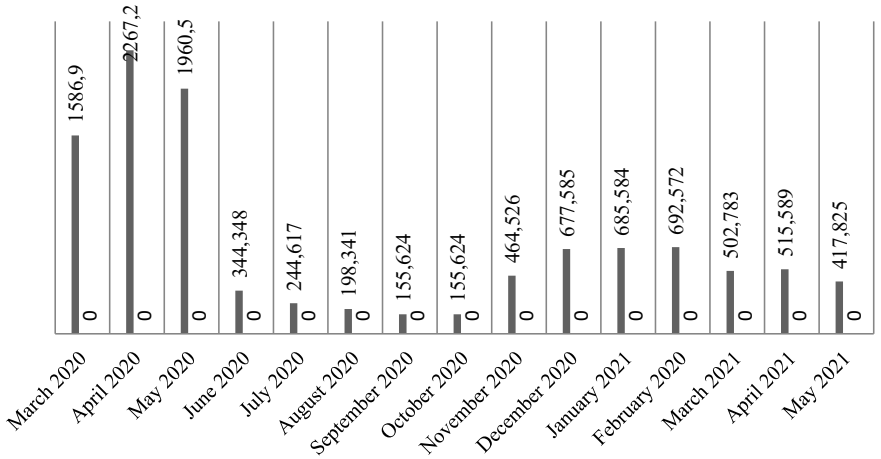
Revenue decline between 40,00% and 44,99% = 2.000,00 kn per employee.
Revenue decline between 45,00% do 49,99% = 2.500,00 kn
Revenue decline between 50,00% do 54,99% = 3.000,00 kn
Revenue decline between 55,00% do 59,99% = 3.500,00 kn
Revenue decline of 60% and more = 4.000,00 kn.

Besides this, employers were eligible for 2000 HRK per employee if they were shut down for 1 – 14 days due to coronavirus outbreak and 4000 HRK per employee if they were shut down for more than 14 days. All firms with a 20% revenue drop were eligible for supports in the first three months of the pandemic. The support was later limited to several economic sectors such as: rental and leasing companies, travel agencies, tour operators, entertainment and recreation companies, production and showing of films and video films, sound recording and music publishing activities and distribution thereof, organizers of cultural, business and sporting events, organizers of fairs and weddings, and related activities such as companies for equipment rental, audio and video recording, ticket sales, hall rental and other companies that generate most of their income from events and public gatherings, translation activities and interpreter services, charter trips, excursions, and other occasional transport services, nightclubs (Croatian Labour Bureau, 2021).

The data from Croatian Employment Bureau shows that the largest number of organizations used supports for job retention from March until May 2020. In March 2020 1,589 billion HRK was paid out as job retention support, followed by 2,267 billion HRK in April 2020 and 1,96 billion HRK in May 2020. The monthly amount paid out as part of this

public grant oscillated between 155 million HRK in September 2020 and 692 million HRK in February 2021 with a declining trend after that as shown in graph 2.

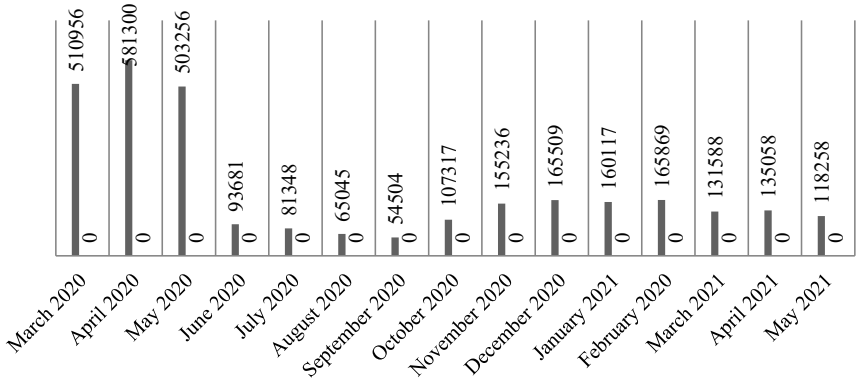
Graph 2. Monthly overview of job retention support cost (in million HRK)



Source: Croatian Labour Bureau, available at: https://mjera-zrm.hzz.hr/korisnici-potpore/skupna-statistika-korisnici-potpore-ocuvanje-radnih-mjesta/

Number of employees that were the beneficiaries of the support for job retention was the highest during the first three months of the pandemic, 510.956 in March 2020, 581.300 in April 2020 and 503.256 in May 2020. The number of employees declined in the following months and varied between 54.404 in September 2020 to 165.869 in February 2021.

Graph 3. Monthly overview of employees using the job retention support



Source: Croatian Labour Bureau, available at: https://mjera-zrm.hzz.hr/korisnici-potpore/skupna-statistika-korisnici-potpore-ocuvanje-radnih-mjesta/

Besides the job retention support, organizations which were not able to perform their business activities due to government decrees and had a reported revenue decline of more than 60% compared to last year were eligible for fixed costs compensation as well.

2.2. COVID 19 loans

As a liquidity support measure, the Croatian government implemented a COVID 19 loan scheme. The loans were managed by the Croatian Agency for Small Business, Innovation and Investment (HAMAG-BICRO). This financial instrument was aimed at micro, small and medium enterprises. The maximum amount for the loan was limited to 750.000 HRK, with an interest rate of 0.25% and a delayed start of repayment for up to 12 months. The loans were fully funded by the European Regional Development Fund and had a 5-year due date for repayment.

The applications for COVID 19 loans started from March 2020 and more than 7760 loan requests were handed in in the first round of financing. In total 5273 organizations received 2.23 billion HRK worth of COVID 19 loans in 2020. Following the high interest of SME-s for COVID 19 loans this liquidity support measure continued in 2021 with an additional 1.3 billion HRK. The total number of COVID 19 loans till June 2021 was 7867 with the total amount of 2,906 billion HRK. Around 54% of COVID 19 loan requests came from the hospitability sector. The transport industry and trade were second and third in terms of COVID 19 loan receivers (HAMAG-BICRO, 2021). The highest number of COVID 19 loans, 1921, was handed out in the city of Zagreb, followed by Split-Dalmatia County with 1058 loans and Primorje-Gorski Kotar County with 488 loans. The distribution of COVID 19 loans in Croatian regions is showed in Table 1.

Table 1. Number of approved COVID 19 loans in the year as of June 30th 2021.

COUNTY	Number of approved COVID 19 loans	Amount (in million HRK)
Bjelovar-Bilogora County	188	51,46
Brod-Posavina County	195	60,23
Dubrovnik-Neretva County	456	193,42
Zagreb County	1921	798,76
Istria County	442	157,43
Karlovac County	461	161,70
Koprivnica Križevci County	182	53,61
Krapina-Zagorje County	267	86,13
Lika-Senj County	90	33,13
Međimurje County	267	86,13
Osijek-Baranja County	344	114,23
Pozega-Slavonia County	83	20,82
Primorje-Gorski Kotar County	488	175,78
Sisak Moslavina County	223	68,25
Split Dalmatia County	1058	437,20
Šibenik Knin County	213	71,18
Varaždin County	226	81,29
Virovitica-Podravina County	125	40,76
Vukovar Srijem County	238	70,33
Zadar County	314	101,98
Zagreb County	461	161,70
Total	7867	2,906

Source: HAMAG BICRO, available at: https://hamagbicro.hr/financijski-instrumenti/

2.3. Support for part-time work

Another public grant aimed at job preservation was the support for part-time work. The aim of this support was to preserve jobs with the employers who had a reduction in their scope of work due to the special circumstances caused by the COVID 19 pandemic. The part-time work support enabled employers to keep their employees on full pay only for the hours that they actually worked while the rest was subsidized by the government. The amount of support was limited to 3.600 HRK per employee. This measure helped employers in keeping their human capital intact while enabling employees to receive a salary similar or equal to the one they would have received prior to the special circumstances caused by the COVID 19 pandemic.

3. PANDEMIC INDUCED PUBLIC GRANTS AND ORGANIZATIONAL RESILIENCE

The public grants program implemented by the Croatian government helped its beneficiaries to overcome some of the adverse conditions caused by the COVID 19 pandemic. However, the question on the relationship between these public grants and organizational resilience remains unanswered. To shed more light on this issue first we explain the concept of organizational resilience.

3.1. Defining organizational resilience

Williams et al. (2017) explain how the concept of resilience stems from Latin words "resilio" which means, "to jump back". Resilience is present in different scientific disciplines such as psychology, ecology and sociology. Holling (1973) defines resilience from an ecological perspective as a trait of an ecosystem i.e. its ability to absorb change, and the ability to be restored to the initial structure and function following a disturbance. Social resilience refers to the capability of a society that has been exposed to adverse events to adapt to the new state by either resisting or changing in order to reach and maintain a minimum level of functioning and structure (International strategy for disaster reduction, 2004). Psychological resilience refers to an individual's ability to mentally or emotionally deal with a crisis event and/or quickly return to a pre-crisis state. (de Terte et al., 2014). Resilience is therefore generally used to describe the ability of individuals, organizations or systems to react and recover from various disturbances with minimal effects on their functioning (Williams et al., 2017).

Most scholars describe organizational resilience as a capability (Duchek, 2020) or a capacity (Legnick-Hallbeck & Legnick- Hall, 2011) of an organization. If we combine these two views, it can be stated that dynamic capabilities of an organization are the key to developing higher organizational capacity to deal with adversities, i.e. develop resilience. Dynamic capabilities are "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (Teece et al., 1997). Gittell et al. (2006) state that organizational resilience can be seen as a "dynamic capacity of organizational adaptability that grows and develops over time" Battisti & Deakins (2017) emphasize the importance of organizational dynamic capabilities in a volatile and uncertain environment as a means of resource integration and new opportunity recognizing. Zahra (2020) explains how firm dynamic capabilities and its resilience are not just the differentiators between survival and failure of small businesses and entrepreneurs but also define the speed with which new ventures are able to learn, both determining their growth and survival in the long term. Although organizational resilience is a unique capability and is dependent of various traits of the organization, Williams et al. (2017) explain that it is also related to the way an organization interacts with its stakeholders and the environment during adversity.

Following this argument, COVID 19 pandemic can be seen as an adverse event that facilitated stronger interaction between governments and firms facing the new market circumstances.

3.2. Effects of pandemic induced public grants on organizational resilience

One of the effects of COVID 19 pandemic was increased decision maker uncertainty. The key reason for this was a lack of similar past experiences (Altig et al., 2020). Policy makers around the world were facing difficult decisions regarding the fiscal and monetary response to the unfolding crisis. The wrong policy response could easily become a source of additional negative market shocks. This was especially pronounced in small open economies due to their lack of fiscal and monetary resources necessary for a policy response as well as their greater sensitivity to spillovers from other markets (McKibbin & Fernando, 2020). The need for public grants to be of help in building organizational resilience is especially emphasized at the time of a pandemic. Natural disasters and economic cycles have a relatively predictable and limited space and time in which they unfold. On the other hand, pandemics can cause considerable stress for unforeseeably long periods of time (Trump & Linkov, 2020).

Environment in which business organizations operate is filled with risks and adversities that threaten their survival (Whiteman & Cooper, 2011). Therefore, it is important for organizations to „prepare for, respond to, and overcome their various forms and degrees to preserve performance, to recover, or to prevent decline and even failure“(Williams et al., 2017) even in normal circumstances. Boin et al. (2010) state that the way an organization responds to crisis is dependent on its capabilities of improvisation, coordination, flexibility, and endurance. All these traits can be related to organizational resilience.

Taking a system perspective on resilience, Hall & Lamont (2013) state that resilient societies have various characteristics that help organizations within these societies to cope with an adversity in a better way. Williams et al. (2017) push this argument further by explaining that “certain features of a system (culture, social connections, etc.) play a role in how actors within that system experience and respond to adversity. COVID 19 pandemic was a significant negative market shock that tested both societal and organizational resilience. The societal response was the implementation of various public policies aimed at helping firms in risk. These policy instruments can be broadly categorized into loan guarantees, direct lending to small businesses, grants and subsidies, and equity instruments. They also served as an emergency measure, giving firms breathing space to overcome the first couple of months of the pandemic. In this sense, it can be broadly stated that they strengthened the firms' capabilities to deal with adverse market conditions, i.e. strengthened their resilience and gave them time to reconfigure their resource base and prepare for the months to come. Due to its intangible nature, organizational resilience is difficult to measure. However, the outcomes of organizational resilience in terms of firm survival in face of the COVID 19 pandemic are easily accessible and measurable.

Some studies have showed the beneficial effect of public grants on firm survival. Liu et al. (2021) highlight the supportive role of Chinese state-owned banks on small businesses' that were affected by the pandemic lines of credit. On the other hand, the public grants were indiscriminate when it comes to their beneficiaries and their goal was to avoid business failure at all costs in many countries (Dorr et al., 2021). The lack of eligibility criteria for beneficiaries of public grants was present in Croatia as well. This is evident when looking at the data for the number of beneficiaries and the costs of job retention support in the period from March – May 2020, after which the eligibility criteria were tightened. This ad-hoc policy response is understandable from the perspective of high COVID 19 pandemic related uncertainty and a hope that the special circumstances will end soon. On the other hand, the public grants were also an artificial lifeline that prevented the cleansing of the markets from

inefficient firms and the effective reallocation of resources (Dorr et al., 2021). It is therefore important to ask the question if all public grant beneficiaries in Croatia were indeed firms in need, and to explore the long-term effects of public grant dependence for the firms that used the public grants in the period after May 2020. Dorr et al. (2021) conducted an analysis of the effects public grants had on firm in Germany. They found that the German government's policy mix (including direct liquidity subsidy, liquidity loans, change in insolvency law, and intertemporal liquidity support) triggered a backlog of insolvencies that is particularly pronounced among financially weak and small firms. Although the literature on the topic is still scant it can be stated that the effects of pandemic induced public grants are twofold: they can help build organizational resilience but can at the same time act as an obstacle for the removal of inefficient firms from the market, triggering long term economic effects.

4. CONCLUSION

COVID 19 pandemic was an extreme adversity that tested the resilience of individuals, organizations, and societies worldwide. To help their economies cope with the crisis, governments around the world implemented different policy instruments. The Croatian government was focused on job retention and helping firm liquidity through public grants and low interest COVID 19 loans. During the first months of the pandemic, many Croatian firms used the supports for job retention and applied for COVID 19 liquidity loans, acting as proof of the necessity of a policy response to the crisis.

The aim of this paper was to explore how and under which circumstances do these policy instruments help build organizational resilience for the companies that used them. It can be stated that these instruments were beneficial to Croatian firms. However, the answer to this question is still ambiguous due to two reasons.

The first one is the intangible nature of organizational resilience. Williams et al. (2017) state that resilience has a broad appeal across many scientific disciplines, and includes the "interaction between an organization, its stakeholders, and the environment while confronted with adversity", making it both multilevel and multi-staged. This results in difficulties of operationalizing it into a measurable construct. It is possible to use firm survival as a proxy for organizational resilience. However, this eliminates the fine-grained findings needed to draw conclusions on the specifics of the relationship between pandemic induced public grants and organizational resilience. Instead, it provides a binary measure of organizational resilience. Future research should therefore focus on better conceptualization of organizational resilience.

The second reason is the need to analyze long term effects of COVID 19 public grants in Croatia on their beneficiaries. Since the pandemic is still present, and the public grants are still in use this research will have to be conducted at some point in the future. However, following research done by Dorr et al. (2021) it can be concluded that some of the public grant beneficiaries are firms that do not have the necessary level of organizational resilience to operate on the market. The cost of keeping these firms alive could prove to be more than just the expenditure on the public grant programs they used, preventing market cleansing and resource allocation from inefficient to more productive and resilient firms.

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THE PRIVACY IMPERATIVE IN THE POST-PANDEMIC WORLD – INSIGHTS INTO CONSUMER KNOWLEDGE ABOUT „RIGHT TO BE FORGOTTEN“ AND RECOGNIZING THE IMPORTANCE OF TRUST

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Abstract

During a coronavirus crisis, investing in privacy for organizations has a return on investment in several areas besides building trust with their customers. The GDPR is a complex document for the rights and freedoms of data subjects that is enacted to protect personal data of all citizens of the European Union, and this paper will pay special attention to the GDPR and the right to be forgotten regarding patients and other data subjects. Some mechanisms that are enforced in relation to the pandemic from the perspective of the rights of GDPR subjects often require the application of the principle of proportionality which, since fundamental rights are not absolute, requires careful consideration in the light of the noble public health argument. Respondents should be informed for what purposes and how much their data will be kept and the processing of data should be in accordance with the principle of fairness, transparency, purpose limitation, data minimization, accuracy, storage limitation, integrity and confidentiality. The privacy policies adopted during the pandemic will have a lasting impact on our societies and they will determine how we will respond to data privacy and human rights within possible emergencies in the post-covid world. The aim of this paper is to explain the rights of data subjects in a pandemic and the importance of privacy policies through the legal framework related to GDPR, the latest research and related literature. Through an interview with an expert in the field of personal data protection, a deeper insight into the rights of respondents at the time of the pandemic was provided, and the determinants of action in the case of post-covid emergencies were proposed.

Key words: personal data security, public health, consumer trust, GDPR, COVID-19

1. INTRODUCTION

The coronavirus pandemic impacts life-style of the residents searching from an international perspective. Currently, the SARS-CoV-2 virus Delta variant is dominant in global populations. Science has shown an excellent approach by creating new vaccines of mRNA types and viral vectors as well as the latest DNA vaccine in India, monoclonal antibody treatment in the UK, and mesenchymal stromal cell treatment, in the hope that COVID-19 will become endemic and free of new significant variants. Clinical trials have been opened to test the effectiveness of antiviral drugs.

To protect the health of citizens around the world public health authorities, companies and individuals have begun to apply new measures such as health tracking and reporting. These mechanisms, according to Mikkelsen et al. (2020), including contact-tracing and self-reporting apps, recording and transmitting personal health information, underscore the deepening importance of data privacy. In this sense, the question of the human right to privacy and the right to protection of personal health data is raised. Furthermore, if we look at

the patient from the perspective of the consumer of health services, the patient can, through selecting a health institution that has transparent and clear privacy policies and by learning about his rights, contribute to better protection of patients' personal data.

The modern idea of human rights arose in the whirlwind of World War II, states Matulović (1996). After the end of the war, the belief in human rights was confirmed is in the Charter of the United Nations (1945). The Universal Declaration of Human Rights suggests that the basis of human rights is "innate dignity" of a person, which is discussed in Article 1, while idea of dignity is reinforced by the statement in Article 3 that says that everyone has the right to life, liberty and security. Security, especially in today's digital age, implies the security of personal data and in this regard a General Data Protection Regulation or GDPR has been enacted, to protect personal data and privacy of all citizens of the European Union.

The pandemic has brought, according to Cisco privacy research (2021), a compelling societal need for sensitive personal information - health, contacts, and location, which intensifies the risk of individual's fundamental right to privacy at and the need to balancing between individual rights and public safety. This paper looks at the complexity of the health-personal privacy dilemma through three segments related to personal data processing in the context of a pandemic, patients' right to privacy and right to be forgotten, and building trust through transparent privacy policies in which companies gain multiple returns on investment. At the end, conclusions and lessons are given that will serve for the post - covid period. Through an analysis of relevant published surveys and literature as well as an in-depth interview with data privacy professional, this article has analyzed the importance of privacy protection complexity in the era of COVID-19 crisis. Further literature was also explored to explain the concept and importance of personal data protection.

2. PERSONAL DATA PROCESSING IN THE CONTEXT OF COVID-19 OUTBREAK

Since the implementation of the General Regulation on Data Protection, citizens have become increasingly aware of their rights regarding their private data. The COVID pandemic is a test of the continuity of data care by regulators, data processors as well as citizens at the European Union and global levels. The analysis of received cases that were resolved in 2020, shows that the Croatian Agency for Personal Data Protection in 2020 reporting period had the largest number of cases related to requested opinions and actions associated with the application of the General Regulation on Data Protection. Some of the received requests are related to giving opinions, interpretations, received inquiries, processing/publishing personal data on the Internet and data processing carried out by the health sector.

The protection of privacy may be complementary and not in conflict with, for example, the right to expression and public health. In cases of urgency, it is important that citizens feel safe in the context of preserving private data and private information. It is necessary for citizens to gain knowledge about their right to privacy and protection of personal information, and in that context the Croatian Agency for Personal Data Protection designs various workshops, manuals and webinars.

The Croatian Personal Data Protection Agency submitted to the President of the Croatian Parliament the Annual Report for the period from 1 January to 31 December 2020, in accordance with the provision of Article 17 of the Act on the Implementation of the General Regulation on Data Protection. Insight into the Annual Report on the website of the Croatian Parliament shows that during 2020, the Croatian Personal Data Protection Agency, from 1 January to 31 December, received a number of 3094 new cases, which is 23% less than on

2019 but the number of “GDPR” cases within the total number of cases increased by 40% in 2020 compared to the previous year. During 2020, the Agency received a total of 1,635 cases related to actions on received requests for violation of the right to protection of personal data, petitions of citizens and inquiries for issuing expert opinions with regard to personal data protection regulations. In addition to newly received cases, there were 1,797 cases from the previous reporting period. The Croatian Personal Data Protection Agency's annual report further points out that "the cause of a large number of newly received cases, but also those that are postponed for resolution in the next reporting periods, is largely due to the full implementation of the General Data Protection Regulation... “. In parallel, as explained in the Annual report „the continuous development of new technologies, such as artificial intelligence, facial recognition, development and widespread use of online communication tools, Internet services and social networks in the context of the global pandemic caused by COVID-19, 2020 brought new and intensified challenges, especially related to human rights, with special emphasis on those rights that are directly related to the protection of personal data “.

