COVID-19 Pandemic in the Hotel industry

La Fondation pour la Formation Hôtelière project outputs

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Content

1   Introduction and theoretical background

The risk of a pandemic, transformed into a global crisis. The externality of the pandemic began to act aggressively in all parts of the world. The tourism and hotel industry experienced the negative effects particularly intensely. To what extent are risk management processes at the government level helpful in this crisis? Is risk management an essential prerequisite for dealing with the risks that have manifested themselves in the pandemic crisis? Is it the beginning of a solution to the crisis? Is it inventory – only the starting point or a prerequisite for risk elimination? To what extent was the business sector of the hotel industry able to face the risks in the first year 2020 and in the first months of the second year 2021 of this crisis?

These questions were answered through an international scientific survey in 7 countries: the Czech Republic, Croatia, Hungary, North Macedonia, Slovakia, Ukraine, Turkey. The survey was part of a scientific project. "Crisis Management: National Responses to Potential Risks to the International Holiday Market posed by the COVID-19 Pandemic in the Hotel Industry". It is the project that forms the basis of the submitted scientific publication. This scientific research project was kindly supported by "La Fondation pour la Formation Hôtelière" and this one is registered at the University of Economics in Bratislava Z-21-102/0009-10.

The main international co-ordinator:

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Scientific survey partner´s universities and responsible national co-ordinators delivering collected data:

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Risk is the probability of an outcome having a negative effect on people, systems or assets. The Risk is typically depicted as being a function of the combined effects of hazards, the assets or people exposed to the hazard and the vulnerability of those exposed elements (UNDRR, 2020). Risk is the impact of uncertainty on the achievement of set objectives (Rybárová and Grissakova, 2010). The sheer number of people on earth, the changing climate and the dynamic connectedness requires that we revisit assumptions about the relationship between past and future risk. Because the planet is a network of interconnected systems, the risk is complex (UNDRR, 2020).

New approaches to dealing with risk are presented by the United Nations Office for Disaster Risk Reduction (UNDRR) The aim is to reduce existing sources of risk in the world and to limit the creation of new risks. Risk is ultimately the result of the choices we make the duty to reduce risk is everyone's business. Nothing undermines development like a disaster. United Nations Disaster Reduction Risk presents the strategic goal "Disaster risk reduction governance strengthened at global, regional, national and local levels and underlines the need for good, permanent information for analysis to reduce risk and inform development decisions." (UNDRR, 2021).

The importance of political and economic risks is evaluated by COFACE. The level of resilience of states against risks is expressed by the classification of states into categories A, B, C, D, and E. This is a ranking of the state and its business environment in specified sectors according to the impact of risk. Very stable countries are relatively risk-free A1; countries with a low probability of risks – A2, higher probability of risk without influence on stability is in countries – A3, risk of possible negative changes is A4. Each year there is some regrouping, mainly within groups B – D, which represent the economic and political environment as unstable B, very unstable C, very risky D to extremely risky E. COFACE Sector risks present 10 industries including transport. The travel industry and hotel industry are not involved (COFACE, 2019).

The three-stage risk management is based on a basic understanding of risks and their level of resolution. The three-stage risk management is based on

a basic understanding of risks and their level of management. Strategic risk asset – SRA deals with risks that arise from policy and values, strategy, and resources. it deals with risks that arise from policy and values, strategy, and resources.

Predictive risk asset – PRA is linked to the legal system and legal requirements. Dynamic risk asset – DRA reacts to changes in the environment. Predictive Risk Assessment – PRA is connected to the legal system and legal requirements (Asbury and Jacobs, 2014).

Dynamic risk assessment assumes probability calculations applied in dynamic models. New approaches to risk analysis imply distinguishing general risks from specific risks. Dynamic risk estimation assumes probability calculations applied in dynamic models. New approaches to risk analysis imply distinguishing general risks from specific risks.

General risk analyses are based on theoretical foundations, principles, models and methods with new perspectives in the field of risk science; specific risks require applied analyses of specific actual problems (Aven, 2019). Related to this, some procedures represent risk retention, risk reduction or risk transfer (Baláž et al., 2010). Specific risks can also be seen in the classification of so-called routine and occasional risks. Routine risk is considered a normal part of life, with the implication that people consider these risks desirable, acceptable or normal, or believe they have no choice. In contrast, increased attention is paid to occasional risks (Zinn, 2017).

The practical outcome of the need to address routine risks in travel conditions is presented by standards and norms. The introduction of standards results from the obligation of organisations, institutions, and companies to pay attention to risks and address those that threaten their employees on business trips or while operating abroad. These are best practices in developing, implementing and assessing the policy situation, threat and hazard identification, risk assessment, establishing a prevention strategy, and incident management, including mitigation measures, reaction, and communication and responsibility rules (PAS 3001:2016, 2016). To do managing responsibility for the health and safety of the employees and staff requires thinking about what might cause harm to people and deciding whether a company is taking reasonable steps to prevent that harm (RISK ASSESSMENT, 2014).

The negative nature of the risk arises from the uncertainty of achieving the objectives. However, several authors present risk as a positive motivating

factor in management. Properly managed, risk can also represent anopportunity for entrepreneurship (Vochozka et al., 2012). The risk is an opportunity, which is reflected in risk management at the level of strategy and setting up of processes (Častokrál, 2017). On the one hand, risk makes it possible to achieve extremely favourable economic results, but on the other hand, it is a danger of failure, which can cause losses (Šimák, 2006). Unmanaged risk can cause a crisis as a logical consequence of existing risk, its after-effect or even as a culmination of the risk itself (Mikolaj, 2001).

Crises of an economic character usually have a slower and milder course compared to those caused by an accident, a pandemic or a natural disaster. The speed at which a crisis develops varies. The two types of speed of crisis are due to the strategy that was adopted. The prevention strategy is a sign of a slowly evolving crisis and the coping strategy predicts a rapid decline of the crisis. "Each type of crisis requires a differentiated strategic approach" (Zuzák, 2004). The dynamics of a crisis are determined by a range of factors and the nature of the crisis. It is therefore "necessary to monitor the risks and to identify the subsequent crisis promptly" (Umlaufová and Pfeifer, 1995).

The World Travel & Tourism Council has embarked on a journey to compile quantifiable best practices across Travel & Tourism, intending to learn from the successful experiences of other countries as they develop, review and implement Travel & Tourism related policies. In the wake of COVID-19, the policies and practices include the main basic topics: (WTTC, 2021)

Facilitating Travel: regarding the implementation of practical policies to the aid examples of governments; mainly funding the repatriation of nationals and rolling out vaccinations swiftly, encouraging leisure travellers to return with visa facilitation, complementary COVID-19 insurance, and less stringent border entry conditions.

Worker Protection: to take action to retent employment, to protect people's jobs and pay their salaries with help from the government, and to develop the training and re-skilling schemes aimed to prepare the people for future roles.

Fiscal: highlighting some of the more effective tax and fee exemption measures that helped Travel & Tourism businesses in particular.

Liquidity: highlighting the more notable and generous measures applied to support these businesses.

Other Measures: HR policy concerning the recovery of Travel & Tourism in conditions of pre-planned infrastructure upgrades (WTTC, 2021).

Dealing with crises means a disaster (crisis) plan must be developed. Good crisis management requires policies to deal with each stage of a crisis if the destination is to prevent or minimize a crisis. Detection policies, minimization policies, readiness policies, and recovery policies Telling the truth is a vital crisis management policy (Goeldner and Ritchie, 2016).

"Tourism cannot be isolated from external influences, with negative developments in the external environment often accelerating the crisis in that sector" (Henderson, 2007). Global crises do not occur regularly in repeating cycles. However, their impact is significant and affects everyday life. Tourism largely satisfies higher needs, which, due to the global crisis on the international market, comes into focus only in the second or third phase. Local crises, which arise as a result of major disruptions or collapses of a local nature (natural disasters, illnesses, terrorist attacks, etc.), are mainly short-term. "Based on past developments and experience, it can be concluded that, with significant public sector support, local crises can be overcome within one to three years". However, these often become global in their intensity of impact (Novacká, 2009).

Risks are also reflected in people's thinking and emotions. The authors of the Well-being Study explored the link between risks and emotions by surveying 375,000 respondents from 35 countries. The surveyed risk categories show the effects of risks to life evaluations. These risks include a variety of different challenges to well-being, including discrimination, ill health, unemployment, low income, loss of family support, or lack of perceived night-time safety. Named risks are significant, for respondents with relatively low trust in other people and in public. Interaction of social environment with risks affect in subtotal value -3,46 points. The most important risk is Ill and healthy. This risk creates the share 28,32 % of total "risk affects" in value – 0,98 points. It is important to know the consequences of the risks in particular – which negative emotions were responsible for an increase of negative affect in the trends of well-being. The main three negative components of emotions affect: "worry, sadness, and anger".