According to the interview and the data provided by Mr. Judin, head international of the Norwegian Data Protection Authority and personal data protection expert, there was an increase in GDPR complaints in 2020 in Norway (and according to the Norwegian Data Protection Authority) compared to 2019 but in view of the expected trend according to data received on annual basis. Mr. Judin added that Norwegian Data protection authority do not have statistics per GDPR article but complaint statistics per calendar year. According to statistics provided to the author, although there is an increase, it is smaller in 2020., given the number of complaints per year, compared to 2019. In a telephone conversation with the author, the Croatian Data Protection Agency confirmed the increased scope of inquiries of Croatian respondents regarding health personal data compared to 2018 and 2019. In addition to the mentioned increase in GDPR cases by 40% (according to the Annual data report 2020 of the Croatian Data Protection Agency) compared to the year before, we can observe that citizens are increasingly interested in the privacy of their data in a pandemic crisis.

A keynote speech on ‘Data Privacy post-Covid19’ at Euroactive’s Virtual Conference on Data Privacy was given by Vice-President of the European Commission on Values and Transparency Jourová (2021) in Brussels. In the speech, it was emphasized that data protection and privacy, just like all fundamental rights, are even more important in the context of the pandemic and the increased digitization. Furthermore, Jourová V. (2021) pointed out that a modern approach to regulation is the key to the response to global challenges and that data protection and privacy is part of the solution in response to the pandemic.

The European Data Protection Board (EDPB) is an independent European body which contributes to the consistent application of data protection rules throughout the European Union and promotes cooperation between the EU’s data protection authorities. In the statement on the processing of personal data in the context of the COVID-19 outbreak, the EDPB (2020) underlines that, even in exceptional times, the data controller and processor must ensure the protection of the personal data of the data subjects. The EDPB (2020) continues that emergency is a legal condition which may legitimize restrictions of freedoms provided these restrictions are proportionate and limited to the emergency period and that the personal data that is necessary to attain should be processed for specified and explicit purposes. In this sense, data subjects should receive transparent information on the processing activities, their main features, including the retention period for collected data and the purposes of the processing. All information should be provided in clear language and easily accessible. Measures implemented to manage the current emergency should be appropriately

documented and it is essential to adopt adequate confidentiality policies regarding the private data being processed.

The General Data Protection Regulation (GDPR) or Regulation (EU) 2016/679 of the European Parliament and of the Council regulates data protection and personal privacy within the European Union and adopts regulations related to data transfer to third countries. As a regulation, not a directive, it is directly applicable but provides flexibility to certain aspects of the regulations that individual Member States will be able to adapt. The GDPR is a complex document consisting of eleven chapters, ninety-nine articles and 173 recitals. Through the implementation of this regulation, Europe aims at better protection data, greater personal autonomy and dignity of respondents. In order to implement the regulation effectively, all Member States must designate independent public bodies such as the Croatian Data Protection Agency. The European Data Protection Board (2020) notes in its statement that the GDPR provides for rules that also apply to the processing of personal data in a context such as those relating to COVID-19. In addition, the EDPB (2020) states that the GDPR allows competent public health authorities and employers to process personal data in the context of an epidemic, in accordance with national law and within the conditions set such as, for example, processing of the personal data for reasons of substantial public interest in the area of public health and, under those circumstances, there is no need to rely on the consent of individuals.

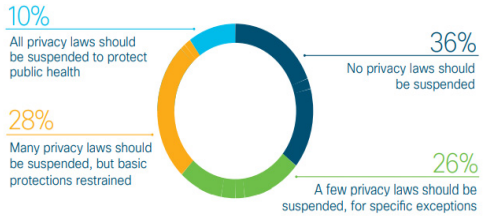
Additionally, scientists discuss the difficulty of implementing the GDPR in general. In their article from 2018, Horak, Bodiroga and Vukobrat (2018) point out that the General Regulation on Data Protection raises numerous issues as well as difficulties in implementation, and it is clear that there are still "gray areas" which enable the detection and manipulation of data. Furthermore, they state that the reform of the legal framework for personal data protection is one of the biggest challenges of the digital single market.

With regard to the processing of personal data during a pandemic, including special categories of data processed by competent public authorities (e.g., public health authorities), the EDPB considers that articles 6 and 9 of the GDPR enable the processing of personal data, in particular when it falls under the legal mandate of the public authority provided by national legislation and the conditions enshrined in the GDPR. Article 9 (2, i) of the GDPR states that an exemption from the processing of specific categories of public health may not apply if processing is necessary for reasons of public interest in the field of public health and article 9 (2,h) states processing is necessary for the purposes of preventive or occupational medicine, for the assessment of the working capacity of the employee, medical diagnosis, the provision of health or social care or treatment or the management of health or social care systems and services. The European Data Protection Board and the Council of Europe have released similar statements explaining that the General Data Protection Regulation (GDPR) and Convention 108 do not hinder measures against the COVID 19 pandemic, but do require that emergency restrictions on freedoms be proportionate and limited to the crisis period.

McLennan (2020) notes that researchers and research institutions in Europe have been reluctant to use GDPR scientific research exemption, likely due to fear of the difficulties that may be caused by their national bodies. Oppositely, Zwitter (2020) says that the large amounts of health data used for scientific research results in a violation of individual rights and collective autonomy. The author emphasizes that established privacy regimes are focused on individual consent, and, moreover, in the author's opinion, most human rights treatments know derogations from privacy and data protection norms for emergency states that leaves little safeguards to guarantee individual and collective autonomy. The author adds that the challenge of responsible data use during a crisis is not novel.

According to Aidinlis (2020) in the GDPR reform process there was a transition from a decentralized data protection enforcement regime' to a centralized system, supervised by the EDPB which was highlighted as integral to achieving the substantive harmonization and uniform application of data protection in the EU. In addition, the author points out that COVID-19 has put the alleged "Europeanization" of data protection law to a serious and unfairly premature test and COVID-19 pandemics has brought to the surface the limitations inherent in aspirations to homogenize the substantive application of EU data protection law. However, there has been a consistent increase in privacy commitment globally. Cisco Data Privacy Benchmark Study (2021) provides findings that provide strong evidence that the commitment to privacy has been strengthened during the pandemic. The data in the study are derived from the Cisco Annual Security Outcomes Study and include responses from security professionals globally. Organizations that refine privacy policies improve trust with their customers and operational efficiency. Research findings highlighted by Cisco Data Privacy Study (2021) include that ninety-three percent of organizations turned to their privacy teams to help navigate their pandemic response, privacy budgets doubled in 2020 to an average of $ 2.4 million, ROI was slightly down compared to 2019, but remains attractive with 35% reporting benefits at least 2 times their investments, privacy laws are viewed favorably around the world, with 79% of organizations indicating they are having a positive impact (with only 5% negative impact), external privacy certifications (e.g., ISO 27701, APEC Cross-Border Privacy Rules, and EU Binding Corporate Rules) are an important for 90% of organizations when choosing a product or vendor, organizations with more mature privacy practices are getting higher business benefits than average and are better equipped to handle new privacy regulations around the world, data privacy has become a top area of responsibility for security professionals and ninety-three percent of organizations are reporting privacy metrics (e.g., privacy impact assessments and data breaches) to their Boards. In responding to the pandemic, organizations needed health-related personal data and, according to the research, thirty-six percent of respondents in the Consumer Survey wanted no privacy laws suspended, with 26% supporting only limited exceptions. Only 10% thought privacy laws should be suspended in favor of public health (Figure 1).

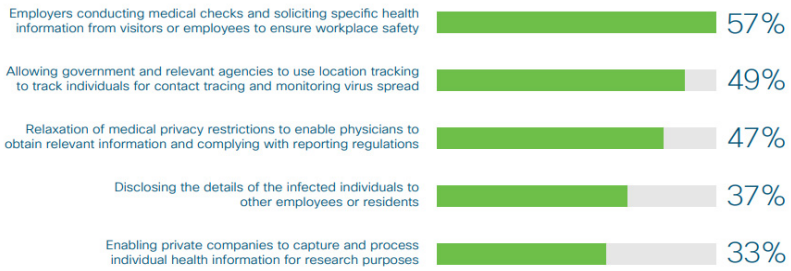
Figure 1. Retaining Privacy Laws During the Pandemic (N=2602)



Source: Cisco Consumer Privacy Study (2021)

In addition, considering specific use cases, most of the use cases were only supported by a minority of respondents. Cases included location tracking, contact tracing, reducing medical privacy restrictions to obtain information, disclosing information about infected individuals, and using individual information for research as illustrated in Figure 2.

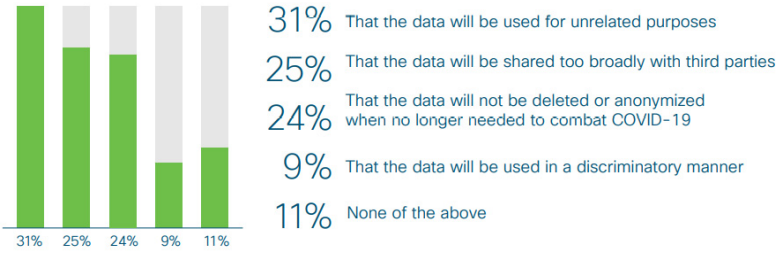
Figure 2. Limited Support for Specific Use Cases of Data Sharing (N=2602)



Source: Cisco Consumer Privacy Study (2021)

Respondents' main concerns were consistent with fundamental privacy principles - transparency, fairness, accountability and more specifically, they were concerned that their data would be used for undisclosed, unrelated purposes (Figure 3)

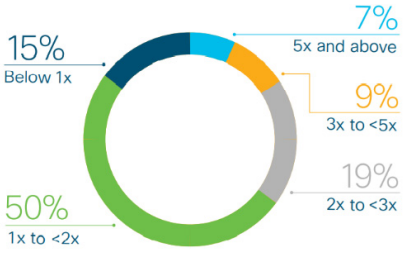
Figure 3. Top Privacy Concerns about Sharing Data During Pandemic (N=2602)



Source: Cisco Consumer Privacy Study – 2020

In addition, according to Cisco Consumer Privacy Study (2021), forty percent of respondents felt the pandemic would further strengthen the importance of respecting data privacy once the pandemic was over. From a return-on-investment perspective, most companies continue to see an attractive return on their privacy investments (Figure 4).

Figure 4. Ratio of Privacy Benefits to Investment (N=3796)



Source: Cisco Data Privacy Benchmark Study – 2021

Timely, secure and reliable data access and sharing are critical to understanding the virus and its spread, improving the effectiveness of government policies, fostering global co-

operation in the race to develop and distribute therapies and vaccines but some responses to the crisis, according to the Organization for Economic Co-operation and Development (OECD, 2020), are giving rise to novel data governance and privacy challenges. The OECD (2020) continues that some countries have already proven to be controversial in terms of their risk of violating privacy and other fundamental rights, particularly when measures lack transparency and public consultation. Frameworks for measures should be secure, trustworthy, scalable and in compliance with existing privacy and data protection regulations. According to the OECD (2020), French senators during the examination of the emergency law project proposed an amendment to the permit, for a period of six months, "any measure" to allow the collection and processing of health and location data to deal with the COVID-19 pandemic but the amendment was rejected due to incursion on privacy rights. The OECD (2020) continues that Israeli government has issued emergency measures that allow the use of technology developed for counterterrorism purposes to track infected persons by monitoring mobile phones.

The OECD (2020.) represents some considerations related to personal data processing such as:

- Promoting the responsible use of personal data. It is explained that, while some of the measures related to processing and sharing large-scale personal health data may be effective in containing the outbreak, it should be ensured these tools are implemented with full transparency, accountability and a commitment to swiftly cease exceptional uses of data when the crisis is over. Data controllers must still have a lawful and fair basis to collect and use personal data.
- Consulting PEAs (Privacy enforcement authorities) before introducing measures, on established privacy and data protection principles. It is noted that PEAs may need to offer innovative solutions, particularly when it comes to important issues of deletion and retention of personal data and the exercise of their audit and investigative powers.

Zwitter and Gstrein (2020) emphasize how the use of large amounts of health data comes at a price for individual freedom and collective autonomy. Risks of the use of such data should be, according to the authors, mitigated through dedicated legal frameworks which describe the purpose and objectives of data use, its collection, analysis, storage and sharing, as well as the erasure of 'raw' data once insights have been extracted.

2.2. Patient data protection and the right to be forgotten

If we look at patients from a consumer perspective, we can easily conclude that they would rather decide to go to a clinic, for example, which has transparent and clear policies for protecting patient personal data. Keaney (1999) suggests that the role of the patient is analogous to that of the consumer but, far from being a passive consumer, patients ought to be considered as partners in a continuing process of inquiry. In addition, the author explains that doctors establish interpersonal relationships with patients in which the asymmetrical distribution of power is inherent and acute and therefore effective management of such relationships depends on a foundation of trust, protected by recognized safeguards. Hall et al. (2018) in the article "Consumer input into healthcare: Time for a new active and comprehensive model of consumer involvement" suggest that if we want to ensure the provision of patient-centered health care it is essential that consumers are actively involved in the process of determining and implementing health care quality improvements. The authors propose a new active model of consumer engagement and state that while there are a number of ways consumers can be involved in making health care quality improvements, the current models used are often ineffective and have multiple limitations. Patient participation should

include participation in policies to protect their sensitive data, and it is essential that healthcare facilities have transparent, thoughtful, accessible, and detailed patient privacy policies to increase their level of trust. It is the security of one's privacy that creates trust in the doctor-patient relationship in which there is often an asymmetry of information. Bloom (2008) in the article „Markets, information asymmetry and health care: Towards new social contracts" discusses desirability of greater patient autonomy as well as declining trust in experts. The author points out how the rise of consumerism has challenged what is seen as old-style paternalism in medicine, associated with unconditional trust and the disempowerment of patients.

In addition to patient data protection during the current pandemic, Mikkelsen et al (2020) suggest that there is a need to balance two priorities -protecting public health and protecting personal privacy and that some measures designed to limit the spread of the virus and potentially save lives could also have serious human-rights implications. Some of the measures that have been introduced and could have implications for personal freedoms are (Mikkelsen et al, 2020) health reporting (including COVID-19 testing, temperature testing, public and private sector health surveys, public-authority and corporate-internal reporting) along with health tracking (including manual and automated tracking and contact-tracing mechanisms (mobile-phone tracking and applications), by both states and private companies).

Privacy regulators are now providing guidance on how to interpret existing legislation in the crisis environment, with particular attention to health-related protective measures. Some regulators, according to Mikkelsen et al. (2020), have expressed concern over temperature taking and personal health surveys and have banned regular measurement of temperature, unlike Swedish and Belgian data-protection authorities who do not consider the measurement of body temperature to fall under the GDPR, unless the results are recorded.

At times the legal basis for processing is patient consent. Where consent is directly sought at the time of data collection in the health care context, according to Becker et al (2020) in the article "COVID-19 Research: Navigating the European General Data Protection Regulation", patients may be seen as vulnerable people, and the consent may not be valid under the GDPR because of the imbalance between the controller and the data subject. According to the author, given the difficulty of obtaining valid consent from patients with COVID-19 and the ambiguity around the consequences of consent withdrawal, an alternative legal basis is desirable in many situations when processing personal data for research during and after the COVID-19 crisis.

Discussing the patient's right to delete health data during a pandemic Correia et al., (2021) in the article "Right to be forgotten and COVID 19: privacy versus public interest" state that in the context of public health lack of specifics regarding collection and re-use of health data under the broad scope of public health purposes, implied consent does not address the issue of proportionality (in the sense that an action shall not exceed what is necessary to achieve its objectives). In addition, Correia et al., (2021) give an example of disease associated stigma avoidance behavior towards coronavirus infected people occurred recently in Spain. And indeed, stigma has been proven among covid-infected patients. Yuan et al. (2021) in their study compared differences in perceived stigma between COVID-19 survivors and healthy controls and found that COVID-19 survivors experience significantly more overall stigma and heightened stigma in domains of social rejection, financial insecurity, internalized shame and social isolation compared with healthy controls. The authors concluded that COVID-19-related stigma is commonly experienced among COVID-19 survivors even though the outbreak has been well-contained in China.

Although not a member of the EU, Norway is a member of the European Economic Area (EEA) and thus bound by the GDPR in the same manner as EU Member States. GDPR became applicable in Norway on 20 July 2018 and that it applies to the protection of personal health data related to the pandemic. Regarding the question of whether the principle of proportionality related to public health should be more specifically defined and should the health sector be more careful according to the personal data of patients, based on an personal interview with Mr. Judin, head international of Norwegian dana protection authority, a Norwegian data protection authority banned the first version of the national contact tracing app due to the principle of proportionality as he explained: "we believed that it was no longer proportionate. We were supported by data protection experts and NGOs as the app wanted to use the data for multiple purposes ". In addition, based on the interview with Mr. Judin, since the first version of the app was banned, respondents were more reluctant to download the second version of the app, which was actually a lot better. According to the Norwegian Data Protection Authority website article (2020) the application has collected large amounts of personal data about people using it, including continuous registration of movements and information about users contact with others. Users have not had the option to choose to share personal data for just one or several of the purposes. In the same article, it is explained by Norwegian Data Protection Authority that Smittestopp could not be considered a proportionate intervention in the user's fundamental right to data protection.

Furthermore, in accordance with the interview, Mr. Judin pointed out the importance of protecting the rights of personal health data in order to maintain the trust of respondents as well as the significance of defining proportionality principle more clearly: "Violating data protection rights undermines the public's trust, and that is difficult to repair. Defining more clearly the principle of proportionality related to public health may have some benefits and may make it easier to avoid these kinds of scenarios. Sometimes, the relevant authorities struggle to carry out proportionality assessments. It is also sometimes valuable not to be too prescriptive in order to allow changes in circumstances which were not previously anticipated. Our experience is that, unfortunately, some corners may have been cut in order to respond to the progress of the pandemic. Our fundamental rights are perhaps not challenged as much when everything is fine. It is in a state of emergency or public crisis that they are put to the test ..." Mr. Judin added that there is a need to take informed and objective decisions in line with democratic values during a pandemic.

Regarding the question of who sets the limit of proportionality under Article 17 "Right to be forgotten" (3) (c) in relation to the right to be forgotten and public health, and whether different countries and organizations can set different limits, according to an interview with Mr. Judin, the GDPR system determines that each controller carries out these assessments themselves, in accordance with the accountability principle of Article 5 (2). Furthermore, Mr. Judin explains that there is a possibility that it will create a lot of uncertainty for controllers in a way some may unduly misuse this freedom and others doing the opposite, being overly cautious for fear of not complying. Additionally, according to an interview with Mr. Judin, it is a systemic property of the GDPR and it aims to be general and to give controllers freedom, and in accordance with the accountability principle, hefty sanctions may be imposed if controllers have not been diligent in their assessment.

Authors Correia et al. (2021) discuss legal safeguards "insufficiency" and suggest applying the "right to be forgotten" according to an ethical interpretation while clarifying the application of the theory of deontology and utilitarianism in medicine. The authors continue that the correct use of information technology and fair law use allow a perspective shift from "threat" to "solution" related to the covid-19 pandemic. In addition, the authors question whether it is acceptable that any health data can fall within the scope of the exception to

Article 17 of the GDPR without establishing a concrete causality between that data and public health. In that sense, it is essential to articulate the values according to proportionality criteria. The burden of proof, as Correia (2021) add, that proportionality does exist is on the side of the person/entity that wants to retain the data and since fundamental rights are not absolute, it is important to reassess them in the light of the noble public health argument.

It is essential to understand the general determinants of the “Right to be forgotten” as a part of the GDPR. These will be explained in the following lines. The right to be forgotten (RTBF) is the right to have private information about a person removed from Internet searches and other directories under specific circumstances. The possibility of deleting general and sensitive personal data brings the "right to forget" which was defined in Art. 12 of Directive 95/46/EC, but explicitly codified in the GDPR (as Article 17). The GDPR expands and builds individual rights (including the right to be forgotten) and brings greater legal certainty and consistency.

According to Article 17, paragraph 1. of GDPR, as illustrated in Figure 5., the data subject has the right to obtain from the controller the erasure of personal data without undue delay. The controller shall have the obligation to erase personal data if the personal data are no longer necessary in relation to the purposes for which they were collected, if the data subject withdraws consent on which the processing is based on (including consent to the processing of their personal data belonging to special categories of personal dana) and there is no other legal ground for the processing, if the data subject objects to the processing based on its special situations, if the personal data have been unlawfully processed, if the personal data have to be erased for compliance with a legal obligation in Union or Member State law as well if the personal data have been collected in relation to offering of information society services to the child, as illustrated in Table 1.

Table 1. The right to be forgotten (Article 17 of GDPR)

1. The data subject shall have the right to obtain from the controller the erasure of personal data concerning him or her without undue delay and the controller shall have the obligation to erase personal data without undue delay where one of the following grounds applies: • the personal data are no longer necessary in relation to the purposes for which they were collected or otherwise processed; • the data subject withdraws consent on which the processing is based according to point (a) of Article 6(1), or point (a) of Article 9(2), and where there is no other legal ground for the processing; • the data subject objects to the processing pursuant to Article 21(1) and there are no overriding legitimate grounds for the processing, or the data subject objects to the processing pursuant to Article 21(2); • the personal data have been unlawfully processed; • the personal data have to be erased for compliance with a legal obligation in Union or Member State law to which the controller is subject; • the personal data have been collected in relation to the offer of information society services referred to in Article 8(1).
2. Where the controller has made the personal data public and is obliged pursuant to paragraph 1 to erase the personal data, the controller, taking account of available technology and the cost of implementation, shall take reasonable steps, including technical measures, to inform controllers which are processing the personal data that the data subject has requested the erasure by such controllers of any links to, or copy or

replication of, those personal data.
3. Paragraphs 1 and 2 shall not apply to the extent that processing is necessary: 1. for exercising the right of freedom of expression and information; 2. for compliance with a legal obligation which requires processing by Union or Member State law to which the controller is subject or for the performance of a task carried out in the public interest or in the exercise of official authority vested in the controller; 3. for reasons of public interest in the area of public health in accordance with points (h) and (i) of Article 9(2) as well as Article 9(3); 4. for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes in accordance with Article 89(1) in so far as the right referred to in paragraph 1 is likely to render impossible or seriously impair the achievement of the objectives of that processing; or 5. for the establishment, exercise or defense of legal claims.