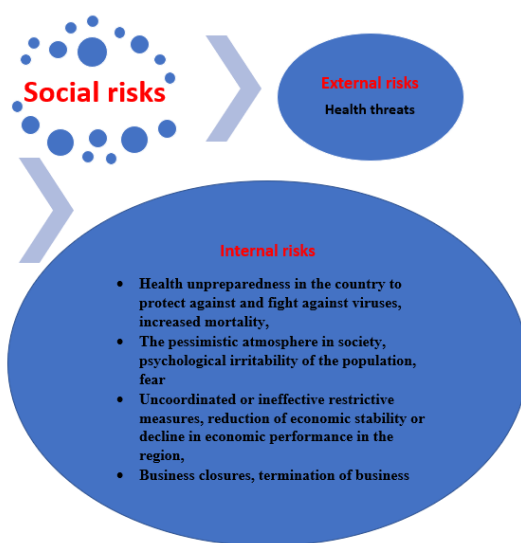**Figure 1**   World Dynamics of Components of Negative Affect

People reporting worry increased by around 8~10 % in the 9 years. Sadness is much less frequent than worry, although the trend is very similar. Anger panel also shows an upward trend in recent years, but contributes very little to the rising trend for negative affect (Helliwel et al., 2020).

Most authors identify global risks in terms of the categorization applied by Schwab K. et al in their annual Global Risks Reports These are economic, geopolitical, environmental, societal, and technological risks (Schwab et al., 2021).

These are the basis for the identification of more than 30 globally significant risks. Risk monitoring can be a starting point for strategies and more qualified strategic decisions in many areas.

External and internal risks are interlinked, regardless of the risk category. Global – the external risk of infectious disease threats and pandemics is part of societal risks. The interconnection between external and internal risks appears as follows:

Figure 2   Links between external and internal risks

Social risks

External risks
Health threats

Internal risks
- Health unpreparedness in the country to protect against and fight against viruses, increased mortality,
- The pessimistic atmosphere in society, psychological irritability of the population, fear
- Uncoordinated or ineffective restrictive measures, reduction of economic stability or decline in economic performance in the region,
- Business closures, termination of business

Source: authors' elaboration

In the Global risk reports, the risks are evaluated in the impact trajectory on a scale of 1 – 4 and in the likelihood trajectory the scale is from 1 to 4.5. We select the evaluation of societal risk "Spread of infectious diseases", technological risk "Critical information infrastructure breakdown" and Economic risk Asset bubbles in a major economy from the reports for the years 2018 – 2020 (Schwab et al., 2021). The question, when do respondents forecast risks will become a critical threat to the world, 58 % of respondents identified infectious diseases a critical clear and present dangers short term risks in horizon 0 – 2 years. The similar opinion expressed the World Economic Forum 's network of young people driving dialogue action and change (Schwab et al., 2021).

Table 1   Assessment of selected global risks

	Spread of infectious diseases		Critical information infrastructure breakdown		Asset bubbles in a major economy, Asset bubbles burst (2021)	
Year	Impact	Likelihood	Impact	Likelihood	Impact	Likelihood
2018	3,5	3,1	3,4	3,2	3,3	3,5
2019	3,6	3,1	3,7	3,4	3,4	3,7
2020	3,7	2,85	3,7	3,25	3,4	3.4
2021	4,25	3,8	3,6	2,9	3,3	3,3

Source: authors' processing according to Schwab et. al. (2018; 2019; 2020; 2021)

It is clear from the data above that a global pandemic of COVID-19 was not expected by experts to be a significant global risk until 2021. In the 2018 – 2020 reports, the risk of *the Spread of infectious diseases* was ranked as high as 10th in the order of likelihood top risks. It was only in a report published in 2021 that this risk jumped to the 1st place as a top risk.

Figure 3   Selected global risks impact and likelihood in the period 2018 – 2021
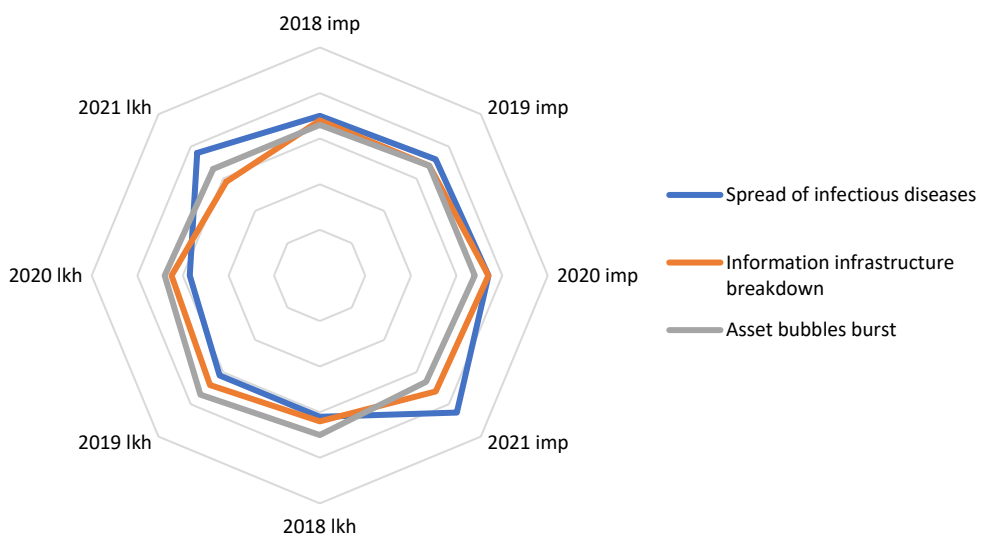
Source: authors' processing according to Schwab et. al. (2018; 2019; 2020; 2021)

In the latest 2021 report, new risks have been identified and they are linked to or are a consequence of, the Spread of Infectious Diseases. These include new societal risks: Social security collapse, Livelihood crises, Backlash against science, and Mental health deterioration. All these social risks ultimately represent a negative impact on potential demand and consumer spending in the hotel industry. They multiply the emergence of new economic risks: Debt crises. Prolonged stagnation, Price instability, Industry collapse. These risks also determine business uncertainty and instability in the hotel industry.

Risk management is ever-current and vibrant. It is a constantly developing system. It reflects anticipated risks or unknown potential risks to eliminate or reduce them. We share the experts' view that "model risk management is a new risk domain, rather than just part of regulatory risk. We should not underestimate the business advantage of functioning and efficient

model risk management. Better transparency and compliance generated by reliable models are directly reflected in the balance sheet. For example,

improved model risk management at one organization helped identify a flawed model, eliminating misallocations and resulting in a direct positive effect on profits" (SAS, 2019).

It is necessary to incorporate the risk management model at all levels of state administration, local government and the business sector. Reducing existing risks, preventing the creation of new risks and building resilience takes a whole-of-society approach. And they all take committed leadership and governance (UNDRR, 2021).

The pandemic crisis affected different destinations in different ways. The conditions for travel changed very fast in several days. There was uncertainty on both sides of the market, hotels and travellers. State authorities determined the regime of life in special categories. About COVID-19 the travel restrictions by destination were valid in the form of various categories: Complete closure of borders, Partial closure of borders, Destination-specific travel restriction, Suspension of flights, all or partial, Medical certificate, Different measures (Quarantine, Lockdown), COVID-19 travel restriction lifted. The external borders of the European Union (EU) have been closed to many non-EU citizens for more than four months. For the internal borders in the Schengen area, various restrictive measures have been applied. However, many countries still keep (September 2020) their borders closed with impacts not only on international tourism but significant side effects on their economies and societies (UNWTO, 2020). The International Organization for Migration (IOM) has developed a COVID-19 Travel Restriction Monitoring database. For example, on 10 March 2020, IOM recorded 5430 restrictions in the database imposed by 105 countries, territories, and areas and by 23 March there were 33 712 restriction imposed by 164 countries, territories, and areas in the data highlighting the unprecedented rate and scale of impact on mobility around the world (Me and Fu, 2020).

FAO data lab model was constrained network of the most associated terms to COVID-19, and has been trained to find and extract new terms. The word "hotel" was in the list of most frequent 17 words related to food (Me and Fu, 2021).