Source: General Dana Protection Regulation

It is vital to understand in the light of the current global pandemic situation that the right to protection of personal data and consequently the right to erasure is not an absolute right. Recital 4 of the GDPR states that the right to the protection of personal data must be considered in relation to its function in society and must be equated with other fundamental rights in accordance with the principle of proportionality. It is emphasized that the GDPR Regulation respects all fundamental rights, freedoms and principles recognized by the Charter of Fundamental Rights of the European Union.

The rights of which in paragraph 1, Article 17 consists do not have to be applied if, inter alia, causes stated in paragraph 3, Article 17 of the GDPR appear. One example could be the reasons of public interest in the field of public health or for exercising the right to freedom of expression and information. In addition, according to recital 52 of the GDPR, derogating from the prohibition on processing special categories of personal data should be allowed when provided for in Union or Member State law and subject to suitable safeguards, so as to protect personal data and other fundamental rights, where it is in the public interest to do so, in particular related to serious threats to health. Such a derogation may be made for health purposes, including public health and the management of health-care services. Sensitive personal dana, are subject to special protection under the GDPR and some of the sensitive data in that category are genetic data and biometric data processed for the purpose of uniquely identifying a natural person and data concerning health.

In accordance to an interview held by Mr. Judin (2021) respondents are willing to accept processing of personal data to help fight the pandemic or to avoid restrictions and in this regard citizens in Norway are probably less focused on the right to be forgotten. Additionally, Mr. Judin emphasized that despite the pandemic one should be careful: "It is important to keep vigilant and not cut corners just because there is a pandemic".

3. THE VALUE OF TRANSPARENT PRIVACY POLICIES AND BUILDING TRUST

A definition of trust, as explained by De Cremer (2020), which is used the most often in the social sciences is that it is a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another. The author suggests that if trust is present then it implies that the interacting parties have positive expectations about each other in sense that they will behave or will act in ways that are

honest, reliable and not damaging to one's interests and if such positive expectations are present, then no reason exists to fear being vulnerable to the actions of the other party.

One way organizations can contribute to trust is to protect the privacy of consumer personal information. Li et al. (2019) says that for companies that have a commercial or scientific relationship with the EU, showing transparency and honest privacy practice to users is an effective way to improve trust and reputation. Moreover, the authors say that companies around the world need to step up their efforts in privacy risk management and personal data protection in order to survive or to remain competitive in the EU market.

Jourová (2021) in her keynote speech emphasizes that organizations that invest in privacy have a return on investment in several areas from reducing sales delays and enabling innovation, to achieving greater operational efficiency, and building loyalty and trust with customers who avoid organizations that are not transparent about their data practices and data protection. Commitment to privacy has strengthened during the pandemic, Jourová (2021) adds, and customers and businesses acknowledge that setting a consistent set of data protection rules can boost users' confidence and contribute to sustainable economic development.

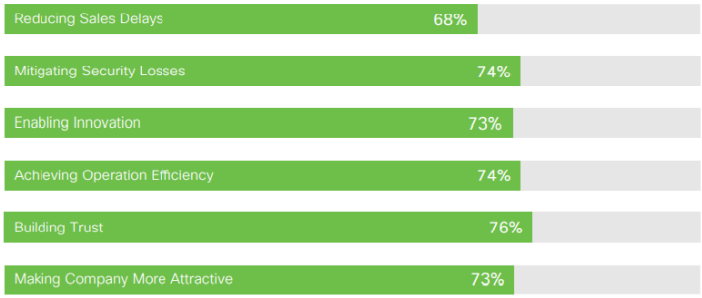
As consumers become more careful about sharing data, and regulators step up privacy requirements, Anant et al (2020) note, leading companies are learning that data protection and privacy can create a business advantage and differentiation. In addition, as study „Respondents choosing a particular industry as most trusted in protecting of privacy and data" by Anant et al. (2020) showed, no industry has reached a trust rating of 50 percent for data protection. Respondents were aware of breaches, which informed their survey answers about trust. The responses suggest that they are more likely to trust companies that limits the amount of personal information requested, that proactively report hacks or breaches, do not use tracking cookies, promote privacy to their products, have trustworthy leaders, who share their approach to protecting data and publish their consumer-privacy interest. Commitment to these determinants of trust with careful application of the GDPR, can represent a significant opportunity to gain trust. Demonstrating an understanding of GDPR proves consideration for customers through giving them more transparency into how their personal information is used, and building a stronger relationship in the process.

One of the questions in the interview was related to transparent policies and their connection to the increase in public confidence and trust in organizations. Mr. Judin (2021) explains that the lack of a transparent privacy policy will certainly be detrimental to public confidence and trust in organizations. At the same time, Mr. Judin adds, privacy policies tend to be very long and complicated and many users or citizens do not read them and just want faster access to a particular service. Therefore, most users or citizens will probably not have an opinion on whether a privacy policy is transparent or not, explains Mr. Judin. Sometimes, transparency is proposed as a 'cure' for illegitimate activities but in point of fact illegitimate activities should not take place, and being transparent cannot fix that, Mr. Judin emphasizes. From these interview data we can conclude how clear, shorter in length and more understandable privacy rules are undoubtedly needed and that it is essential to have as many opportunities for education of respondents regarding their privacy rights.

In this regard, Bonjean (2020) explains that only a consistent commitment from businesses to community safety and transparency can restore consumer trust and that it is important to clearly communicate science-based safety generally in place to keep everyone safe. As Jourová, V. (2021) explains, organizations that invest in privacy profit from it and are more efficient in the way of building loyalty and trust with their customers as the study shows that the commitment to privacy has strengthened during the pandemic.

In this year's Cisco Data Privacy Benchmark Study (2021), it is pointed out that evidence has been found that privacy has become an even more important priority during the pandemic. Privacy budgets have increased over the last year, organizations have more resources focused on privacy, and privacy investments are translating into business value. Just one of the benefits is building trust with customers, as illustrated in Figure 5. The overall value of these benefits, based on respondents' estimates, rose 10% on average to $2.9 million.

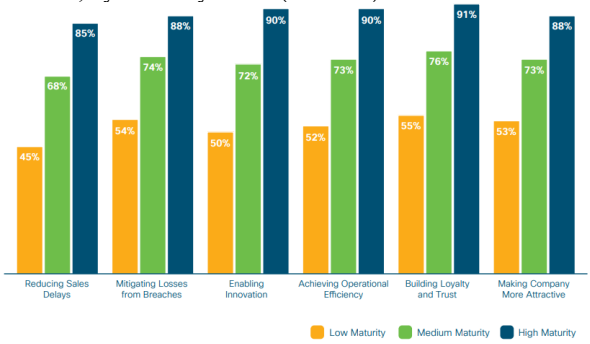
Figure 5. Percentage Getting Significant Benefits in Each Area (N=4446)



Source: Cisco Data Privacy Benchmark Study – 2021

Additionally, Figure 6 shows the percentage of organizations experiencing business benefits from privacy investments, by maturity level. The Cisco data privacy study implies that increased privacy investment continues to return significant value.

Figure 6. Percentage of Organizations Experiencing Various Business Benefits from Privacy Investments, by Maturity Level (N=4431)



Source: Cisco Data Privacy Benchmark Study – 2021

The positive response to privacy regulations is quite consistent among respondents around the world, as represented in Figure 7.

It can be observed that privacy is important to respondents during a pandemic, regardless of industry and country of residence, and that there are increased number of requests related to the privacy of health data. It is very important to increase the knowledge of citizens regarding the laws and the rights that they have in this aspect.

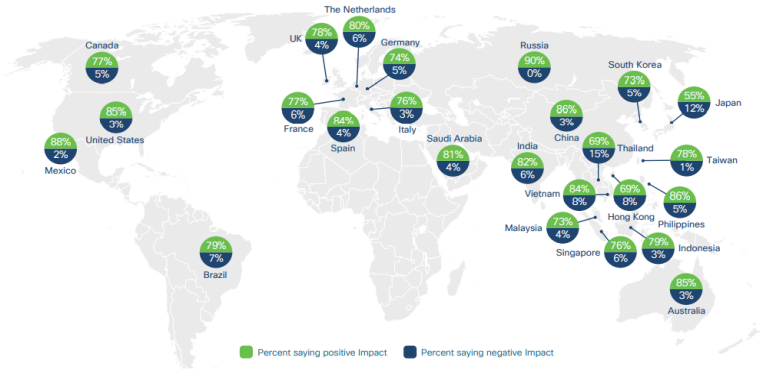
The privacy policies adopted during the pandemic will have a lasting impact on our societies. They will determine how we will respond to data privacy and human rights challenges within possible emergencies in the post-covid world. Table 2 suggests determinants and recommendations by the author that can contribute to better protection of personal data during and in the post-covid period.

Table 2. Determinants that can contribute to better protection of personal data during and in post-covid period

Understanding the GDPR and specifically the articles mentioned (from a respondent's perspective)	Art. 9 Processing of special categories of personal data Art. 6 Lawfulness of processing Art. 5 Principles relating to processing of personal data („lawfulness, fairness and transparency; purpose limitation; data minimization; accuracy; storage limitation; integrity and confidentiality ") Art 17. Right to erasure (Right to be forgotten), especially the paragraph c) with regard to objecting based on particular situation
Understanding State Laws related to implementation of GDPR (from a respondent's perspective)	For example, in Croatia, the Law on the Implementation of the General Data Protection Regulation
Reading literature, publications and scientific articles on personal dana protection (from a respondent's perspective)	
Development of applications, workshops and webinars related to the rights of patients and consumers during a pandemic (from the regulator of personal data protection perspective)	Developing respondents' knowledge and innovative solutions
Health institutions should provide transparent and clear information to patients (from a health institutions perspective)	Information regarding what types of data would be collected, for which purposes, how long it would be retained and which authorities – if any – could access it
Organizational learning regarding the advantages of creating trust (from an organizational perspective)	Information regarding returns on investment and business value
Organizations creating trust (from an organizational perspective)	By limiting the amount of personal information requested, proactively report hacks or breaches, not using racking cookies, sharing their approach to protecting data and publishing their consumer-privacy interest
Including a data-privacy leader in the organizational COVID-19 response team (form an organizational perspective)	To ensure early evaluation and discussion of possible measures affecting data privacy
Including a data-privacy leader and the opinion of respondents in connection with proportionality principle under the Article 17, GDPR (from the organizational perspective)	Given that organizations set the limit of proportionality under Article 17, it would be desirable to include the opinion of security experts as well as respondents whose data are processed

Source: author

Figure 7. Perceived Impact of Privacy Regulations on Organizations, by Country (N=4446)



Source: Cisco Data Privacy Benchmark Study, 2021

4. CONCLUSION

During emergencies, our human rights principles or norms are put to the test. The right to privacy is a fundamental right, essential to autonomy and the protection of human dignity. The GDPR is the culmination of many legislative developments in Europe and through the implementation of this regulation, Europe aims at better data protection, greater personal autonomy and dignity of the respondent. The protection of privacy may be complementary and not in conflict with public health as in cases of urgency, it is important that citizens feel safe in the context of preserving private data and private information.

Data protection norms for emergency states should have specific safeguards to guarantee individual and collective autonomy. According to the principle of proportionality, a balance needs to be found between the protection of personal data and public health. In this case, the controller carries out these evaluations themselves, and respondents should be fully informed of the purposes and timing of the use of their data. The opinion of personal data security experts as well as the opinion of respondents, if possible, should be included. It is important to establish a concrete causality between processed data and public health. The processing of such data should be in accordance with Article 5 of the GDPR, i.e., with lawfulness, fairness and transparency, purpose limitation, given minimization, accuracy, storage limitation, integrity and confidentiality. The principle of proportionality can create uncertainty for data controllers and it is therefore important that organizations employ data experts in the area of privacy.

Investing in privacy for organizations has a return on investment in several areas from reducing sales delays and greater operational efficiency to building trust with their customers. Only a consistent commitment from businesses to community safety and transparency can restore consumer trust. The privacy policies adopted during the pandemic will have a lasting impact on our societies and they will determine how we will respond to data privacy and human rights challenges within possible health emergencies, other urgent issues that await us in the post-covid world, such as sustainability or areas which is to develop after a pandemic such as electric vehicles, drone delivery, meat in vitro industry and artificial intelligence.

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OTHER COVID-19 RELATED TOPICS

ADAPTIVE FOREIGN EXCHANGE MARKET HYPOTHESIS: CASE OF CROATIA

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Abstract

This paper aims to investigate time varying nature of the Croatian foreign exchange rate market using the concept of the adaptive market hypothesis (AMH). Data sample includes five major currencies (EUR, USD, GBP, JPY and CHF) in the period from January 1999 up to September 2021. Using relatively novel approach called fixed-length rolling window ensures robust results and stronger testing power avoiding data snooping bias. Empirical findings suggest that the efficiency of the foreign exchange market of the Croatian Kuna is currency dependent and varies over time. Fluctuations in the efficiency of the exchange rate markets may be triggered by the monetary interventions, financial crises and trade volumes. Among five major currencies longest periods of inefficiency were found in the case of the exchange rate of Croatian Kuna against Euro. Other exchange rate markets were found to be mostly efficient with short periods of adaptive expectations. These results emphasize importance of the ongoing Croatian accession to the European monetary union resolving the issues of inefficient foreign exchange rate market.

Key words: exchange rate market, automatic portmanteau test, adaptive market hypothesis, time-varying efficiency, Croatia, European Monetary Union.

1. INTRODUCTION

Consequently to large number of participants and continuous operation foreign exchange rate markets have always been notorious regarding their efficiency. With the development of the electronic trading technologies transparency has increased, transaction costs plummeted and speed of transactions increased as new players have entered the market and present players adapted their behaviour (King et al., 2013). Some of the reason behind the unusual exchange rate market dynamics may also result from the financial liberalization whereby periods of financial turmoil bring major capital movements. Since dynamics of the exchange rate markets have an important influence on the financial market and other macroeconomic variables including inflation movement, international trade, economic growth and development (Khuntia & Pattanayak, 2020) empirical examination regarding their efficiency is an important research area.

Efficient market hypothesis (EMH) developed by Fama, (1970) has been the cornerstone concept in testing the predictability of the financial time series. Main premise of EMH argues that change in price of an asset is a result of available information and profit opportunities are non-existent. Since growing body of literature regarding the empirical examination of the financial markets efficiency keeps providing various results, discourse between supporters of EMH and behavioral economists is still unsettled. Lo (2004, 2005) suggested adaptive market hypothesis (AMH) as a framework to pacify the irrational behavior of investors with EMH. Adaptive market hypothesis (AMH) is based on the fundamental notion of applying biological

principles to economic transaction relating efficiency with the number of market participants, extent of profit opportunities and market participant's reactions.

Consequently to long-standing investigation and various outcomes inference about exchange rate market efficiency is not straightforward. It seems to be dependent on time and methodological approach therefore driving continuous scientific interest. This paper aims to examine the evolving efficiency of Croatian Kuna against five major currencies.

Remainder of this empirical paper is organized as follows. Second section of the paper reviews the literature dealing with empirical examination of the efficient market hypothesis. Third section of the paper provides description of data and methodological approach. Fourth section of the paper offers empirical results and discussion. Finally the fifth section is conclusion summarizing results and their implications.

2. LITERATURE OVERVIEW

Bošnjak et al. (2021) empirically examined FX market efficiency of euro against 15 currencies in the period from 1999 to 2020. Using sign and magnitude of endogenous shocks in the exchange rate returns authors identified profitable trading strategies based on the lack of market randomness for 9 out of 15 selected currencies. Diniz-Maganini et al. (2021) analyzed the relationship of the exchange rate regime and FX price efficiency. Daily data included 20 exchange rates against the US dollar in the period from 2012 to 2019.

Multifractal Detrended Fluctuation Analysis (MF-DFA) indicated that the currencies in the free float regimes are more efficient then managed regimes. Nevertheless free float currencies have suffered relatively more deterioration inflicted by the global financial crisis and their efficiency has not yet fully recovered. Using the MF-DFA Aslam et al. (2020) examined the effect of COVID 19 crisis on the efficiency of the FX market. They tested the data of six major currencies (AUD, CAD, CHF, EUR, GBP, and JPY) against US dollar in the period from October 2019 to March 2020. Results confirmed that COVID 19 crisis lowered the FX market efficiency and heterogeneous effects on the strength of multifractality. Australian currency was the most efficient before the crisis and least efficient during the crisis. Swiss and Canadian currency displayed highest efficiency in the period of the crisis. Applying full sample and rolling window MF-DFA and a quantile on quantile approach

Shahzad et al. (2018) studied the efficiency of the four major currencies against the US dollar in the period from 2007-2016. Swiss Franc and Japanese Yen were found to be more efficient while British pound and Euro were less efficient in the same order. Furthermore trading volume was efficient related only for Swiss Franc and Japanese Yen. Ning et al. (2018) also confirmed the nonlinear multifractal properties of the exchange rates of British pound and Euro against dollar in the period from 2015 to 2017. Chiang et al. (2010) inspected free float currencies efficiency of Japan, South Korea, Taiwan and the Philippines. Exchange rates of selected countries' were observed against the US dollar. Using daily data from 1998 to 2006 and various variance ratio tests exchange rates are found to be efficient. Nevertheless, random hypothesis was rejected in the case of Taiwan. Chuluun et al. (2011) studied inter temporal variation in the random walk and its relationship with the currency investment intensity. Variance ratio test was used to estimate efficiency and regression analysis to examine the investment relationship. Using weekly data of 29 exchange rates against dollar beginning in 1974, results confirmed that more investment intensive currencies deviate less from the random walk. Nevertheless once investment intensity threshold is reached level of investment is no longer relevant. Charles et al. (2012) studied efficiency of the major foreign exchange rates using daily and weekly data in the period 1975 to 2009. Combination of

Dominguez–Lobato test, generalized spectral test and wild bootstrap automatic variance ratio test revealed returns to be mostly unpredictable with the exception of some coordinated central bank interventions and major financial crunches.

Khuntia and Pattanayak (2020) examined the time varying efficiency of the Indian currency against the US dollar. Daily data in the period from 1993 to 2015 was tested by the automatic portmanteau test and wild bootstrap automatic variance ratio. Market returns were found unpredictable for the most period with some exceptions associated with specific macroeconomic and non-economic events. Using the combination of tests including automatic portmanteau test, Dominguez-Lobato test, generalized spectral tests and wild bootstrap variance ratio test Tweneboah et al. (2021) studied the predictability of South African rand. Daily exchange rate data from 2010 to 2018 discovered interchangeable randomness and predictability. Yilmaz (2003) investigated seven major currencies against the US dollar. Using variance ratio-based multiple comparison test and the Richardson–Smith Wald test concluded that exchange rates are not always random and periods of predictability are associated with central banks interventions.

Exploration of the existing literature has demonstrated that the exchange rate efficiency is an important and current topic of scientific papers. Literature indicates that the exchange rate efficiency is dependent on time and therefore economic and non-economic events. Furthermore since most of the considered papers focus on the major world currencies this paper aims to provide insights into exchange rate dynamics from the perspective of a small and open economy such as Croatia. Considering that the Croatia has recently undergone a market transition and that the current exchange rate regime according to the International monetary Fund is classified as managed floating with no pre-determined path further empirical examination of this paper may prove informative.

3. DATA AND METHODOLOGY

Research data sample includes daily exchange rates of the five major currencies including Euro, Dollar, Great British Pound, Jen and Swiss franc against the Croatian Kuna in the period from January 1999 to September 2021. Data were retrieved from the website of the Croatian National Bank. Original time series were corrected for non-working days. In order to accomplish more favorable properties natural logarithmic transformation was further applied. Finally since efficient market hypothesis deals with returns log values were differentiated. Time series of the exchange rate returns are calculated according to the following equation (1)

$$ler_t = \ln\left(er_t/er_{t-1}\right) \quad (1)$$

where

ler_t – daily log return of the exchange rate
er_t –daily exchange rate value for t
er_{t-1} – daily exchange rate value for t-1.

Table 1. Descriptive statistics on log returns of Croatian Kuna against five major currencies

	Minimum	*Maximum*	*Mean*	*StD*	*Skewness*	*Kurtosis*	*KS-test*	*ARCH test*
EUR	-0,00884	0,01000	0,00000	0,00122	,034	4,797	,000	,000
GBP	-0,04055	0,02732	-0,00003	0,00525	-,299	3,392	,000	,000
JPY	-0,05544	0,09091	0,00001	0,00764	,504	6,896	,000	,000
USD	-0,03503	0,03586	0,00000	0,00621	,035	1,931	,000	,000
CHF	-0,07519	0,14600	0,00007	0,00429	5,953	258,809	,000	,018

Source: Authors' own calculation

Table 1 provides summary of the log returns and Figures 6 through 11 their graphical representation. Log returns of the Croatian Kuna against five major currencies varies in the range from (-0,07519) to (+0,14600). According to the ARHC test (p=,000; p=,000; p=,000; p=,000, p=,018) heteroscedasticity is present and distributions are non-normal for all currency pairs (p=,000; p=,000; p=,000; p=,000, p=,000). Presence of heteroscedasticity and non-normality of the financial series may influence the results of the conventional EMH examination therefore this paper uses automatic portmanteau test accompanied with fixed-length rolling window approach.

Automatic portmanteau test was introduced by the Escanciano & Lobato (2009) emphasizing its robust nature in terms of heteroscedasticity of the unknown form. It is a derivation of the Ljung-Box Q statistics mitigating assumption of independence and identical distribution of returns and arbitrary selection of autocorrelation that being an important flaw of the conventional approach. In order to determine the optimal lag selection portmanteaus test uses Bayesian or Akaike information criterion. Test value is provided in the equation (1):

$$AQ_m^* = Nx\sum_{i=1}^{m}\rho_i^2 \qquad (1)$$

where N representing the number of cases, ρ_i representing the following order of autocorrelation and m the optimal number of lags. Test statistic has a chi square distribution with a single degree of freedom assuming no autocorrelation ($\rho_i = 0, i = 1..m$) under the null hypothesis. Fixed-length rolling window of 500 observations (2 years approximately) enables to report results of the test in graphical formation using calculated *p-values*. If the *p*-value is less than 0.05 the null hypothesis of market efficiency is rejected and alternative hypothesis confirmed.

4. RESULTS AND DISCUSSION

Evolving efficiency of the exchange rate market of Croatian Kuna against the Euro in the period from January 1999 to September 2021 is demonstrated in the Figure 1 below.

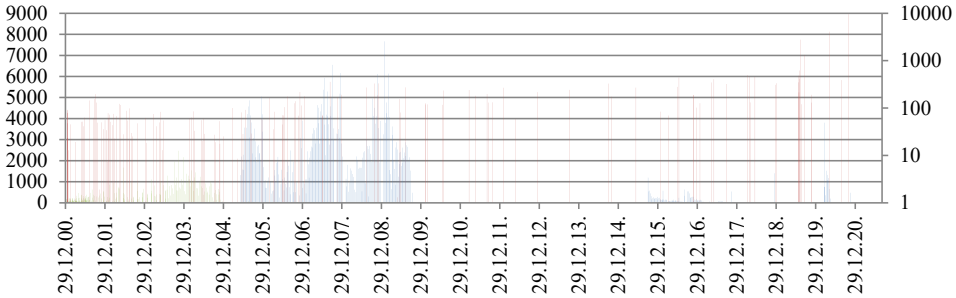
Figure 1. Efficiency of the exchange rate market of the Croatian Kuna against the Euro

Source: Authors' own calculation

Exchange rate market of Croatian Kuna against the Euro has proven to be the least efficient among five pairs of Croatian Kuna and selected major currencies. In the case of Croatian Kuna against the Euro deviations from the EMH are confirmed in 60,79% cases. Exchange rate market was inefficient from the beginning of the observation until the end of 2010 with only few days of exception. Period of efficiency was until July 2013 with relatively short exceptions. This was followed by the period of mostly inefficient market until the June 2015. Remaining period until September was mostly efficient. Roughly summarizing, first

half of the observed period was less efficient than the second with the main exception of inefficiency lasting from 2013 to 2015. This relates to the intensity of central bank interventions which are demonstrated in the Figure 2.

Figure 2. Croatian National Bank - Open market operations (Reverse repo (blue/millions HRK), Treasury bill (green/millions HRK), FX market (red/millions EUR)*

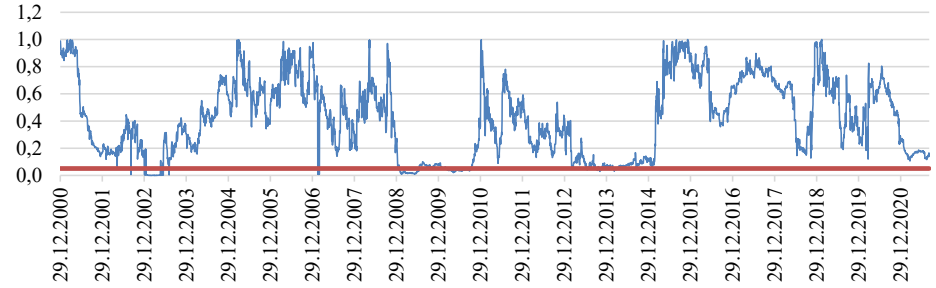


* Right scale in logarithmic form
Data retrieved from: https://www.hnb.hr/temeljne-funkcije/monetarna-politika/instrumenti/aukcije-i-intervencije
Source: Authors' own calculation

Moreover by the middle of 2013 exchange rate of Croatian Kuna against the Euro has reached a low of 7,44 and began its uprising two year trend reaching its 10 year peak in 2015 of 7,7 (see Figure 11 in the Appendix). This was the turning period for the Croatian economy after the crisis in 2008. Some macroeconomic indicators were showing signs of recovery. By the 2013 unemployment rate has reached its peak of 17,5% whereby starting its downward trend. Croatian economy has started to bounce back. By the end of 2015 Croatian fiscal deficit and public debt have improved as well as the Croatian balance of payment. Since than exchange rate market of Croatian Kuna against the Euro was mostly efficient continuing into the COVID-19 crisis as well.

Evolving efficiency of the exchange rate market of Croatian Kuna against the Great British Pound in the period from December 2000 to September 2021 is demonstrated in the Figure 3 below.

Figure 3. Efficiency of the exchange rate market of the Croatian Kuna against the Great British Pound

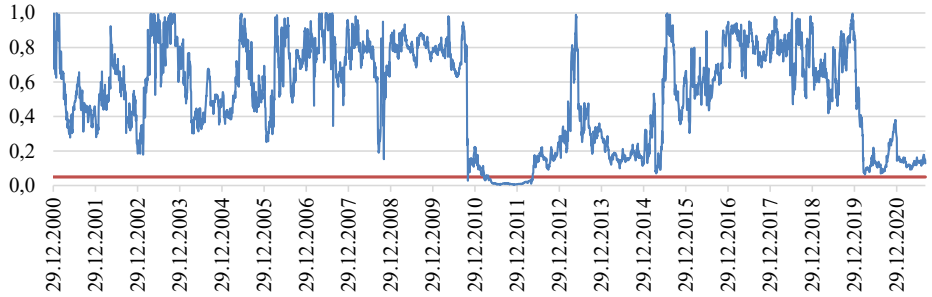


Source: Authors' own calculation

Exchange rate market of Croatian Kuna against the Great British Pound was the second most efficient among five selected currency pairs. Periods of inefficiency were observed from the December 2002 to June 2003, from January to July 2009, from March 2010 to October 2010, and from July 2013 to March 2014 amounting to overall 8,43% of the observed period. Period from December 2002 to June 2003 was swayed by the appreciation of the Croatian Kuna reaching the exchange rate low 10,38 in May 2003. January to July 2009 was influenced by the news of the global financial crisis mostly depreciating reaching high 8,59. From February to September 2010 value of Croatian Kuna oscillated both ways reaching low 8,15 and high 8,74. From July 2013 to March 2014 depreciation prevailed with the exchange rate low 8,59 and high 9,34.

Evolving efficiency of the exchange rate market of Croatian Kuna against the Japanese Yen in the period from December 2000 to September 2021 is demonstrated in the Figure 4 below.

Figure 4. Efficiency of the exchange rate market of the Croatian Kuna against the Japanese Yen

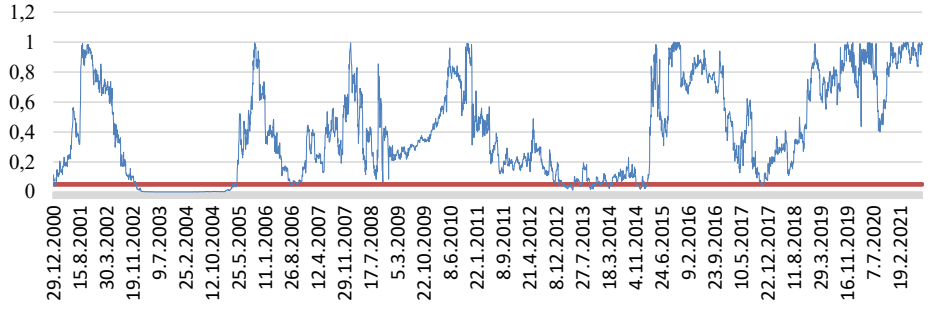


Source: Authors' own calculation

Similar to the Great British pound, exchange rate market of Croatian Kuna against the Japanese Yen was efficient for the most of the observed period. The exchange rate market deviated from the EMH in 11,15% cases. This was observed from March 2011 to May 2012 whereby Croatian Kuna depreciated against the Japanese Yen reaching low 6,05 and high 7,75.

Evolving efficiency of the exchange rate of Croatian Kuna against the US Dollar in the period from December 2000 to September 2021 is demonstrated in the Figure 5 below.

Figure 5. Efficiency of the exchange rate market of the Croatian Kuna against the US Dollar

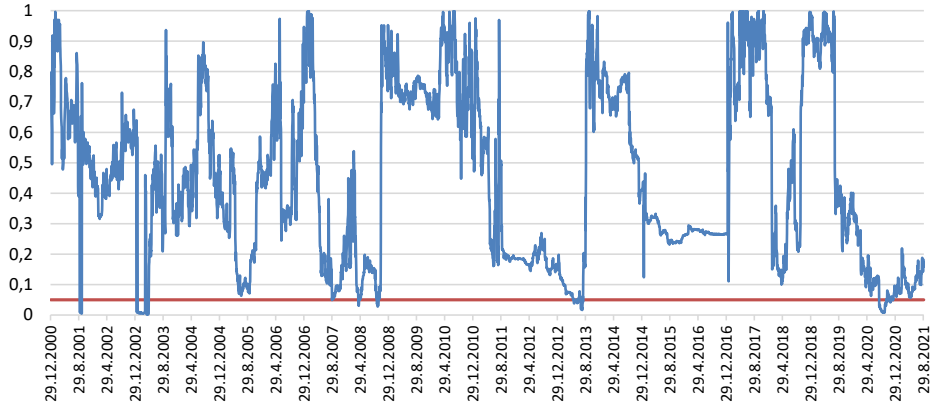


Source: Authors' own calculation

Similar to the Great British pound and Japanese Yen, exchange rate market of Croatian Kuna against the US Dollar was efficient for the most of the observed period. Only in 15,93% cases the exchange rate has deviated from the EMH. Exchange rate market was inefficient in January 2001, from December 2002 to May 2005, from August to September 2006, and in February, Mark, April, May, July, October, November 2013, January, March, April, November 2014, January and February 2015. With the exceptions of the period from December 2002 to May 2005 other inefficient periods lasted for only few days. Almost two and a half years Croatian Kuna appreciated against the US dollar reaching a low 5,26.

Evolving efficiency of the exchange rate of Croatian Kuna against Swiss franc in the period from December 2000 to September 2021 is demonstrated in the Figure 6 below.

Figure 6. Efficiency of the exchange rate market of the Croatian Kuna against the Swiss franc



Source: Authors' own calculation

Exchange rate market of Croatian Kuna against the Swiss Franc was the most efficient among selected pairs of currencies. Only in 3,72% cases the exchange rate market has deviated from the EMH. This was evident in the following periods: September 2001, from January to April 2003, April, September and October 2008, from May to August 2013, from August to December 2020. In the year 2001 there was an unfortunate terrorist attack on the USA and the value of the Swiss franc rose significantly. Consequently to Swiss monetary policy in the year 2003 begins a period of significant depreciation against the Euro. In 2008 global financial crisis has again led to the appreciation of the Swiss franc since it has always acted as the safe haven currency. In 2013 non-final court decision was made against the eight most influential Croatian banks regarding their Swiss loans placement. Finally the year 2020 has been significantly influenced by the COVID 19 health situation with significant rise of the number of active cases in Croatia reaching its peak by the end of the year (see Figure 11 in the Appendix).

Despite notorious reputation of the exchange rates markets for their randomness empirical examination has found evidence in favor of their inefficiency. These periods are often associated with the major macroeconomic events such as health and economics crisis as well as outside market interventions strengthening the foundation of the adaptive market hypothesis (AMH). Results of the paper not only support the concept of time varying nature of the FX market efficiency but also imply that efficiency may also be country dependent. Croatia has not yet accessed the third phase of the European economic and monetary union. Nevertheless recent efforts have resulted in Croatia entering the ERM II system in order to

prove its validity for the accession. Since ERM II system is design to evaluate the fluctuation of the exchange rate in the specified future period introduction of the Euro will not be possible before the 2023. If the Croatia complies with ERM II system requirements introduction of the Euro may consequently resolve eventual inefficiencies of the exchange rate market thus bringing further financial market stability. Therefore results of this paper may prove informative for the practitioners and the policy makers while contemplating the significances of Croatia joining the European monetary Union. These results are complementary with the Strategy of European monetary Union accession provided by the Croatian Central Bank in 2018 whereby it is suggested that the integration should proceed without further postponement.

5. CONCLUSION

Exchange rate of EUR/HRK was found to be the currency pair with the longest portion of inefficient periods. Other exchange rates: GBP/HRK, JPY/HRK, USD/HRK CHF/HRK were found to be mostly efficient with short interrupting periods. This paper brings empirical evidence in favor of Croatia entering the European monetary union which may eventually alleviate inefficiencies in the foreign exchange rate market of Croatian Kuna against the Euro. Furthermore this paper provides outline of central bank interventions and other events taking place in the period of identified market inefficiencies.

With emphasis on the Croatia as one of the Eastern Europe transition countries results of the paper add to the existing body of knowledge regarding the time varying nature of the foreign exchange market efficiency. Future studies may focus on empirical confirmation of the relationship between disruptive events and foreign exchange market inefficiency.

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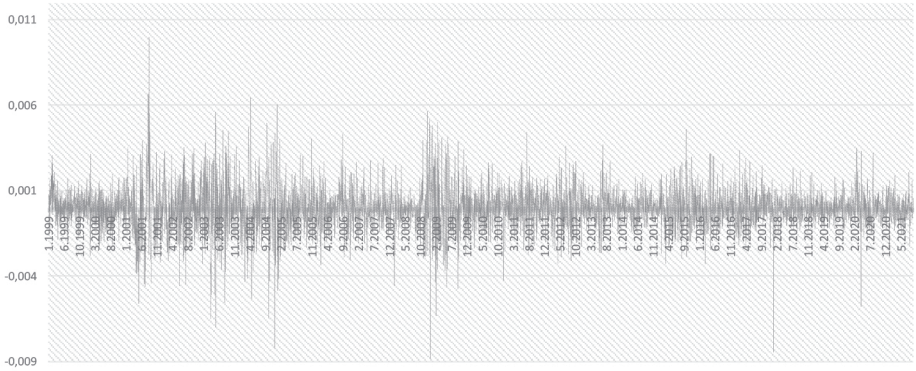
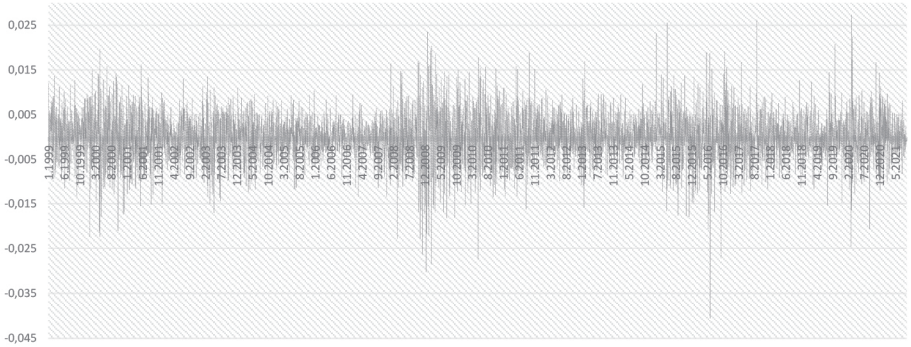
Appendix 1

Figure 7. Log returns of the exchange rate for Croatian Kuna against the Euro



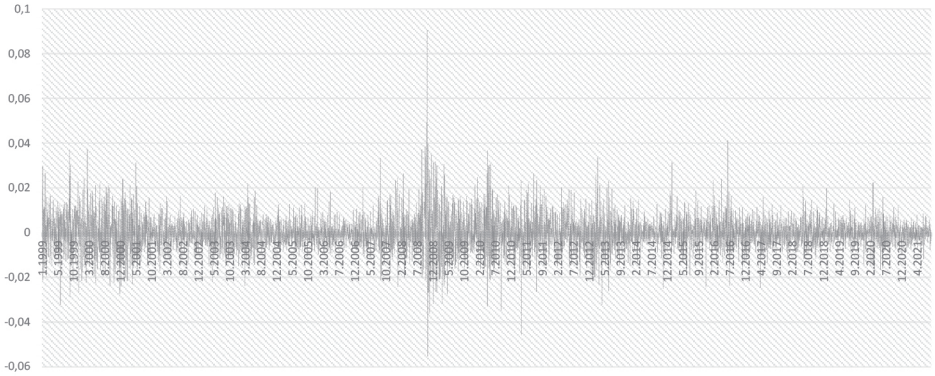
Source: Authors' own calculation

Figure 8. Log returns of the exchange rate for Croatian Kuna against the Great British Pound



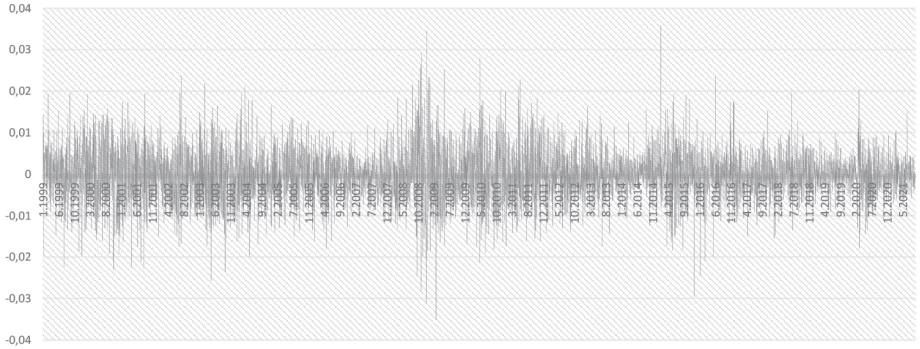
Source: Authors' own calculation

Figure 9. Log returns of the exchange rate for Croatian Kuna against the Japanese Yen



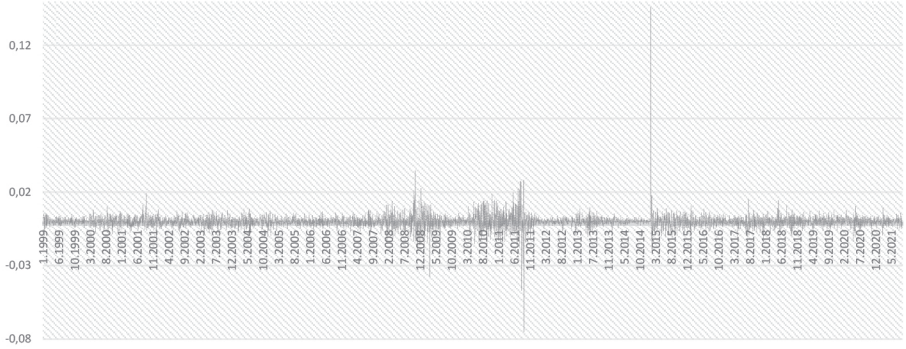
Source: Authors' own calculation

Figure 10. Log returns of the exchange rate for Croatian Kuna against the US Dollar



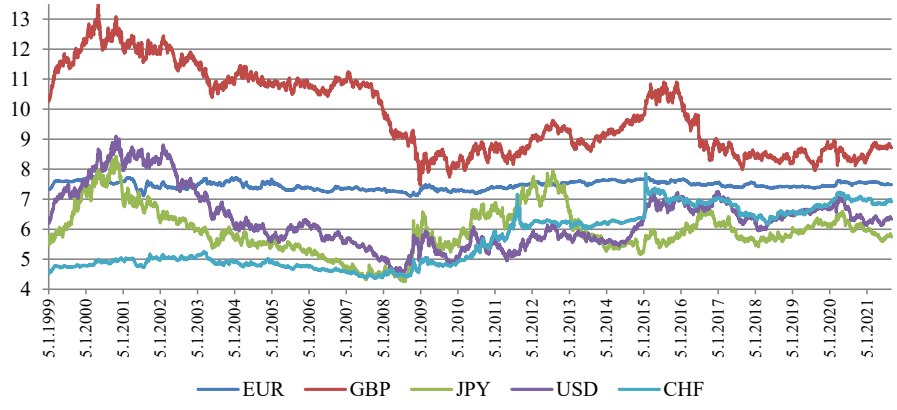
Source: Authors' own calculation

Figure 11. Log returns of the exchange rate for Croatian Kuna against the Swiss Franc



Source: Authors' own calculation

Figure 12. Exchange rate of Croatian Kuna against five major currencies including Euro, Great British Pound, Japanese Yen, US Dollar and Swiss Franc



Source: Authors' own calculation

IMPACT OF TERRORISM ON THE PUBLIC TRANSPORT IN EUROPE

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Abstract

Terrorism is a method for achieving certain political goals through violence, criminal activities and endangerment of large social groups. The basic characteristic of these activities are spreading fear and terror among the population. Terrorism has become an every-day challenge on global level and the risk of terrorism as a form of political risk is becoming more and more a part of system models for risk assessment. Activities connected with terrorism have not skipped public transportation either. This branch of transportation has been of special interest to those involved in terrorist activities in the last decade. For the people who are planning such activities, public transportation is an ideal target because there are millions of commuters who use public transportation services every day and it is very challenging to keep all the segments secure and equally protected. In public transportation, high level of protection can be developed at obvious control points. For everyone involved, making all segments of public transportation safe is a huge challenge, because all segments have to remain available to users. Unlike airports, where there are control points set up, at bus and train stops, there are no preconditions for providing high level of protection. To achieve the goal of this paper, an analysis of the current studies on terrorist attacks was conducted, along with the primary research. It is crucial to work on implementing safety measures that can impede terrorist activities, and heighten the probability for the terrorists to be uncovered.

Key words: public transport, terrorism, safety, European Union.

INNOVATION IN MULTINATIONAL BUSINESS: PRODUCT INNOVATION AND BUSINESS MODEL INNOVATION IN MULTINATIONALS AND THE CHALLENGES ASSOCIATED

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Abstract

This paper discusses the notion of innovation and the importance of a number of different types of innovation to the success of multinational organisations, whilst also highlighting the complexity and challenges that face organisations during the innovation process. This paper,, firstly, discusses the notion of innovation and how it is difficult to define due to the complex and often contrasting nature of the subject. However, after evaluation of the literature, the paper best describes innovation as the process of developing a new or unique element of an organisations value proposition, which they utilise to develop a competitive advantage. The paper then discusses a range of innovation types, focusing on the benefits and challenges of both product and service innovation and business model innovation. The paper compares both types of innovation, drawing on academic literature to provide a critical analysis of the benefits of both product and service, and business model innovation to multinational organisation. The paper concludes that whilst traditional literature focuses on the benefits of product innovation, in the hyper-competitive globalised market, focusing on business model innovation is a more pertinent strategic focus for an organisation, as it can ensure long-term strategic advantage and sustainability for an organisation.