Agenda 2030 proposes the transformation of the world, as well. The "5P" (people, planet, prosperity, peace and partnership) navigates all stakeholders in their processes aiming to achieve sustainable development. Agenda 2030 sets requirements, which involve competencies belonging to

national governments, local authorities and their public administrations, local residents, the scientific and academic community and all the people. The broad

spectrum consisting of 17 basic goals is applicable in the hotel industry. Regarding the topic of our survey mostly, it involves three goals. The UN has promoted these goals at global congress events. These focused on the following themes:

Goal 3: Ensure healthy lives and promote well-being for all at all ages. Related to this goal is dominant the issue of Health and Population

Concerning the COVID-19 pandemic, it paid attention to vaccines: scientific advances, access models and vaccination acceptance.

Notice: Experts formulated and addressed the questions:

1. What is the status of scientific research advances in COVID-19 vaccines? What are the implications for policy?

2. What are the most promising models for universal access? What are the most needed high-priority actions in this regard?

3. How can the public trust in science be earned, vaccine literacy is built, and misleading vaccine information and vaccine hesitancy be addressed?

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable. Related to this goal we have to mention Disaster risk reduction.

In the period 2004 – 2016, the UN addressed this issue mainly from the aspect of natural disasters and calamities. Pandemics and health disasters have not been a focus of discussion at UN global events on Disaster Risk Reduction.

Notice: United Nations International Conference on Space-based Technologies for Disaster Management – "A consolidating role in the implementation of the Sendai Framework for Disaster Risk Reduction: 2015 – 2030"

Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development (Make the SDGS a reality, 2017). Related to this goal, the theme of finance was communicated from the COVID-19 aspect. The current economic problems arising as a result of the COVID-19

pandemic and other consequences were the basic starting point of the expert's and scientists' discussion.

Exploring the Impact of the COVID-19 Pandemic on MSMEs. discuss the impacts of COVID-19 on MSMEs, including policy measures adopted by countries to support MSMEs in response to the outbreak of the pandemic and to enhance MSME resilience towards external shocks during the recovery phase.

Economic and Social impacts of COVID-19 experts from UN DESA communicated their latest findings on the social and economic impacts of COVID-19 as well as the policy recommendations.

The COVID-19 pandemic has changed processes in all service sectors, and many researchers have identified problems with interaction and communication in limited modes. The pandemic period has shifted the digital economy from using multiple digital activations to creating gamification capabilities. The specifics of building a digital economy have been identified and elaborated through an optimal scenario to further digital innovation within the global economic system. The exchange of information and the ability to put it into practice was one of the decisive factors in coping with pandemics and the post-pandemic period (Benčič et al., 2020).

Changes, which are proposed by the 2030 Agenda, are reflected in transforming policies, transforming businesses a transforming consumption. About COVID-19 Pandemic in the hotel industry – they may apply named basic principles, as well.

The clustering process in terms of economic and innovative processes as well as procedures in the hotel industry correspond to the general procedure of hierarchical cluster analysis – implementing the algorithm of the cluster analysis model. Cluster analysis was developed and published mainly in Stankovičová and Vojtková (2007); Rezáková et al., (2007); Feser (2008); Han et al., (2011); Everitt et al., (2011); Melon et al., (2012); Saraçli et al., (2013); Hennig et al., (2015) and Gáll et al., (2021).

2   Objectives of the project: Crisis Management: National Responses to Potential Risks to the International Holiday Market posed by the COVID-19 Pandemic in the Hotel Industry

The scientific project "Crisis Management: National Responses to Potential Risks to the International Holiday Market posed by the COVID-19 Pandemic in the Hotel industry" was supported by La Fondation pour la Formation Hôtelière, and registered Z-21-102/0009-10 at University of Economics in Bratislava.

Great gratitude authors express to all responsible national co-ordinators for their active serious co-operation and contribution to form the appropriate database.

The objectives of the research project are scientific, professional and social.

The main scientific goal is:

- to analyse the risks issue's in the link of international and national markets
- to discover the consequences of pandemics COVID-19 in the hotel industry in selected countries by common survey and collective approach to data collection.

The professional and social goals focused the co-operation of seven partner universities team with the aim to present scientific commitment related to actual problems of crisis and the consequences in the hotel industry.

Primary research in the hotel industry in seven countries forms the basis for:

- to identify the ability of the hotels to provide the business in conditions of crisis management due to the risks incurred by the pandemics COVID-19 with the aim to present the consequences in the elimination process
- to recognise the negative impacts of selected risks (economic, social-healthy, technological, political, environmental risks) on hospitality providers, hotels and hotel companies, which were subsequently reflected in the crisis (occupancy, changes in demand and consumption, employment, termination or cancelling of business activity, preconditions to bankruptcy etc).

- to summarise the forms, methods, conditions success or obstacles of direct and indirect support for hotels by the public institutions (government, local government)
- to detect positive impacts that have developed as a result of risk and emerging crises and good practices of actors in the hospitality market (a crisis can cause damage, but a properly managed risk can also initiate a new opportunity and challenge.

2.1   Methodology and methods

Data collection for the research on the economic situation in the hotel industry in the COVID-19 period in 2020 and 2021 was carried out by making enquiries in specific hotel businesses in 7 selected countries in Central, Southern and Eastern Europe.

Croatia, Czech Republic, Hungary, North Macedonia, Slovakia, Turkey, and Ukraine. The partner university in each country was contacting hotels according to the established structure in their country and communicating the distribution of questionnaires from "their" source market.

In each country, the partner coordinators approached specific hotels according to a quota selection based on a formal qualitative classification of hotels from 5* to 3* with a minimum of 20 hotels/source market.

The opportunities and conditions for data collection were not the same in all source states due to the pandemic already in progress. During the lockdown period, hotels were completely closed and could only be contacted at a time interval. For a long period, the hotels offered limited services. The mentioned phenomena occurred at different time intervals in the surveyed countries. The pandemic also personally affected some of the national partner coordinators and limited their health availability.

Despite the above external determinants (conditions), we received a total of 160 correctly completed questionnaires. The criterion of a minimum number of questionnaires was exceeded by +14.3 %. This number of questionnaires was included in the analytical processes of our survey.

Table 2   Schedule of the research process

Year 2021	March	April	May	June	July	August	September	October	November	December
Aim of the research project	x									
FH partners schools	x									
Research methodology	x									
Content of questionnaire	x, 5, 1, 3, 7									
Pilot testing of questionnaire		x								
Translation to the national languages*		1, 2, 3, 5, 6, 7					4			
Dissemination by Survey Monkey			1, 2, 3, 5, 6, 7					4		
Data collection				1, 2, 3, 5, 7	1, 2, 5, 6, 7	1, 2, 7	1, 2	4		
Interim information to FH	x			x		x	x	x	x	x
Data processing									x	
Final report and compact publication								x	x	x
English version										x
Review										x

The legend:

x responsible main co-ordinator Slovakia; 1 Croatia; 2 Czech Republic; 3 Hungary; 4 North Makedonia; 5 Slovakia; 6 Turkey; 7 Ukraine;

* Translation of questionnaires was done into Romanian and Bulgarian language too
Source: author´s processing

The text of questions in the questionnaire was partially modified based on the validation pilot testing Survey Study using a sample of 15 hotels in the Slovak republic. Based on official statistics considering the structure of surveyed hotels, there was a quota structure derived by categories (standards). Quota structures hotels denote their service standard level (*rate) were maximally taken into consideration in the surveyed countries.

The text of the questionnaire was based on the English version. This text in selected language versions (Bulgarian, Croatian, Czech, Hungarian, Macedonian, Romanian, Slovak, Turkish, Ukrainian, were inserted into Survey Monkey. This electronic system represents a paid system that was opened for all partner universities. The costs of fee payment were increased due to the longer collection period of questionnaires which is also why there was a need for multiple prolongations of the system. In any case, this fact does not affect the work and quality of data. A data entry file with entering addresses for each country, which was sent to all survey partners.

Survey Monkey created opportunities for a perfect overview of the number and quality of completed questionnaires at a given time. Each coordinator "co-researcher" from the named universities was provided with data from hotels for "his" country's surveyed source market.