Key words: innovation, product, business model innovation, multinational organisation.

1. INTRODUCTION

Innovation is a broad and varied topic within the literature. Academics recognise the importance of innovation as a critical success factor for modern organisations who operate in the hyper-competitive industries that have emerged as a result of rapid globalisation and increasingly interconnected global markets (Narula and Zanfei, 2005). As Visnjic et al (2016) postulate, innovation is an integral element of modern business operations because this is often how businesses are able to generate and sustain their competitive advantage within competitive markets. However, whilst innovation is recognised as a core aspect of modern business operations, the concept is complex and takes a wide variety of forms, which range from product innovation to business model innovation, as well as innovation across borders (Carrillo et al, 2015).

This paper firstly, discusses the concept of innovation, drawing on academic literature to critically analyse process, product and business model innovation in order to understand the importance of all aspects of innovation that occur within an organisation. The paper then focuses on the challenges of innovation in an international organisation that is seeking to remain competitive amongst global competitors, drawing on the differences between established multinational and born global organisations. The paper concludes by critically

analysing the importance of innovation, discussing which type of innovation leads to business generating long-term competitive advantages.

2. TYPES OF INNOVATION

2.1 Concept of innovation

As discussed above, the concept of innovation is difficult to define due to the varied complexities associated with the topic, however Kline & Rosenberg (2010) describe innovation as the creative process which occurs in an organisation that results in the production of new products or services which disrupt an industry or market, whilst Dodgson & Rothwell (1995) argue that innovation can manifest itself in many forms such as, innovative service provision, unique HRM policies and extraordinary marketing activity, all of which create a competitive advantage for an organisation. As Danneels (2002) postulate, the most innovative organisations are often recognised as those that alter the traditional operations of an industry through the creation of innovative, market leading products and services, or inimitable business processes.

Within the field, academics outline that whilst the outcome of an innovation process are often similar as they result in the creation of a new or developed, product or service, there are numerous strands within the literature which argue for different approaches to innovation. Firstly, Ettlie et al (1984), outline an incremental approach to innovation, which they define as an approach which seeks to incrementally improve the products or processes of the business through a series of small improvements which help an organisation strengthen their competitive advantages, compared to competitors within the market. Bhaskaran (2006) argue that implementing an incremental approach to innovation is more sustainable for the long-term success of an organisation, as it reduces the friction that occurs during a change process. By implementing an incremental approach, the organisation continues to enhance and develop both their capabilities and value proposition, whilst avoiding any periods of unrest that may occur during more disruptive innovation approaches.

In contrast, McDermott & O'Connor (2002) argue that one of the most effective methods of innovation is a radical approach, which advocates for a more drastic innovation strategy which seeks to implement an approach which is in stark contrast to the existing products, services or operations of the business. Stringer (2000) argues that whilst this is a more high-risk strategy, due to the disruption that this will cause for internal stakeholders within an organisation, the outcome of a radical innovation strategy can have extraordinary benefits for the business in the long term, as many industry leading organisations are often a success due to the drastically innovative nature of their products or services. Stringer (2000) postulates that radical innovations are often the most effective as they distort the current market conditions, and force other organisations to follow their lead.

In an increasingly globalised world, markets have become hyper competitive as geographical boundaries have been reduced due to increased connectivity and therefore, the importance of effective innovation is paramount in order to compete with organisations from all over the world. The intangible nature of innovation dictates that it is difficult to quantify the extent to which innovation has occurred, however within academia there are a few methods that are highlighted.

Firstly, Gault (2018) outlines an approach for measuring innovation on a macro level which considers metrics such as monitoring the creation of jobs and economic growths on a governmental level, as this indicates progression within industries that occurs as a result of

innovation. Gault (2018) argues that by monitoring economic outcomes, it can be a quantitative indicator that innovation is occurring on a governmental level and analysts and academics can identify the most innovative businesses contributing to this economic development, within the sector. Whilst this does not necessarily aid specific organisations in measuring the extent to which their organisation is innovative, Gault (2018) identifies that this is one of the most effective quantitative methods of measuring innovation.

Mankin (2005) also argues that it is possible to measure innovation from an academic perspective, as organisations can observe the culture, practices and outcomes that occur as a result of innovation processes, in order to understand whether they have been effective. Effective innovation practices will be easily identifiable Mankin (2005) argues, as organisations can observe metrics such as output efficiency, return on investment as well as monitoring sales in order to judge whether an innovation has been a success. By observing key metrics such as these, Mankin (2005) argues that it is possible to somewhat measure innovation, despite the intangible nature of the concept.

As explained above, through innovation, organisations can separate themselves from their competitors through the creation of organisation-specific capabilities which can help the business achieve success through a unique value proposition which can be created through both product innovation and business model innovation. The next section of this paper defines and critically analyses both product and business model innovation in order to ascertain an understanding of which, if any, is most effective for multinational businesses operating in a hyper-competitive business environment.

2.2 Product and service innovation

Within the literature, the most prominent mode of innovation that is discussed is product innovation. Product innovation is defined by Utterback & Abernathy (1975) as the development and release of a product or service which is distinctly different to those of the competition and significantly enhances the experience of a product user or service consumer. As Cooper & Kleinschmidt (1987) argue, whilst product innovation is recognised as an important element of business success as it allows an organisation to differentiate itself from the competition within the market, the very nature of product innovation as a concept dictates that it is an extremely challenging process to succeed in. In order to achieve true product innovation, Danneels (2002) argues that organisations need to leverage the firm's competencies through the creation of a work environment that is conducive to creativity, however, Cumming (1998) argues that this is difficult to execute, particularly in multinational corporations who have extensive workforces. Cummings (1998) explains that within MNCs, product innovation is more difficult to achieve as the nature of the business dictates that it is difficult to achieve a truly innovative product that satisfies the needs of all of their consumers, as they often have a diverse consumer base who have contrasting needs and require a specialist approach to product development. Therefore, the failure rate of MNCs who attempt to create innovative products is particularly high, as businesses often fail to target the specific needs of customers within a specific market, in favour of creating disruptive innovations that they believe will alter the dynamic of the whole industry. Cummings (1998) argues that, rather than focusing on radical product innovation, the most successful MNCs are those who identify and empathise with the needs of consumers in each market that they operate in and implement an incremental innovation approach which seeks to ensure that the business leverages its internal capabilities to create industry leading products, which satisfy the specific requirements of consumers within a region.

However, despite the argument forwarded by Cummings (1998) which advocates for an approach that focuses on the internal capabilities of the business and how the business model can be incrementally improved to satisfy the needs of consumers in a specific market, Lundvall (1985) argues that the most successful examples of product innovation often result in the production of a product which disrupts the market and challenges competitors to adapt their existing product proposition in order to compete with the original innovator. Product innovation manifests itself in a range of ways, which vary from existing product development, through the innovative extension of a product type or range, to the creation of a new product entirely, which creates a unique category within the market (Lundvall, 1985).

One of the most successful examples of a multinational organisation that has implemented a successful innovation approach is Apple, who Gehani (2016) explains invested heavily in research and devilment which focused on pioneering technology, and how this could be integrated into a product which would fundamentally improve the lifestyle of consumers. Gehani (2016) argues that Apple's success as a global brand is purely down to the innovative, high-quality nature of their products and this is an example of how product innovation can be leveraged in order to achieve a competitive advantage within an industry.

Similarly, Visnjic et al (2016) argue that service innovation is as much of a critical success factor in certain industries as product innovation, despite being harder to tangibly quantify. Visnjic et al (2016) outline that whilst the tangible nature of products ensures that innovation can be observed through advancements such as technological developments, service innovation is more nuanced as it refers to the manner in which a service is delivered. Whilst it is harder to measure service innovation, developing an innovative service which alters the traditional way in which a service industry or sector operates can be equally as rewarding and can also be leveraged to achieve a competitive advantage, whilst having the added benefit of being more challenging to replicate as it is often the people delivering the service, who are responsible for the level of innovation (Visnjic et al, 2016).

Karim-Suhag et al (2017) argue that through developing innovative products or services which extend and develop markets, or even create new markets all together, organisations can somewhat guarantee success, as consumers are always receptive to new, innovative products that are useful to them and the organisations who are considered the most innovative, such as Apple, are often industry leaders. As Ruiz-Jimenez & Fuentes-Fuentes (2013) argue, as the product or service is the primary value creation mechanism of an organisation, innovation in this area is the most important element of modern business success, since this is often how consumers differentiate between brands.

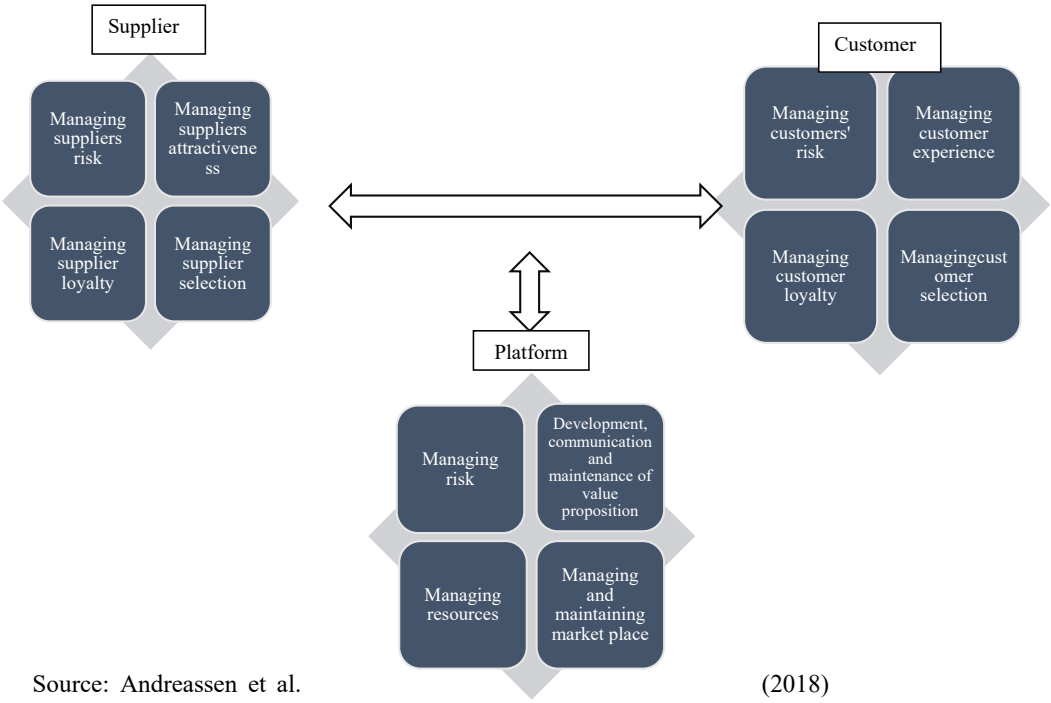
2.3 Business model innovation

Despite the assertions made by theorists such as Ruiz-Jiminez & Fuentes-Fuentes (2013) who argue that product innovation is the most important contributor to business success, Carayannis et al (2015) argue that instead, business model innovation is more valuable to an organisation, due to the long-term sustainability benefits it can have for an organisation. Carayannis et al (2015) describe business model innovation as the process of enhancing the output of an organisation by making changes to its operational model, in order to enhance its value proposition. Foss & Saebi (2017) argue that business model innovation, much like product innovation, can manifest itself in a varied number of ways, which include organisational restructuring, process streamlining and targeted production, amongst a range of other aspects.

As depicted in figure 1 below, the business model is the core facet of an organisation's value creation and therefore, it is imperative that it operates at optimum functionality in order

to ensure the output of an organisation is maximised; therefore, the process of innovation through a business model is a continuous process. Andreassen et al (2018) developed a T model of value creation, which they claim that businesses can use as a tool to identify the extent to which the business model satisfies the needs of a variety of stakeholders and any areas where the business would benefit from innovation to enhance their value creation.

Figure 1. Business Model Innovation



Source: Andreassen et al. (2018)

Strategic Choices

Degree of facilitation and innovation	Degree of contractual investment	Degree of control	Brand positioning

Despite the postulations outlined by Andreassen et al (2018), Chesbrough (2010) highlights a number of potential challenges and negatives association with business model innovation, firstly, the disruption that occurs during the process and how this impacts the ongoing operations of a business. Chesbrough (2010) argues that this is a particularly pertinent issue for multinational corporations, as the process of improving a business model which spans across multiple locations is complex and challenging and often has a short-term negative impact on the performance of the business. Chesbrough (2010) argues that whilst the benefits of business model innovation, such a long-term business sustainability, are evidently strategic objectives which could benefit the business, restructuring or adapting the value chain

of a multinational business can be extremely disruptive due to communication challenges across borders.

However, despite the reservations outlined by Chesbrough, theorists such as Massa & Tucci (2013) postulate that although the process is complex, particularly in multinational organisations, business model innovation is key pillar of long-term strategic advantage. One of the most prominent examples of a global organisation that has successfully leveraged business model innovation is Amazon, with Walton (2012) outlining that Amazon have developed into a market maker in the e-commerce sector, through constant incremental innovation within their value chain, which has allowed them to create efficiencies that ensure they are market leader in the sector and have built a long-term sustainable advantage.

Whilst Carayannis et al (2015) recognise that product innovation is also a key element of an organisation creating a strategic advantage, they argue that in an increasingly globalised market, consumer differences dictate that although certain products are universally accepted, many markets have different consumer expectations and therefore, business model innovation is more important for multinational business, as is evident in the case of Amazon. Therefore, whilst it can be argued that product innovation remains a key element of competitiveness for international organisation, it is difficult to disagree with Carayannis et al (2015) assertions that in order to compete internationally, businesses must prioritise business model innovation due to the long term sustainability benefits it can have for an organisation.

3. KNOWLEDGE TRANSFER IN MULTINATIONAL CORPORATIONS

As discussed above, there are contrasting arguments about the importance of product innovation and business model innovation, however contemporary theorists such as Carayannis et al (2015) stress the importance of business model innovation in an increasingly competitive global market, in order to compete with dynamic international competitors. However, despite the importance of business model innovation for multinational corporations, one of the most significant innovation challenges facing a multinational business is knowledge transfer across geographical boundaries. Maurer et al (2011) highlight the importance of social capital in fostering innovation in a workplace, however for multinational corporations who operate in numerous locations, it is challenging to create an organisational environment that is conducive to knowledge transfer. As a result of this, many organisations seek to innovate their business models in order to ensure that information is easily transferred throughout the business (Gilbert & Cordey-Hayes, 1996).

The primary method that is employed by multinational businesses to encourage business model innovation, and subsequently knowledge transfer, is through global R&D functions, who work collaboratively with colleagues from across the value chain to share ideas and ensure the needs of the whole business are served by the business model (Cavusgil et al, 2003). Wenger & Snyder (2000) outline ‘communities of practice’ as the most prominent and effective mechanism of knowledge transfer within an organisation and through the establishment of R&D centres, multinational organisations can cultivate a strong community of practice amongst their global workforce, which can help generate ideas and disperse the relevant information across the wider organisation. This mechanism of knowledge transfer is the most effective method for MNCs because, through this approach, organisations can ensure that knowledge transfer is encouraged through international R&D departments, who are able to identify areas of the value chain, including the product development function, that may benefit from improvements in the business model and therefore, ensure that the business remains efficient, effective and competitive. In order to support this strategy, a common

supplementary innovation approach is platform innovation, which Meyer & Mugge (2001) outline as investment in platform technology which can improve communication and co-ordination across the business. In multi-national corporations, this is a particularly crucial factor as it ensures that employees across the organisation are able to communicate effectively and collaborate through a centralised platform, which facilitates knowledge transfer through optimised solutions (Meyer & Mugge, 2001).

Whilst incremental innovation strategies outlined above are evidently the most suitable approach to implement when adapting an organisations business model, as it reduces volatility within the organisation, Chesbrough (2010) argues that there are instances when disruptive innovation to an organisations business model is also required, usually to arrest the decline of a failing business. In this type of scenario, knowledge transfer is a critical success factor for the whole process, as a disruptive approach to business model innovation usually results in a restructuring or redundancy and therefore, it is incumbent upon the management to ensure that as much tacit knowledge is retained within the organisation, in order to ensure that the disruptive impact of the business model adaptation is minimised (Chesbrough, 2010).

4. MULTINATIONAL CORPORATIONS VS BORN GLOBAL CORPORATIONS

Whilst this paper has, thus far, focused on the importance of innovation for multinational corporations such as product innovation to generate a competitive advantage and satisfy he needs of consumers in each market, as well as the challenges of business model innovation and knowledge transfer in multinational corporations, it is also important to consider the importance of both types of innovation in born global organisations. As Knight & Cavusgil (2004) argue, born global firms are more agile and often find innovation across borders easier, as the geographical limitations that often create challenges for MNCs do not necessarily apply to those modern organisations. As born global often operate a primarily digital business model that has consumers worldwide, they often develop a product or service which is universally accepted amongst consumers and therefore, when they are seeking to create innovative products, they do not have the same consumer considerations that MNCs will have as they attempt to innovate (Tanev, 2012). This same principle also applies to business model innovation within born global organisations, as the nature of their business model often dictates that it is more flexible and agile, as they do not necessarily have as much tangible infrastructure in different countries and a MNC may have (Knight & Liesch, 2016). Whilst modern tech organisations such as Twitter and Facebook will have a physical presence in many markets worldwide, the digital nature of their business dictates that they do not have the infrastructure needs that a company such as Amazon has and therefore, implementing a change to their business model is much more feasible (Knight & Liesch, 2016). It is therefore evident that, whilst born global will still have challenges when implementing innovation processes, it is comparatively much easier for these types of organisations to innovate as they are much more agile than MNCs, which benefits the efficiency and efficacy of the innovation process.

5. CONCLUSION

In conclusion, this paper has assessed the notion of innovation within business, focusing on two strands of the literature: product innovation and business model innovation in multinational corporations. Through examining both strands of literature, this paper has acknowledged that whilst that, despite the continued importance of product and service

innovation, an increasingly global market dictates that business models are a core element of a multinational business' success due to the different consumer product needs. Having concluded that this was the case drawing on high-profile industry examples, this paper then highlighted the challenges that businesses face with business model innovation across borders, due to the limited knowledge transfer that occurs in this scenario, before highlighting how many organisations overcome this through the creation of global R&D functions who work collaboratively to ensure all elements of the business are serviced by the business model, and to identify any areas where innovation can improve the operations of the organisation. This paper has then concluded by discussing how product innovation and business model innovation is much easier for born global organisations than multinational organisations.

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OPTIMIZATION OF PUBLIC PROCUREMENT SYSTEM BY USING THE NEW MATHEMATICAL MODEL WHEN SELECTING THE MOST ECONOMICALLY ADVANTAGEOUS TENDER (MEAT)

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Abstract

This paper analyzes the public procurement system in the Republic of Croatia, regulated by the European Union Directive 2014/24/EU and the Public Procurement Act (OG 120/2016) that lays down two basic criteria for selection of tenders – the lowest price, i.e., the most economically advantageous tender (MEAT). Unlike the lowest price, which can only be applied in exceptional situations and represents a single-criterion decision-making problem with numerous constraints, the MEAT criterion represents a multi-criteria decision-making problem that uses different bid evaluation models. Basic precondition for such models is to define the criteria represented by the MEAT and to determine their relative importance based on the contracting authority's subjective assessment, which also showcases its complexity. Although today there are generally accepted methods of multi-criteria decision-making that offer quality software solutions, the problem of defining the relative preferences of each criterion remains. Accordingly, the main goal of this Study is to present a new model of multi-criteria decision-making in the preparation of public procurement procedures in the Republic of Croatia. Such a model proposes a specific approach that requires decision-makers to be able to rank the importance of selected criteria in descending order, while the mathematical process is based on multi-criteria decision-making in which the value of the weighted criteria is estimated. In the set model, variables represent assigning weight to a criterion, which means that the contracting authority did not have to define them in advance on his/her own, but they had been calculated instead. This is also the basic difference of this model concerning the standard calculation method where relative significance of the criteria must be determined in advance or the weight range for each criterion with the corresponding maximum difference in points must be determined. Since this is a linear programming problem, the calculation will be made by using Excel or its Solver add-in on the selected practical example. Accordingly, it can be assumed that this model might represent a significant contribution to the optimization of public procurement systems both in the Republic of Croatia and in other countries of the European Union.

Key words: optimization of public procurement, decision maker, multi-criteria decision-making model, relative importance of criteria, complex procurement, Solver.

1. INTRODUCTION

Public procurement system in the Republic of Croatia is harmonized with the *acquis communautaire* of the European Union (European Union Directive, 2014) and is regulated by the Public Procurement Act (Official Gazette no. 120 as of 13 December 2016), which defines the only criterion for selection of tenders in public procurement procedures, and that is the criterion of the most economically advantageous tender. According to the Public Procurement

Act (PPA, Art. 283 - 288), the most economically advantageous tender can be determined based on the lowest price, total cost relating to the entire lifespan of the product (by taking into account the cost-effectiveness principle) and based on the best price-quality ratio when, in addition to the product price, other criteria related to subject-matter of the contract (qualitative, environmental and social) are taken into account. The lowest price criterion can only in exceptional cases be considered as the only criterion that in this case has a weight of 100% (e.g., when it comes to public procurement needed for defense or security of the state), while within the MEAT framework the price must not weigh more than 90%. In more complex procurement procedures, the recommended weight of the price criteria can be lowered to up to 50% and even to lower values if it is a complex specification in the public procurement procedure.

In this case, the contracting authority shall choose from several different bids by all tenderers in such a way as to select the most economically advantageous bid according to the criteria set out in tender documents. In doing so, one must keep in mind that in the public procurement procedure there are two criteria for qualitative selection of an economic operator, establishing the economic operator's ability and capacity to perform the contract and criteria for selection of tenders assessing or scoring the bid of each economic operator based on pre-defined criteria (Public Procurement Act, 2016). This means that if a tenderer does not meet the criteria for qualitative selection of the economic operator, one will not be able to evaluate his/her bid although it is perhaps the most economically advantageous. Therefore, one can talk about the necessary precondition based on which the economic operator can equally compete with other competitors in the procurement procedure. In order to meet the sufficient condition, it is necessary to have the most economically advantageous bid based on pre-defined criteria, which will be assessed or scored in the same way as all other bids. For this reason, it is extremely important to choose the best criteria that will be related to subject matter of the procurement and that will define the optimal combination of price and quality when choosing MEAT, which essentially represents "value for money". Quality criterion implies the possibility of selecting different criteria that determine - within each bid - technical value, aesthetic and functional characteristics, accessibility, social and environmental characteristics and similar.

Following the Guideline defining the Criteria for selection of the most economically advantageous tender (Guidelines, 2017), the methodology for assessing the most economically advantageous tender representing absolute and relative models of the assessment of tenders has also been proposed. For absolute models, the assessment of a single tender does not depend on other tenders submitted, and the contracting authority determines a certain monetary amount for each of the non-price-based selection criteria. Then, a certain number of points is given to the bid depending on the assessment of the non-price criteria. Points are then converted into sums of money added or deducted from the bid price, setting out a “qualitatively adjusted bid price”. In this case, MEAT is the bid with the lowest qualitatively adjusted price. On the other hand, in relative models, the pricing of individual bids depends on other bids, which means that it does not only depend on the quality of the bid itself, but also on the content of other tenderers’ bids. Selection criteria are defined in the percentage (weighting), after which the relative significance of each criterion is converted into maximum number of points. This model offers the possibility of evaluating price criteria and non-price criteria according to different concepts. When scoring the price criterion, the lowest price will get the highest number of points, while the scoring of non-price criteria will depend on the contracting authority's set requirements for each individual criterion under the defined scoring scale. Finally, MEAT is the highest-scoring bid.

By comparing both methodologies, it can be concluded that absolute model is more transparent for the tenderer because it allows him/her to theoretically assess the success of his/her bid, while in the relative model this is not entirely possible given that the final number of points of each bid depends on parameters set out in other tenderers' bids, which represents data that cannot be made available in the public procurement process itself (this refers primarily to the bids price not made public to other tenderers). On the other hand, the relative model is easier to apply as it does not require the contracting authority to determine in advance the value of quality units, which means that its application does not require good market knowledge as is the case with the absolute model. Although both methods are used equally in practice, it should be noted that their main disadvantage lies in the fact that monetary amounts in the absolute method, i.e., the percentage share in the relative method, are determined arbitrarily, that is, based on assessments made by decision-makers in the procurement procedure. Alternatively, there is also the possibility of specifying criteria in the order of importance (from the most to the least important one), but in doing so, no calculating method is offered to support such a methodology, nor is it recommended since in that case it would enable the contracting authority to hide arbitrary and discriminatory decisions during the evaluation of tenders. Accordingly, the main objective of this Paper is to present a mathematical model that would contribute to the application of appropriate methodology in the assessment of MEAT, since it would largely eliminate the problem of subjective decision-making based on various assessments that do not have to result from the appropriate know-how. In further text, after an overview of literature in this field, a proposal for the new mathematical model for the assessment of MEAT will be made. This is followed by a practical example on calculation of the new model, analysis of obtained results and conclusion.

2. LITERATURE OVERVIEW

There are various sources of literature in the field of public procurement that can be divided into domestic and foreign sources. As far as domestic sources are concerned, web portals specialized in issues related to public procurement are worth mentioning, given that this is an activity of interest to various domestic natural and legal persons as well as the general public (the perception of public procurement in the domestic public is the subject of many other research papers). Thus, the *Public Procurement Portal* (http://www.javnanabava.hr/), run by the Ministry of Economy and Sustainable Development of the Republic of Croatia, within which the legal and strategic framework, the most important opinions, materials on prevention of corruption and conflicts of interest, and the most important publications aimed at helping all stakeholders in the public procurement system are especially highlighted. One shall also note the professional publication *Public Procurement Bulletin* (http://www.biltenjavne_nabave.hr/) that lists all the current facts on public procurement with a special overview of frequently asked questions and expert articles in this field. It can be concluded that, within the system of public procurement, expert articles referring mostly to legal issues prevail in terms of domestic sources (Drmić, 2014), but there are many scientific articles that also cover the same issues (Babac, 2008 & Stanković 2018). Practically, there are no publicly available sources of information dealing with the public procurement system from the aspect of analyzing the pre-defined MEAT selection methodology that is considered unquestionable.

On the other hand, when public procurement is viewed from the perspective of foreign scientific sources, the situation is somewhat different. In addition to specialized scientific journals such as *The Journal of Public Procurement*

(https://www.emerald.com/insight/publication/issn/1535-0118) and *International Journal of Procurement Management* (https://www.inderscience.com/jhome.php?jcode=ijpm), there are also various sources of scientific literature related to the same or similar topic in the field of public procurement, which will be mentioned in this Paper. Thus, the authors Manolidas and Tsolas present in their article the model for selection of suppliers in the construction project process by determining the multiplier coefficient based on a multi-criteria ranking technique for calculating normalized economic bids for alternatives i.e. suppliers (Manoliadas and Tsolas, 2009). Min-Chun Yu presents in his article a model for supplier selection based on *the Just-in-time* strategy management (Min-Chun Yu, 2011). The article lists five different criteria for selection of suppliers used in the Mixed-Integer Programming (MIP) model. Also, the authors Pitchipoo, Venkumar, Rajakarunakaran and Ragavan propose in their article development of the DEA (*Data Envelopment Analysis*) as decision-making model in the process of selecting the best supplier (Pitchipoo et al., 2013). The selection of suppliers is made on the basis of a multi-criterial model that includes five different criteria - quality, delivery, cost, capacity and warranty. The author Dimitri is on similar track and cites in his article a multi-criteria decision-making approach in which different quality criteria were applied in addition to the price, all to ensure "the best value for money" in the procurement process (Dimitri, 2013). The article discusses how monetary and non-monetary criteria, often shown in different measurement units, should be expressed to achieve the final score for each of the tenderers. The last analyzed article by Alofi, Kashiwagi and Kashiwagi talks about the research conducted among users of the public procurement system in Saudi Arabia with the aim to improve it (Alofi et al., 2018). The results of the survey indicated the need to create additional criteria for evaluation of all bids, based on which the authors created their model of procurement, SVIE (submittals & education, vendor selection, illustration and execution), which is easy to use.

From the analysis of domestic and foreign literature, it can be concluded that there is enough room for proposing a new mathematical model when choosing the most economically advantageous tender. This especially refers to the public procurement system in the Republic of Croatia, which has a prescribed methodology for calculating MEAT but does not offer in previous research and analysis the alternative models that could improve or refine the current methodology. Due to this fact, the next chapter of this Paper presents a new mathematical model for choosing the most economically advantageous tender based on the multi-criteria concept of decision-making.

3. RESEARCH METHODOLOGY

A way of collecting data for calculation is shown below, followed by presenting the appropriate mathematical model and at the end of the chapter a practical example of calculating the model based on the collected input data is given.

3.1. Data collection

The most important thing in data collection process is the selection of criteria that will form the basis for evaluation of each bid. To achieve the objectivity of criteria applicable in the model, it is necessary to prevent contracting authority's unlimited freedom of choice, which means that criteria must be measurable and precise to be able to quantify, i.e., express them in appropriate measurement units. In this way, it would allow each tenderer, when preparing his/her bid, to have an idea of how the contracting authority assesses or evaluates the bid.

For practical calculation in the new mathematical model, the initial criteria related to subject matter of the contract (procurement of office equipment) based on professional expertise are taken into account and can be categorized into two basic groups – price criteria (bid price and work and maintenance operating costs) and quality criteria (delivery time of office equipment, product warranty period and service intervention response time). Table 1 presents all criteria for the MEAT rating as well as the values of all bids for all four tenderers (A, B, C and D). The values of criteria are expressed in original units, and target functions (minimum or maximum) for each criterion are indicated in parentheses, which is essential for further calculations in the model.

Table 1. Baseline (Initial) Criteria for the Mathematical Model

BASELINE CRITERIA:	BID A	BID B	BID C	BID D
1. BID PRICE (**min**)	150.000,00 HRK	180.000,00 HRK	160.000,00 HRK	145.000,00 HRK
2. OPERATING COSTS (**min**)	6.000,00 HRK	8.100,00 HRK	5.600,00 HRK	6.525,00 HRK
3. DELIVERY TIME (**min**)	28 days	30 days	21 days	30 days
4. WARRANTY PERIOD (**max**)	2 years	3 years	2 years	1 years
5. RESPONSE TIME (**min**)	24 hours	48 hours	36 hours	24 hours

Source: prepared by author.

Table 1 shows that for all criteria except the fourth criterion, the assumption of minimizing the values applies, which means that the lowest value is also the best. In case of the 'warranty period' criteria, the opposite is true, i.e., the highest value is also the best. After the input criteria in the model are defined, the mathematical model - on the basis on which all four bids will be evaluated and the economically most advantageous one selected - is presented.

3.2. Mathematical Model

The first step in preparing this mathematical model is to rank the criteria in declining order of importance (from the most to the least important criterion). Decision-maker should determine the importance of each criterion and accordingly, the following ranking list is proposed (the first two criteria are price-related, and the remaining three are non-price-related):

1. BP - Bid Price,
2. OE - Operating Costs,
3. DT - Delivery Time,
4. WP - Warranty Period,
5. RT - Response Time.

The decision-maker, i.e., the contracting authority may change the order of criteria and introduce new criteria as well. At this stage, decision-maker forms his/her strategy by choosing the criteria and ranking them (which primarily depends on subject matter of the contract and market environment in which it is located).

The next phase is preparation of quantitative procedure for the assessment of MEAT. Given that data of the contracting authority - that needs to make decision on selection of one of four tenderers in the procedure of public procurement of office equipment - are made available, this issue is used for explanation of the procedure. The procedure is based on multi-criteria decision-making in which the weight of the criteria is being estimated. In this Paper, a

multi-criterial mathematical model has been proposed in which the variables represent the weight of the criteria. The formed mathematical model (Vidučić et al., 2008) is an extension of the Ng multi-criterial model (Ng, 2007), made by introducing a lower and upper weight limit. The mathematical model is formed under assumption of negatively directed and standardized criteria, which is why the target function optimal value represents a minimum. The criteria are arranged in order of importance - from the most to the least important one, Given the first criterion is more important than the second, the second than the third and so on. After that, a mathematical model is formed with the following labels:

a) indices in the model: i - bid, (*i* =1,...,m); *j* - criterion, (*j*=1,...,n).

b) parameters in the model: r_{ij} - criterion *j* value for the bid *i*, (*i*=1,...,m; *j*=1,...,n).

c) variables in the model: w_{ij} - bid weight value *i* for criterion *j*, (*i*=1,...,m; *j*=1,...,n).

A mathematical model **(I)** is formed for each tenderer *i* (*i*=1,...,m) as follows:

target function: **(I)**

$$\boldsymbol{Min} \sum_{j=1}^{n} \boldsymbol{r_{ij} w_{ij}}$$

with limits:

(1) $w_{ij} - w_{i(j+1)} \geq 0 \qquad j = 1,...,n\text{-}1.$

(2) $l_j \leq w_{ij} \leq u_j \qquad j = 1,...,n; l_j, u_j \in Q^+.$

(3) $\sum_{j=1}^{n} w_{ij} = 1$

(4) $w_{ij} \geq 0 \qquad j = 1,...,n.$

For each bid *i,* target function represents the value of weight sum of the values of standardized criterion *j*. The group of limits (**1**) represents the ranking of criteria and therefore weights by importance. The group of limits (**2**) represents the lower ***(l_j)*** and upper ***(u_j)*** limits of the value of criterion *j*'s weight in the bid *i*. The third limit (**3**) represents standardization. The fourth group of limits (**4**) represents the condition of weight non-negativity.

Subsequently, four linear problems for four bids (*i* = 1, 2, 3, 4) are solved. This ranks bids based on the five criteria score (*j* = 1, 2, 3, 4, 5). The solution of mathematical model is the optimal value of weights for each bid that link each bid with the optimal score. Finally, there is the process of ranking all four bids, thus obtaining their final ranking based on which the most efficient, i.e., the best bid is selected. This is the first-ranked bid and for the decision-maker it represents the optimum solution of the given multi-criteria decision-making problem. If some other assumptions and parameters in the mathematical model are considered (different ranking of criteria, introduction of new criteria, different weight limits, different calculation of average weight values, etc.), the ranking of selected bids may be different.

The proposed mathematical model **(I)** can be elaborated in more detail if numerical values of the lower ***(l_j)*** and upper ***(u_j)*** limits are defined with respect to the specific example of MEAT evaluation. Numerical values of upper and lower weight limits of all five (5) criteria in the presented mathematical model **(I)** are calculated as follows:

If $\sum_{j=1}^{n} w_{ij} = 1$, $\mathbf{n = 5}$, $\mathbf{n_j = j}$, then

$$\sum_{j=1}^{n} n_j = n_1 + n_2 + n_3 + n_4 + n_5 = 1 + 2 + 3 + 4 + 5 = 15$$

In this case, the weight value $\mathbf{w_{ij}}$ for the bid *i* and criterion *j* must be in the following range:

$$\mathcal{W}_{ij} = \frac{(n+1) - j}{\sum_{j=1}^{n} n_j} \pm \frac{1}{\sum_{j=1}^{n} n_j} \text{ (i=1,...,m ; j=1,..,n)} \qquad \textbf{(II)}$$

The ranges of numerical values of weights or lower **(l_1, l_2, l_3, l_4, l_5)** and upper **(u_1, u_2, u_3, u_4, u_5)** limits for all five (5) criteria are, according to relation **(II)**, as follows:

→ range of the weights' value (l_1 and u_1) of the $\mathbf{w_{i1}}$ (j=1) criterion - **bid price**:

$$w_{i1} = \frac{(5+1)-1}{15} \pm \frac{1}{15} = \frac{5}{15} \pm \frac{1}{15} \rightarrow w_{i1} \in \left[\frac{4}{15}, \frac{6}{15}\right]$$

→ range of the weights' value (l_2 and u_2) of the $\mathbf{w_{i2}}$ (j=2) criterion - **operating costs**:

$$w_{i2} = \frac{(5+1)-2}{15} \pm \frac{1}{15} = \frac{4}{15} \pm \frac{1}{15} \rightarrow w_{i2} \in \left[\frac{3}{15}, \frac{5}{15}\right]$$

→ range of the weights' value (l_3 and u_3) of the $\mathbf{w_{i3}}$ (j=3) criterion - **delivery time**:

$$w_{i3} = \frac{(5+1)-3}{15} \pm \frac{1}{15} = \frac{3}{15} \pm \frac{1}{15} \rightarrow w_{i3} \in \left[\frac{2}{15}, \frac{4}{15}\right]$$

→ range of the weights' value (l_4 and u_4) of the $\mathbf{w_{i4}}$ (j=4) criterion - **warranty period**:

$$w_{i4} = \frac{(5+1)-4}{15} \pm \frac{1}{15} = \frac{2}{15} \pm \frac{1}{15} \rightarrow w_{i4} \in \left[\frac{1}{15}, \frac{3}{15}\right]$$

→ range of the weights' value (l_5 and u_5) of the $\mathbf{w_{i5}}$ (j=5) criterion - **response time:**

$$w_{i5} = \frac{(5+1)-5}{15} \pm \frac{1}{15} = \frac{1}{15} \pm \frac{1}{15} \rightarrow w_{i5} \in \left[\emptyset, \frac{2}{15}\right]$$

To avoid a situation in which there is a possibility that the weight value of the last criterion ($\mathbf{w_{i5}}$) equals zero, it is necessary to round the numerical value of lower limits ($\mathbf{l_5}$) to a higher value than zero. In this case, it will be the value $\mathbf{l_5 = 1/15}$.

The resulting numerical values of the lower and upper weights' limits of all criteria (i.e., the range in which they may be positioned) can now be formed in the following mathematical problem **(III),** based on the example of the selected mathematical model **(I)**, where four bids (i = A, B, C, D and i = 1, 2, 3, 4) should be ranked based on the value of five individual criteria (j = 1, 2, 3, 4, 5):

target function:

(III)

$$MinS_i = r_{i1}w_{i1} + r_{i2}w_{i2} + r_{i3}w_{i3} + r_{i4}w_{i4} + r_{i5}w_{i5}$$

with limits:

$$(1) \quad w_{i1} - w_{i2} \geq 0$$

$$(2) \quad w_{i2} - w_{i3} \geq 0$$

$$(3) \quad w_{i3} - w_{i4} \geq 0$$

$$(4) \quad w_{i4} - w_{i5} \geq 0$$

$$(5) \quad \frac{4}{15} \leq w_{i1} \leq \frac{6}{15}$$

$$(6) \quad \frac{3}{15} \leq w_{i2} \leq \frac{5}{15}$$

$$(7) \quad \frac{2}{15} \leq w_{i3} \leq \frac{4}{15}$$

$$(8) \quad \frac{1}{15} \leq w_{i4} \leq \frac{3}{15}$$

$$(9) \quad \frac{1}{15} \leq w_{i5} \leq \frac{2}{15}$$

$$(10) \quad w_{i1} + w_{i2} + w_{i3} + w_{i4} + w_{i5} = 1$$

$$(11) \quad w_{i1},\ w_{i2},\ w_{i3},\ w_{i4},\ w_{i5} \geq 0$$

where $\mathbf{S_i}$ is the value of weighted sum of the standardized criterion *j* values for each bid *i*, $\mathbf{r_{ij}}$ is the criterion *j* value for the bid *i*, and $\mathbf{w_{ij}}$ is the weight value of bid *i* for the criterion *j*.

3.3. Practical Example of Calculation

In order to practically apply the defined mathematical model (**III**), it is necessary to perform certain actions that will allow score calculation for all four bids (A, B, C and D). This primarily refers to the fact that not all criteria in the model are unambiguously defined. Namely, the term "criteria" most often implies numerical functions, which should be maximized or minimized. These ratings can also be displayed on a scale, distinguishing between two types of criteria or attributes, i.e., those of the "the more the better" type - benefit attributes and those of the "the less the better" type - cost attributes (Sawaragi *et al.*, 1985).

By comparing the attributes (criteria) in the model, all the default criteria - except for the fourth criterion in a row (WP - warranty period) - are cost criteria, which means that it is in the interest of investors to minimize their value. It is recommended that in decision matrix (as shown in Table 2) all criteria should be either benefit or cost criteria. When both types of criteria (benefit and cost) are found in decision matrix, the values of these criteria may not be transformed according to the same formulas because their bases are different. In such a situation, which corresponds to the set mathematical model **(III)**, the benefit criterion (WP - warranty period) should be treated as cost criterion in such a way that its reciprocal values $1/x_{ij}$ for all Y_i bids are shown in Table 2.

Table 2. Cost Criteria for Mathematical Model

COST CRITERIA:	BID A	BID B	BID C	BID D	TOTAL:
1. BID PRICE (**min**)	150.000,00	180.000,00	160.000,00	145.000,00	635.000,00
2. OPERATING COSTS (**min**)	6.000,00	8.100,00	5.600,00	6.525,00	26.225,00
3. DELIVERY TIME (**min**)	28	30	21	30	109,00
4. **1**/WARRANTY PERIOD (**min**)	0,50	0,33	0,50	1,00	2,33
5. RESPONSE TIME (**min**)	24	48	36	24	132,00

Source: prepared by author.

Once all the criteria in the mathematical model are unambiguously defined (as cost criteria), it is necessary to transform the different measurement units in which these criteria are expressed (monetary amounts and periods in hours, days and years), in such a way that they are comparable within the calculation. Considering all possible types of transformations,

i.e., normalizations of the values used in practice, the set mathematical model will carry out the transformation by using the sum (percentage transformation) because it is the easiest to calculate and leads to proportional changes in the results. Thus, the percentage transformation is one of the simplest transformations of attributes that is commonly used, and it is made by dividing the elements of the decision table by the sum of the row in which they are located, as follows in the relation **(IV)**:

$$r_{ij} = \frac{x_{ij}}{\sum_{i=1}^{m} x_{ij}} \textbf{ (IV)}$$

In this way, a percentage share of each rating is obtained in the total sum of the ratings that all bids (alternatives) received according to this criterion (attribute). Of course, the sum of ratings in each line of the decision matrix must now be the same as the unit (with rounding tolerance) as shown in Table 3.

Table 3. Transformation of Criteria in Mathematical Model

TRANSFORMATION OF CRITERIA:	BID A	BID B	BID C	BID D	SUM:
1. BID PRICE (**min**)	0,2362	0,2835	0,2520	0,2283	1,0000
2. OPERATING COSTS (**min**)	0,2288	0,3089	0,2135	0,2488	1,0000
3. DELIVERY TIME (**min**)	0,2569	0,2752	0,1927	0,2752	1,0000
4. **1**/WARRANTY PERIOD (**min**)	0,2143	0,1429	0,2143	0,4286	1,0000
5. RESPONSE TIME (**min**)	0,1818	0,3636	0,2727	0,1818	1,0000

Source: prepared by author.

After all the criteria were unambiguously defined as cost criteria and their values reduced to a value interval between zero and one using a sum transformation, input data were obtained for calculation in the proposed mathematical model **(III)**.

An effective solution of this mathematical model is achieved by simply using Excel, which means that it is not necessary to apply special computer software (special IT skills are not required), but knowledge of working in MS Office is sufficient. The Solver tool that can be found in Excel add-ins, should be used for calculation. By applying Solver, the results of target function for each bid (A, B, C and D) from the set mathematical model **(III)** will be obtained.

The following Table 4 shows the solution from Solver for bid A with set parameters in the (r_{11}, r_{12}, r_{13}, r_{14}, r_{15}) model, the result of target function (S_1 - Score) and the value of all calculated variables in the model (w_{11}, w_{12}, w_{13}, w_{14}, w_{15}). The result for bid A is 0.2266, and the calculated values of the variables' weight range from 0.3 to 0.133. The sum of all the weights of variables in the model is 1 and the variable w_5 has a weight greater than zero, which means that the basic assumption that all variables in the model must have a weight higher than zero has been met (which is why the lower limit l_5 is defined at the value of 1/15). In this way, the decision-making is maintained by applying all variables in the model or by using all five criteria according to their descending order of importance.

Table 4. Solver Solution for Bid A

r_{i1}	r_{i2}	r_{i3}	r_{i4}	r_{i5}
0,2362	**0,2288**	**0,2569**	**0,2143**	**0,1818**
W_{i1}	**0,300**	**MODEL VARIABLES' SOLUTION**		
W_{i2}	**0,300**			
W_{i3}	**0,133**			
W_{i4}	**0,133**			
W_{i5}	**0,133**			
l_1	0,267	**VALUES OF WEIGHTS (LOWER LIMITS)**		
l_2	0,200			
l_3	0,133			
l_4	0,067			
l_5	0,067			
u_1	0,400	**VALUES OF WEIGHTS (UPPER LIMITS)**		
u_2	0,333			
u_3	0,267			
u_4	0,200			
u_5	0,133			
1,000		**SUM OF ALL MODEL VARIABLES**		
0,2266		**SCORE**		

Source: prepared by author.

Below are the results of this mathematical model for all four bids as well as the comparative results of the methodology that implies standard ways of calculating the most economically advantageous bid by using the absolute and relative model.

4. RESEARCH RESULTS AND DISCUSSION

Based on the set multi-criteria decision-making problem according to the relation **(III)**, all variants of this problem were solved in Solver, which involved entry of data from Table 3 for all four different bids (A, B, C, D). The results achieved for all four bids are shown in Table 5 as follows (the weight values of all criteria are expressed at three decimal places with a rounding tolerance, which means that the sum weight of all criteria for each bid must equal one).

Table 5. Results of the Mathematical Ranking Model for All Four Bids

FINAL RANKING OF ALL BIDS:	RESULT (S_i):	Criterion weight w_{ij} :					Sum Σw_{ij} :
		w_{i1} - BP	w_{i2} - OE	w_{i3} - DT	w_{i4} - WP	w_{i5} - RT	
1. BID C	**0,2223**	0,267	0,267	0,267	0,133	0,067	**1,000**
2. BID A	**0,2266**	0,300	0,300	0,133	0,133	0,133	**1,000**
3. BID D	**0,2517**	0,400	0,333	0,133	0,067	0,067	**1,000**
4. BID B	**0,2641**	0,333	0,200	0,200	0,200	0,067	**1,000**

Source: prepared by author.

Table 5 shows final ranking for all four bids in a defined order - from the most to the least favorable bid. Given that this multicriteria decision-making problem aims to minimize the

achieved result (S_i – Score), the best bid is the one with the lowest result. In this case, it is bid C, followed by bid A, D and B. The difference in result between bid C and bid A is not large, but it cannot be ignored, which is why the decision-maker, i.e., the contracting authority should choose the bid from tenderer C as the best one. Looking at input parameters for the bids A and C, it is evident that despite the minimum bid price by tenderer A, this was ultimately not the key factor since some other criteria (such as operating costs and delivery deadlines) had a decisive impact on this final ranking. In this way, this mathematical model fulfilled its basic purpose that implies the selection of the most economically advantageous tender, which does not necessarily need to offer the lowest bid price to be the most advantageous, meaning that other criteria defined in the model itself can prevail in the process of ranking of all bids.

For illustration, Table 6 and Table 7 show the results of all bids' ranking when using the absolute and the relative model with the same model input data (Table 1).

Table 6. Results of the Absolute Ranking Model for All Four Bids

FINAL RANKING OF ALL BIDS:	RESULT:
1. BID A	131.000,00 HRK
2. BID D	131.525,00 HRK
3. BID C	140.600,00 HRK
4. BID B	158.100,00 HRK

Source: prepared by author.

Table 7. Results of the Relative Ranking Model for All Four Bids

FINAL RANKING OF ALL BIDS:	RESULT:
1. BID A	86,29%
2. BID C	84,26%
3. BID D	83,42%
4. BID B	74,25%

Source: prepared by author.

By analyzing the results from Table 6 and Table 7 relating to the absolute and relative ranking model, it is evident that final ranking of all bids is somewhat different from the mathematical model of multi-criteria decision-making **(III)**. In these two models, bid A that has the smallest bid price is the most favorable one, while the difference is visible only in the ranking of the bids C and D that alternate in the order in these two models. The only certainty is the order of bid B, which in all three models is the lowest ranked, as a direct consequence of a slightly higher bid price compared to the competitive bid (which means that influence of other criteria in this bid could not prevail in any calculation).

This, almost identical, order of bids in the absolute and the relative method is certainly due to the subjective definition of their key parameters (based on using the same input data from Table 1). Namely, in the absolute method, it was necessary to determine - by subjective selection - the range of values for awarding monetary value to the non-price-related criteria, which are then deducted from the value of the bid price and operating costs. Ultimately, the

bid with the lowest monetary value is the highest ranked one in the total ranking. On the other hand, in the relative model, it was necessary to define in advance the importance of each criterion in the model assuming that the bid price has by far the highest weight compared to all other criteria (60% in this example). Although the value of weight for the bid price was not too high compared to the maximum allowed (90%), the final ranking is identical to the absolute method - the bid with the lowest amount of money is the highest-ranked overall.

From the obtained results it can be concluded that standard methods for evaluation of the most economically advantageous tender (absolute and relative) usually show an identical order of tenderers if they are used in regular purchase or purchase of greater importance when the impact of bid price is large, i.e., in the range from 60% to 90% of the value. Although in the absolute method everything is expressed in monetary amounts, by converting the impact of bid price into percentage values (by calculating its weight), an identical conclusion can be reached.

On the other hand, the proposed multi-criterial model in this Paper suggests that it can be applied in cases of complex procurements where the impact of purchase price is reduced to the value of 50% or less. According to the set mathematical model **(III)** and obtained results, the impact or weight of the bid price criteria could not exceed 40%, and in some bids, it was even less as result of the mathematical optimization process (e.g., in the bid C it was only 26.7%). If the proposed mathematical model **III)** were to be increased by a certain number of new quality criteria (e. g. by 3 new criteria to a total of 8 criteria), then there would be an even greater drop in the weight of the procurement price criteria (to a maximum of 25%) and accordingly a more even distribution of calculated weights to all remaining criteria in the model. This depends primarily on the complexity of the procurement process itself and professional preferences of the decision-makers in terms of increasing the representation of quality criteria in the multi-criterial decision-making model (for this Paper it was enough to set the mathematical model with a total of 5 criteria to draw certain conclusions). But most importantly, the weights of criteria did not have to be pre-defined. Instead, they represent calculated variables in the mathematical process. This is precisely where the contribution of the same is seen, given that subjective assessment of the decision-maker (contracting authority) was largely removed from the calculation process, since in this case the decision-maker only had to specify the criteria in order - from the most to the least important one. All remaining calculations in the proposed model are reduced to the appropriate application of Solver and proper interpretation of the obtained results.

5. CONCLUSION

The basic idea in application of the formed mathematical model in this Paper is based on accessibility and intelligibility, aimed at achieving its wider use in the public procurement process' practice and in assessment of the most economically advantageous tender (MEAT). The models applied in today's practice require the decision-maker (contracting authority) to take a subjective approach that is sometimes not sufficiently balanced, which is why there is a danger of further emphasizing of importance of the price criteria of the bid. If the impact of bid price cannot be reliably estimated, the remaining criteria in the model or quality criteria can lose their importance, causing such a problem to be essentially transformed into single-criterion problem, which is not acceptable for the decision-maker. For complex types of procurement involving higher bills of quantities, it is proposed to apply a mathematical model of multi-criteria decision-making **(I)** in which it is not necessary to determine in advance the weight of the relevant criteria, i.e., it is not necessary to assign numerical values to weights. Namely, in such a mathematical model of optimization, the weight of each

criterion represents the result of variables in the model, and the achieved result is the minimum value (score) for each alternative (bid). Following the said, this approach proposes the use of a formed mathematical model **(III)** that requires only economic knowledge of the subject matter as well as the know-how of how to work in Solver. This should be manifested primarily through its ability to rank the selected criteria in the formed mathematical model (from the most to the least important one), solely based on professional expertise and acquired experience. Future research on this topic might include some new mathematical concepts and approaches that could further simplify the entire procedure of the public procurement system and make it even more transparent. Such a concept of a multi-criteria decision-making problem certainly represents a step in that direction.

The advantage of this mathematical model is adoption of a new approach when evaluating the most economically advantageous bid. Given the importance of the whole process, the recommendation is always to start with simpler models, but ultimately the contracting authority will also be faced with more complex procurements with several different quality criteria, and it is therefore desirable to have alternative approaches to this decision-making process in such situations as well.

Disadvantage of this model is seen in the fact that there is an objective danger of its inadequate application due to errors in the preparation of input data and lack of knowledge of working in Solver. One should also be cautious when selecting the final number of criteria in the model, which depends primarily on complexity of the procedure itself and link between the selected criteria and subject matter of the procurement. However, once the required level of understanding of such a mathematical model is achieved, its application in evaluation of the most economically advantageous tender becomes simple and acceptable for each contracting authority in the procurement procedure.

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THE ROLE OF CRISIS COMMUNICATION IN MAINTAINING BUSINESS CONTINUITY

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Abstract

Business continuity management is an important determinant of business success. Although crises have different causes and impacts, at the moment of the emergence of a crisis, a company needs to have a plan of business continuity ready because there is a limited time to react and handle the crisis successfully. Since discontinuity in any business can lead to devastating consequences and long-term financial problems, it is necessary to develop and implement a crisis communication plan that represents the basic reference point for communication towards the internal and external participants in the business. A successfully established communication channel enables the employees to adequately understand all conditions and threats. The goal of this paper is to define the role of crisis communication in maintaining business continuity. To achieve this objective, available secondary data were used, i.e., a comparative analysis of the case studies of Germanwings and Asiana Airlines was conducted.

Key words: business continuity management, business continuity plan, crisis, crisis communication plan

1. INTRODUCTION

There is a number of different crises different companies and organisations face each day. They can include many kinds of threats relating to the facilities and products, such as fires, explosions, flawed or difunctional products, as well as the people connected to the organisation (workplace violence, management misconduct) (Coombs et al., 2010). In the last year and a half, the world has been facing the crisis caused by the coronavirus pandemic. It is crucial for the management of any organisation to understand that a well-established crisis communication protects business reputation in the times of crisis (Coombs, 2007). If a good crisis communication plan does not exist, then the organisation is at a disadvantage because communication professionals cannot perform their managerial and strategic role (Heide & Simonsson, 2014). Without good communication, the understanding of any type of crisis cannot occur and there is danger of misunderstanding the threats (Sellnow & Seeger, 2021). Another crucial point in managing a crisis is timely reaction. If a company reacts quickly and disseminates critical information on time, the company will be seen as an organisation that handles a crisis well (Lawson, 2007). It is necessary to keep in mind the fact that public relations is also a crucial factor in managing a crisis successfully (Marra, 1998).

This paper highlights the importance of crisis communication planning and business continuity and how they influence the management decision-making in the times of crises. The study was conducted based on the analysis of the secondary data. A comparative case study analysis was also carried out to compare the reactions of two airline companies to the crisis caused by an airplane accident. The aim of the comparative analysis of these real-life

cases was to define the steps in establishing a crisis communication plan and, based on them, draw conclusions that would contribute to raising the awareness on the importance of the implementation and integration of crisis communication. With presenting an example of good crisis communication with a well-elaborated strategy of business continuity on the one hand, and a company without a structured action plan on the other, this paper displays a connection between maintaining business continuity and crisis communication and compares each situation's advantages and disadvantages. Another aim was to establish to what extent the changes in the organisation's reputation, being the result of poor crisis communication, impacts the maintaining of business continuity. New interpretations and understanding of specific situations and adequate crisis communication will be possible.

2. CRISIS COMMUNICATION AND BUSINESS CONTINUITY MANAGEMENT

One can argue that crises are those threats that create most change and need to be more quickly reacted to than any other phenomenon that can disrupt business processes (Sellnow & Seeger, 2021).

2.1. Definition of crisis and crisis communication

There are various definitions of what a crisis is. Coombs defines it as an unpredictable and considerable threat which, if not managed appropriately, can have a negative impact on the organisation and all those involved (Coombs, 2015). According to Lerbinger, a crisis is an event that threatens the reputation, profitability, and the survival of the business (Lerbinger, 2011). For Fearn-Banks, a crisis is an event with possible negative consequences for the organisation, the public, the products, the services and the reputation, and Pearson and Clair define it as an event of little probability to happen, but of huge consequences that threaten the survival of the organisation and it is characterised by vague causes and tools for solving it, followed by the attitude that the decisions concerning it need to be made very quickly (Pearson & Clair, 1998). In times of crises, there is a need for more control within organisations (Pang et al., 2021). Crisis is not synonymous to failure. It can be characterised as a process of transforming the system in the moment when it stops being sustainable. If there is no transformation, despite the need for a change, we can say that the company failed. Crisis situations can be caused by human factors and natural forces. People can cause crises by committing criminal offenses, causing environmental disasters, introducing medicine with bad side-effects, causing rail accidents. Natural disasters like volcano eruptions, earthquakes, tsunamis and floods can also have devastating effects and cause crises (Bulajić, 2010). Fortunately, there are two sides to every crisis: on the one hand, it can cause huge disruptions, and on the other hand, it can foster change for the better (Sellnow & Seeger, 2021).

According to James, the symptoms of a crisis in a company can be various (Legčević & Taučer, 2014):

- continuity of purchasing power is in jeopardy at any point
- insolvency and low liquidity
- inability to generate profit that enables creating positive economic value added (EVA)
- business operating at a loss
- drop in profitability and other indicators of business success
- reducing the scope of sales and the market share
- relative technological inferiority.

In the identification phase, communication plays an important role in detecting the causes that precede the crisis and it is one of the most important factors for exiting the crisis. Crisis communication relates to a targeted, applied informing of external and internal participants in the business in the times of heightened pressure. It indicates a discourse between the organisation and its public before, during and after a negative event, and it has a goal of reducing the damage that can be caused to the reputation by describing the strategies and tactics it uses in detail (Fearn-Banks, 2010:2). Main key-points of crisis communication are that it manages crisis situations and shows the response of the public to the activities it is undertaking (Kochigina, Tsetsura & Taylor, 2021). An effective use of crisis communication as a part of crisis management strategy cannot just alleviate or eliminate the crisis, but it is also possible for the organisation to have stronger reputation and public relations than before the crisis.

According to many researchers and authors, good understanding of crisis communication theories is crucial to better define the way to cope with the incidents. Fearn-Banks (2016) states that adequate crisis communication can reap benefits from a string of theories of social sciences and that crisis communication relies on the theories of communication, including the rhetorical theory, theory of persuasion, sociology and phycology. Regarding the topic of crisis, crisis management and communication, it is important to determine the following: the theory of apology, image renewal, diffusion, participants and the theory of excellence (Jugo, 2015: 43).

The theory of apology describes activities that an organisation can use to be able to refute, explain or apologize for an event through the mode of communication it deems fit. Fern-Banks suggests that an apology is a sincere acknowledgement of something a person or an organisation feels deeply sorry about. That is why it is necessary to make a distinction between an excuse and an apology because apology is a broader term in the communication theory, and it does not imply acknowledgement of guilt. Jugo states that Ware and Linkguel see apology as a set of activities that aim at changing the opinion of the public they communicate with on the situation they are facing (Jugo, 2015). Second theory that has been mentioned above is the theory of image renewal that puts emphasis on establishing the causes of the damage to the reputation and the publics it needs to communicate with to regain the reputation. The organisation in question has to be aware of the publics that have negative perception on the crisis event and of the scope of their knowledge on the crisis. According to Ronald Smith, the activities of the strategy of the image renewal theory are divided into preventive actions, offensive activities, defensive activities, misleading answers, public regret, corrective behaviour and strategic inactivity (Jugo, 2017). The diffusion theory relates to spreading ideas and innovations and how new procedures, practice and goals are accepted by the company and individuals. It comprises five processes: awareness, assessment, trial period and, in the end, acceptance or rejection of the idea (Fearn-Banks, 2010: 19). The participation theory explains the importance of the relation with the organisation's public and its most important participants through the analysis of the process of action performed by individual participants, groups and other external organisations on the primary organisation (Jugo, 2015). The situational crisis theory suggests that crisis management should offer useful and educational information suitable for the situation before taking any action regarding the reputation issues (Tomić & Milas, 2007).

2.2. Characteristics of the crisis communication strategies

To be able to protect the reputation as much as possible, companies today have to, at crucial point, familiarize the public with the causes of the crisis and inform them on the further steps that are to be taken. The term strategy suggests long-term planning. Crisis

management and crisis communication cannot be unplanned and uncontrolled. There are two basic strategies of communication with the public in crisis situations: the defensive and the offensive strategy of communication (Osmangić-Bedenik, 2007: 209). The defensive strategy of communication indicates incomplete informing of the internal and external public, simultaneously ignoring and eliminating communication as long as there is not enough data. It can also mean reservation or denying the crisis. A company waits to see if the public will be able to get information through some other channels and, in the meantime, defends itself with silence and a reaction follows only when the pressure becomes unbearable. This communication theory is also known as cover-up. The most common result of this strategy is for the organisation to leave the industry. The offensive strategy of communication follows just the opposite path: the information is given in full and on time and the relation with the public is honest and open. This strategy avoids the insecurity and loss of confidence. This type of communication creates a strong framework for preparation and introduction of organizational and other measures for exiting the crisis, the transformation and change (Osmanagić-Bedenik, 2007: 209-210).

The survival of a company during and after a crisis depends on the level of overtaking the responsibility for the crisis. Therefore, Coombs et al. (2010:166) differentiate:

- Strategy of denial that denies the crisis or tries to prove that the organisation is not responsible for the crisis.
- Strategy of minimisation that tries to minimise organisational responsibility and/or the seriousness of the crisis.
- Strategy of renewal that offers a compensation and/or an apology for the crisis.
- Strategies of reinforcement that include the display of the good activities in the past and their subjects' appraisal. These strategies are only additional and have to be used in combination with one of the three above-mentioned strategies.

The most significant guidelines to be followed by the companies if they wish to overcome a crisis successfully, regardless the choice of a crisis communication strategy, are those relating to providing information on the crisis. Coombs and Heath claim that it is necessary to offer a warning to all the crisis victims and instruct them on the steps that are to be taken to protect themselves, and the way they should conduct themselves in such situations. It is important to express concern for the victims, inform them on the cause of the crisis and offer information on the actions the organisation is going to take to prevent further crisis. Furthermore, the public should know whom to address to. The information should be adjusted to the internal and external public, but in both cases, they should be true and authentic. Heath and Coombs, (2006) listed some of the strategies for protecting the reputation of a company:

a) the minimisation strategy for minimal responsibility for the crisis,
b) the minimisation strategy or the renewal strategy for the crises with low attribution of the responsibility for the crisis,
c) the renewal strategy for the crises with strict attribution of responsibility, regardless of the history of the crisis,
d) if possible, for rumours and challenge crises use strategy,
e) the strategy of reinforcement should be used as a complementary strategy to other strategies,
f) consistency in using the specific strategy as an answer to the crisis without mixing the strategy of denial with the renewal strategy or the minimisation strategies,
g) for the crises with minimal responsibility attribution and without the history of such a crisis, informational and adjustable strategies are sufficient,
h) readiness to change the strategy if the situation changes.

2.3. Business continuity management

Business crises are sometimes impossible to predict or prevent. However, oftentimes are the crises that have been predicted also uncontrollable, despite the precautionary measures taken. Business disruptions happen more often and to greater extent than in the past. Information is a very important assets for every organisation and the need for investing in its protection is growing. Continuous changes of the business environment and the speed and dynamics of the changes leave the businesses no choice but to make changes as well. Business continuity implies a business plan and actions that enable an organisation to respond to a crisis in such a way that business functions, subfunctions and processes continue moving forward according to plan, prioritized according to their importance for business sustainability. Business management continuity is based on the principle of key responsibility of the organization's manager to ensure the continuity of the business processes (Woodman & Hutchings, 2010).

Business continuity management represents corporate social responsibility, and it shows how well the organisation is prepared for the time of crisis (Wu, 2021). Business continuity management (BCM) is an interdisciplinary activity that encompasses designing and modelling, development, implementation and execution of the plan for business continuity management and measuring its success. According to the British Standards Institute's Code of Practice for Business Continuity Management, it is a holistic management process that identifies potential threats to the organisation and the impact on business operations these threats could cause. It also provides a framework for building organisational resilience with the ability of an effective response that protects the interest of all the participants, reputation, the brand and activities that create value (The Business Continuity Institute, 2017). Business continuity management is the framework established in many organisations to be active when facing disruptions in their business (Sapapthai et al., 2021).

Business continuity planning within the context of a business strategy is the result of the process that started developing in the 1970s from the disaster recovery plan (DRP), after which the emphasis was placed on planning the business continuity instead of the management. The 1970s are the years when the development of information technologies began. With them came the necessity for data protection, back-ups, limitation of access for unauthorised personnel etc. Organisations, like the banks, could not risk situations like security breaches. Therefore, by the 1980s, the potential for sophisticated centres for recovery from the crisis was recognized, but the emphasis remained on the IT industry. Until the 1990s, more and more corporations began giving more importance to risk control and steers the emphasis back from the planning to the management, becoming an integral part of the business and not just a project insisted upon when disruptions occur (Galler, 2003).

Although colloquially often synonymous, there is a difference between recovery from the crisis and maintaining business continuity. Business continuity plan is an essential tool for business continuity, and it is responsible for a successful recovery from the disruption. The implementation of a business continuity plan that has not been tested nor adjusted can often be more devastating than the non-existent one. The testing gives the crisis experts an opportunity to establish whether the applied technologies, strategies and procedures aimed at recovery are, in fact, doable and whether they would provide expected results in the projected timeframe. Plan adaptation is of huge importance because the plans that are too complex often lead to confusion and can create more damage than benefit and are often discarded because the team cannot follow them.

According to Malcolm, there are five levels of plan execution that need to be followed. Those five levels are each further divided into two phases relating to resource availability and the period in which they are realised. First two levels happen in the phase of "the plan building" and they imply going over the plan and having a simplified discussion. The second phase is "building excellence" and it is carried out through the simulation with one or more teams and the wholesome implementation in the end (Malcolm, 2007: 116-117):

I. Going over the plan – low-pressure training where the content and the format is explained via presentations and techniques that include videos, pictures and materials given to the staff to understand the plans in full
II. Simplified discussion – begins mostly with a hypothetical scenario given to the participants to develop the ability to recognise the problem, isolate the problem in the scenario and solve those same problems with brainstorming and group discussion
III. Single-team simulation – a simple form of simulation that evaluates the plan and the way the team functions together under limited pressure through managing a made-up incident and information flow through decision-making and resolving dilemmas
IV. Multiple-team simulation – extension of interaction among more teams with the focus on coordination, communication and control
V. Wholesome implementation/simulation – this level includes all teams, but only when the prior levels have been carried out and all the team members have high level of experience, competence and confidence.

Different modes of plan execution are defined with different level of team experience executing them. Some types of the execution are suitable for early plan versions, but there are those that also require expert level of knowledge and competences from the teams due to the complex implementation. The implementation of each next level of the plan is built on the foundations of the successful execution of the level before. Therefore, it is important that all the participants have adequate information and skills. There are different organisations of different sizes and the complexity of business operations varies across the companies. Bigger companies with high level of changes in internal structure have to test the plans more often than those smaller ones where the changes are not so often. The inclusion of the employees is key for the success of the plan for continuity management and motivated team members will paint a positive picture for the public. By finding highly motivated members of the team, it is possible to increase motivation for the rest of the team which then leads to higher achievements.

3. CRISIS COMMUNICATION PLAN

The identification of potential threats and risks for the company and maintaining business continuity is the framework for a crisis communication plan. The crisis communication plan encompasses a narrowly defined strategy that will be used in a potential crisis. The plan serves the purpose of analysing the identified risks, and evaluating the probability of their occurrence and their importance for the organisation. The crisis communication plan is an important segment for business continuity maintenance and, although being a part of the crisis management plan, the crisis communication plan has to be much more concise and simpler to implement and understood so that each team member could quickly and easily find clear instructions for the conduct in crisis situations. A crisis should be broadly defined and as such understood by the management because this information could be of great importance for the survival of the company (Dyer, 1995). Another crucial instance in the times of crises is the

existence of a crisis communication plan as a suitable instrument for communicating with the public (Lawson, 2007).

3.1. Creating a crisis management team

The responsibility of the employees responsible for crisis management is defined in the business continuity plan. The team for crisis management should include employees from different areas so they can get a broad spectre of input from all the organisational segments. Alongside managerial skills, the team members should possess a set of good communication skills that can help in exchanging ideas, monitoring the measures that can influence the attitudes within the crisis plan framework and as the help at gathering opinions from the employees on the potential crisis and the crisis management (Kešetović, 2008: 128). A crisis team should include senior managers that have the capability and authority to react quickly and decisively in situations that can negatively affect the organisation's well-being.

The crisis team depends on the type of the organisation, and large companies are advised to have this team structure (Ruff & Aziz, 2003:101-102):

- The president
- The vice president
- Human resources coordinator
- Financial coordinator
- Communication coordinator
- Legal service and insurance advisor
- Operations coordinator
- Health, safety and the environment coordinator
- Archivists.

Due to the diversification of the team members and their scope of responsibility, it is important to establish a management hierarchy. A CEO has full responsibility for managing and coordinating activities and it is his responsibility to develop a crisis management team, its activation and directing its initial discussions, directing the costs of the operations, informing on specific instances of the activities as they develop, identifying and confirming priorities (Kešetović, 2008: 127).

3.2. Content of the crisis communication plan and the choice of the communication channel

The goal of a communication plan is to gain trust from the public and help them remain calm when danger occurs. The way to do that is to acquire information that is correct, authentic, empathic, suitable, considerate and timely (Walker, 2012). The effect of stress on the performance of different tasks leads to the general conclusion presented with the invert U-curve which puts in correlation the magnitude of stress and task performance. That is, situational stress can lead to improving the performance of different tasks. If, however, it is still heightened after certain period of time, stress can damage the ability of the decision-makers to pass good judgements (George, 1986).

Therefore, when such an event occurs, the crisis team needs a document that is easily understood and that provides clear steps, shaped in a way that each section can be a part for itself if need be. The structure of a crisis communication plan is made of the plan details, the crisis communication team, internal communication, communication with the public, communication channels and additions. The details of the plan are the effecting summary i.e., the projection of the way how the organisation will communicate on the crisis, and it comprises (Potter, 2007):

- an overview of the key elements of the plan,
- the criteria for the plan activation,
- the list of the expected results that shape the goals of the plan in the short- and long term,
- a description and the framework for the implementation of the plan,
- the list of key media used for communication,
- a description of financial assets used for the realisation of the plan.

The key elements of a crisis communication plan represent a series of components it should have, like the cover page with the name of the organisation, the introductory part that comprises a message from the management about the importance of a crisis plan for the employees and other elements that help remembering other determinants at the moment when the crisis breaks out. An action plan defines the when, the how and under what circumstances the plan is put into action. A crisis communication plan is mostly activated by team members at the request of a senior manager. The list of the expected results is important for successful monitoring of the achieved results and it is a good indicator of the path to follow for the expected results to be obtained. Expectations differ relating the due date. So, a successful realisation of expectations in a short period of time is a good indicator of what results can be obtained in the long term. A timeframe for the execution of the plan relates to the deadlines that are important because in the time of crisis, the perception of the time changes, so it is very easy to spend much more time than needed in certain segments that have not been incorporated in the plan. If the organisation does not have well-planned and defined guidelines for communication, this can damage the reputation and lead to financial difficulties. In order to establish a good relationship with the media, a good internal communication is the key. The procedures concerning communication with the media should be clearly defined in the crisis plan available to the employees and in this way help them to resist the need to communicate with the media. Despite that, it is not possible to completely prevent the staff from transferring information outside the organisation, for example, to family and friends. To that end, the best defence from spreading false information is to keep employees informed through regularly updated data via different communication channels (Jugo, 2015).

Many earlier authors in the field of communication have developed models of communication process. Most of them include what was considered to be the four important components of the process: the source, the message, the media, the receiver and feedback (Tkalac-Verčić, 2015). *The source* is one or more individuals that transfers the massage, and they almost always come from the management. Be it an organisation, a group of people or an individual, the source has three primary functions in communication: to establish the exact message that needs to be transferred, to encode the meaning into one or more messages and then transfer the message. *The message* is every verbal or nonverbal incentive that conveys a meaning to the recipient. To simplify, it could be said that verbal communication relates to words, while nonverbal communication refers to other incentives like the smile, nodding, touching etc. Good managers have learned to try to interpret the meaning of these nonverbal messages. *The media* is the means of transferring the message from one person to the other. It is also called “the fourth power” because, alongside the executive, the judicial and the legislative powers in a state, they have the power to form the behaviour and public opinion. That is why they are defined as institutions that satisfy the need of the society for public communication all the society members can participate in and they are, at the same time, communication forms/products, institutions, organisations and cultural formations (Peruško, 2011). They are the mode of message transfer to the mass public, and they are divided into the electronic media, the press and the new media. Besides talking to the mass media, the

organisation can turn to the target public via press conferences, by giving interviews and answering calls, making public statements and using a web channel. *The receiver* is a person that takes the message, and they have three functions: to receive the message from the source, to decode the message into a meaning and to respond to the message. *Feedback* is the response given by the receiver prompted by the message from the source and it is crucial in all the processes of communication, especially in the interpersonal communication between the managers and the employees. The employees have to be able to understand their general role in the organisation, and especially in a crisis. That is why, it is extremely important that the messages are clearly communicated that the time interval between the information and the reaction is as short as possible and that there are no disruptions of communication, so that the employees would not feel that they are kept informed only during the crisis (Richmond, McCroskey & McCroskey, 2005: 22-24).

With a good choice of the communication channels for transferring the messages in the times of crisis, the organisation ensures that both the internal and external public are well-informed. The main communication channels during a crisis, according to Novak (2001), are: press announcements, press conferences, interviews and statements, and setting up special phone lines for communicating with the interested public. The most important channel for communication in the crisis is definitely a press release. To be able to choose the most effective communication channel, a company should first identify the type of message it wishes to send. Organisations should also consider the following: the urgency of information transfer, the issue of the formality or informality of the message, whether the information that is to be transferred is classified and sensitive, whether they communicate with a group or an individual and many other issues.

When informing the internal and external public, it is also important to take into consideration the culture of the company involved in the event. Only when all the answers to those questions are considered, should a proper channel of communication adjusted to the target public be chosen.

4. STUDY OF THE ROLE OF CRISIS COMMUNICATION IN THE BUSINESS CONTINUITY PLAN

4.1. Methodology

The goal of the study is to identify the impact of different approaches to crisis communication on the business continuity and their importance in the business continuity plan. The purpose of the study is to present the importance of adhering to the sequence of strategic determinants defined in the business continuity plan and their contribution to an effective crisis communication. The study is a comparative analysis of the case studies of the catastrophes in the airline transport sector involving two airline companies: Asiana Airlines and Germanwings. The analysis of successfulness of crisis communication will bear the conclusion that there is a need to invest in the development of crisis communication plans as a part of a business continuity plan.

The initial hypothesis is that the plans should be prepared and elaborated in advance, and all those involved be well-informed on the tasks and roles they take on when a crisis occurs, when it defuses and during the recovery phase.

4.2. Research results

4.2.1. The Asiana Airlines case study

Asiana Airlines, Inc. is one of the two leading airline companies in South Korea, the other being Korean Air. Asiana Airlines, the smaller of the two, was founded on 17 February 1988, with the headquarters in Seoul, South Korea.

On 6 July 2013, a Boeing 777 owned by Asiana Airlines, travelling from Seoul to San Francisco, crashed during the touchdown on a landing strip at San Francisco airport. There were 291 passengers on flight 214. Tree passengers lost their lives, 182 were injured, including 16 crew members. The accident has become a vivid example of how news spreads quickly across social networks and showed that good communication at all levels of the organisation is important, and how silence should not be an option. Not a minute after the plane crashed, Krista Seiden, who was waiting for a plane to take off not far off the crash site, shared a photo of the accident on her Tweeter profile. In less than 20 minutes, many reporters started sharing Krista's post and tried to contact her. Within a day from the incident, Krista's photo and the Tweets were cited in thousands of articles. Besides Krista, many other passengers also used social networks to spread the news and to let their family and friends know they were safe (Besley, 2014)

Picture 1. Krista Seiden – The Tweet at the moment of the Asiana Airlines plane crash

Source: Twitter - https://twitter.com/kristaseiden/status/353581509984260099

Starting with Krista's post, the information continued to be shared with the hashtag #SFOcrash and, very shortly, it became a headline in all the relevant press and all the important portals. A communication crisis occurred because the organisations (Asian Airlines, The US National Transportation Safety Board and the Boeing Company) failed to feed the public relevant information.

Asiana Airlines posted their first Tweet at16:39 to express their regret. Seven hours after the accident, Asiana Airlines finally issued their first public statement on other social media and the company's official website. The statement said Asiana was participating in the investigation to find the cause of the accident. Four statements were posted on their website until July 13, offering the phone number people could call to find out more information, expressing deepest apologies, and offering accommodation for the families of the victims. These efforts were all aimed at reducing emotional stress for all the involved in the incident. After July 13, Asiana did not provide enough information and support to the public. They

failed to present the public with new findings and information on regular basis and returned to the usual communication on social networks, like user support, flight promotion and various prize contests. To top it off, they completely ignored the comments and media reports coming outside Korea. A free phone line for passengers and families was set up not until nine hours after the accident. The company refused to form a communication team in the USA, and not until three days after the incident had happened, the CEO was sent to San Francisco airport to apologise, meet with the officials and start an investigation into the crash. This accident did not only involve the two countries, South Korea and the USA. It forced the company to communicate with the authorities of these two countries, but also to address their publics. They also failed to hire a spokesperson who would command more knowledge of the local culture and effective communication with the media, which would have been a wise thing to do, since the crisis was international. Instead, the CEO Yoon Young-Doo took over the communication with the public. Via their public statements, Tweets and posts on other social networks, Asiana Airlines expressed their deep condolences and apologies, but they did not take full responsibility for the incident. During the first press conference, Yoon Young-Doo denied the cause of the crash to be pilot error and inexperience. The company also declared that the plane had problems with automatic control of speed and implied that the Boeing company was responsible, but a part of responsibility was also placed on the crew. Later, Asiana promised to offer the survivors ten thousand US dollars as a form of support and compensation, but the Korea News Agency later found out that the families were supposed to agree to special terms in order to receive the money. Silence strategy they employed for a couple of days after this prompted much criticism from the media and the rest of the public.

Poor communication and lack of a plan to follow from the moment of the crash and after, when dealing with the victims and their families, resulted in the drop of stock value of the company by 5.8% by the end of the day, and 6.64% by the end of the month (Jun, 2013). With the corporative policy that promises adamant safety and the company's failure to fulfil this promise, what followed was that the company lost the trust for the users and suffered a huge reputation crisis that resulted in many loyal passengers to choose other companies.

4.2.2. The Germanwings case study

Germanwings was a German airline with the headquarters in Köln, owned by Lufthansa. It was founded in 1997 as a low-cost airline named Eurowings Flug GmbH, renamed to Germanwings GmbH in 2002.

On 24 March 2015, flight 9225 from Barcelona to Düsseldorf, an Airbus A320-211, crashed in the French Alps. All 144 passengers and six crew members died on site. The investigation conducted by the German police authorities revealed that the co-pilot Andreas Lubitz caused the crash. They listened to the cockpit voice recordings and found out that the co-pilot had been looking into the methods of suicide and the mechanism to lock the cockpit door. Although the crash site is very difficult to access, the news of the crash spread fast. Flightradar24, a Swedish online flight tracking service that provides real-time information on commercial flights, was one of the first to report on the crash on its Twitter profile, saying that they had lost the Germanwings 9525 flight from radar. Within the next hour and a half, the post was shared over 2,000 times. Germanwings posted their first Tweet an hour after the crash and shared the news on Facebook and their official website. After the official statements had been made, they called the public to follow their official website for further information, but after a while, the official website crashed because of a large number of visitors. At that point, social networks played an important role as a communication channel (Brataas, 2018).

Two hours after the crash, Germanwings and Lufthansa darkened their logo colours on their Tweeter and Facebook accounts, which has become a common practice with the airlines

in the times of such sad events. Two and a half hours after the crash, they confirmed the incident with the hashtag #indeepsorrow.

Picture 2. Changed Germanwings logo

Source: https://www.handelsblatt.com/unternehmen/dienstleister/krisenkommunikation-bei-germanwings-lufthansa-hat-sehr-professionell-reagiert/11554866.html

On that day, the Lufthansa CEO Carsten Spohr and the Germanwings CEO Thomas Winkelmann did not let others to take over and resolve the situation. Instead, Spohr played the key role in the next days and weeks. His name was the first to enter the public and the way Lufthansa implied that this catastrophic event will be dealt with by the highest level of the company. During the first conference, he expressed regret and shock, but also commitment and concern, and a few hours later, he recorded a video in German and English that was posted on YouTube. In the video, he promises that Lufthansa, as the mother company, will support the families of the victims completely, anywhere in the world, and that safety in an airline company is not just a given fact, but also something everybody should continuously work on. With this statement, he showed the honest, personal side and no one could challenge the fact that in the most sensitive period for the families of the victims, Lufthansa took over full responsibility. They went a step further; since the crash site was so inaccessible, Lufthansa organised two special flights from Barcelona and Düsseldorf to Marseilles, where a help centre for the families was set up. Also, mourning books were created on the official Lufthansa websites.

After the catastrophe and taking the responsibility, there was a serious threat to reputation to both Lufthansa as the mother company and Germanwings. The company took over responsibility and used the apology strategy in crisis communication which is a prerequisite for rebuilding the reputation. Good communication with both internal and external public and regard and compensation for all the families of the victims helped the company to grow stronger.

4.3. Results comparison – Asiana Airlines and Germanwings

The results of both studies show how, for maintaining the business continuity and successful crisis management, having an elaborate and tested crisis communication plan within the framework of the business continuity plan is of extreme importance.

Table 1. Elements of business continuity plan at Asiana Airlines & Germanwings

	Risk identification	Analysis of the impact on the business activities	Management strategy	Plan implementation
ASIANA AIRLINES	- security risk at workplace and safety and health risks for the users rated "low"	- relevance of the emergence of these risks rated "low"	- no crisis management plan, silence strategy used - in the year following the crisis, developed a system for integrated crisis management and response to crises	- not before a year had passed, they started giving more attention to raising the quality and implementing the plan
GERMANWINGS	- risk assessment of a crisis or a natural disaster rated "considerable"	- relevance of the emergence of these risks rated "high"	- in the situation of an acute crisis, the Lufthansa group placed great priority on offering coordinated help which met the real demand - situational-communication approach	- regular trainings offered to employees

Source: compiled by the author based on the report on sustainability and the annual report for the years when the incidents occurred, available at https://flyasiana.com/C/US/EN/contents/sustainability-report and https://investor-relations.lufthansagroup.com/en/publications/financial-reports.html

The case study of Lufthansa and its daughter company Germanwings shows that the company has a well-developed crisis communication plan and a well-trained crisis team. They used the situational communication approach, combining compensation, apology, and support. Both companies were in great danger of ruining their reputation, especially because the crash had been caused by their crew member, i.e., the co-pilot suicide, resulting in killing 150 more people on the flight. This can be also interpreted as a crisis that could maybe be prevented if the crew had taken psychological tests. On the other hand, Asiana Airlines experienced a crisis that one can characterised as a smaller one, because there were fewer fatal casualties. Better communication and support after the incident could have prevented the reputation crisis that later on hit the company. Asiana did not have any communication plan and the news of the crash was officially announced hours after the incident had occurred and spread via unofficial channels. Also, the guilt was placed on the airplane manufacturer, the Boeing, because of the alleged technical errors and a part of the responsibility was placed on the cabin crew.

Table 2. Crisis communication at Germanwings & Asiana Airlines after the crashes

	Germanwings	Asiana Airlines
Crisis team	• honest • informed • provided timely and authentic information	• no crisis team • no international spokesperson

Internal communication	• employees are informed on the procedures and prepared for a potential crisis	• communication with the employees through the media
External channels of communication	• clear, authentic and timely information from official sources • mass media • public announcements • free phone line for family victims and the public • up-to-date website	• official information given late • information given mostly by the people that participated in the incident • phone line for the public set up not until nine hours after the crash • senior managers appear at the crash site three days after the crash

Source: compiled by the author

Unlike Asian Airlines, Germanwings was ready for the crisis. They had a ready-made communication plan, and they used the situational communication approach. Asian Airlines also failed to react on time after the crisis occurred and they resorted to the defensive silence strategy. Moreover, transferring the responsibility only heightened the feeling in the public how the company could not handle the situation. This, too, did not help the company's reputation and the reputation crisis that was on the horizon. Asiana Airlines, although the incident was of international character, failed to engage a spokesperson who would understand cultural differences. Instead, the CEO took over that role, but he did not adjust the rhetoric to the public he addressed. The messages were not given on time and were not entirely authentic, and the compensation offered to the victims was never claimed because of special terms put forward by the company.

These case studies show that the unreadiness of the internal public and the lack of a crisis plan can lead to damaged reputation, and consequently cause financial trouble. A well-developed business continuity plan has to incorporate a detailed crisis communication plan. Readiness and a functional plan will more often lead to good outcome and to using the crisis to learn, develop and adapt. Lack of an appropriate plan will most certainly only deepen the crisis.

5. CONCLUSION

A crisis that will most certainly hit any company at one point sooner or later represents danger to the company's survival. Some crises can be foreseen. But, when that is not the case, knowing the risk and its possible impact is of great importance for the company to be able to continue good business practice. As the complexity of a business grows, the possible risks and their probable impact on the business grow as well. Planning helps companies stay alert and ready for such events to shorten or prevent disruptions in their business activities. With the investments in business continuity plans, an organisation can alleviate emergency situations, crises and catastrophes and ensure a framework for building a capacity for recovery and an effective response and protect the parties involved. When developing a plan for business continuity, organisations have to put emphasis on communication during a crisis because lack of a communication plan is the most common reason for the damage caused to the company's reputation.

Negative perception from the public, brough about due to neglecting to offer authentic information during the crisis, supports the need for communication planning even more. A good communication plan should define in detail the target public the organisation wishes to address, the goals of the organisation, the messages it wishes to transfer and the suitable channels for communication. Although external public is important for the company because it forms its general image, companies should not forget internal public, i.e., their employees. Emphasis should be placed on the satisfaction, safety, education and awareness of the employees because they make the company. Every form of communication, internal or external, has to be timely, honest, authentic and relevant to the public.

To conclude, every organisation, and especially large corporations, should have a ready plan for managing business continuity, and a crisis communication plan as a part of the general business continuity plan. Time perception at the point of the emergence of a crisis changes and that is why it is crucial that all the involved have clear and detailed procedures to follow so not to waste precious time that is limited in these situations. Successful overcoming the crisis leads to learning from it and, consequently, reducing the possibility of such a crisis to occur again.

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