Table 3   Language versions of the questionnaire

EN version:	https://www.surveymonkey.com/r/ZD7VHSD
CRO version:	https://www.surveymonkey.com/r/BGKML7N
CZ version:	https://www.surveymonkey.com/r/DCHYR85
NM version:	https://www.surveymonkey.com/r/XC6BT3G
HU version:	https://www.surveymonkey.com/r/DCHYR85
RO version:	https://www.surveymonkey.com/r/T9BLMLK
SK version:	https://www.surveymonkey.com/r/XC6BT3G
TR version:	https://www.surveymonkey.com/r/LQGWDZ9
UA version:	https://www.surveymonkey.com/r/T9BLMLK

Source: author´s processing

Methods of analysis, comparative analysis, correlation, synthesis and mathematical-statistical methods have been used to meet the purpose of their reports. Synthetic conclusions were based on the survey results. Basic files of questionnaires were worked out by the software system Survey Monkey. Others calculations were elaborated by MS Excel, and by statistical software Statistics 8.0 by using frequency and cross charts. For the calculation of correlations the package, SPSS 17.0 was applied by the calculation of Spearman correlation coefficients. The total number of questionnaires that have been entered into the Survey Monkey system was 160, from the following countries (in alphabetical order) Croatia – CRO, the Czech Republic – CZ, Hungary – HU, North Makedonia – NM, Slovakia – SK, Turkey – TR, Ukraine – UA. In the process of a full evaluation, the data from hotels in Bulgaria and Romania were omitted because of the lack of a representative sample of hotels.

The initial basis for data selection for exploratory factor analysis (EFA) consisted of responses to 23 questions in four thematic blocks.

a) Identifying data represented the factors needed for correlational relationships. The identification questions were aimed at filtering and sorting the respondent hotels according to the selected identification criteria: State where the hotel is located, Competence of the hotel, Hotel level according to classification, Type of the hotel, The number of rooms, The number of employees (permanent full-time) and Opening time of the hotel in standard conditions.

b) Data on the economic performance of the hotels reflected standard economic indicators at quarterly intervals in 2020 and 2021. responses to the questions focused on the implications of how COVID-19 affects the hotel business in the period 2020 compared to the year 2019 and the 1st Quarter of 2021 compared to the year 2019. All responses provide data on the evaluation of selected revenue management indicators.

c) External sources of funding, mainly from the state budget, investigated factors that constituted the inputs of positive deformation of the economy of the surveyed hotel units (aid to survive the crisis). Answers to questions on financial support from the state; conditions for obtaining financial support, the purpose of the support, the amount of financial support, and a statement concerning the extent of financial coverage of the hotel's needs created comparative data.

d) As a result of the pandemic, respondents specified innovations in processes and procedures in both managerial and operational activities and expressed an expectation for the future operation of the hotel.

Exploratory factor analysis (EFA), followed by cluster analysis. Cluster analysis revealed 2 different clusters, labelled: Economy dimension and Hotel product.

To express the economic dimension and the hotel product in the form of clusters in our research, an agglomerative approach is used. In the beginning, each object under study (inquiry country, economic indicators, innovative process, and procedure in the hotel industry) is a separate cluster. The separate clusters are gradually merged into sub-clusters from the most similar to the least similar objects until the result is a single cluster (Gáll et al., 2021).

The basis of most association methods is to determine the degree of similarity of objects. Several authors of the cluster analysis require that the maximum difference of the investigated objects under study be expressed as zero and the maximum identity to be one (Feser and Luger, 2003; Feser, 2008; Stankovičová and Vojtková, 2007; Everitt et al., 2011). We evaluate distance measures based on quantitative data obtained from our research. Distance measures are the basis for the presentation of objects in space, the coordinates of which represent the individual variables. Euclidean distance, otherwise

known as geometric distance, is used in the research. It is one of the most widely used metrics which is given by the following relation:

$$d_{ij} = \sqrt{\sum_{k=1}^{n} \left(X_{ik} - X_{jk}\right)^2}, \qquad (1)$$

d_{ij} ... Euclidean distance
n ... number of variables
X_{ik} ... value of the *k*-th variable for the *i*-th object
X_{jk} ... value of the *k*-th variable for the *j*-th object

We gradually divide cluster analysis into two types – hierarchical clustering methods and non-hierarchical clustering methods. The principle of the method is the creation of a cluster hierarchy, where are used agglomerative and divisive approaches. The divisive approach assumes that at the beginning all the examined objects form one cluster which is gradually divided into a state where each object is a separate cluster.

The analysis was created based on questionnaire survey results in the R programming language (R Core Team, 2021). The input-analyzed variables were initially standardized in the program environment to ensure the correct determination of the distances among the examined objects. The second phase was to perform correlation analysis, thus eliminating a strong dependence among the variables – so that in the case of a high dependence, the total number of analysis indicators does not have to be reduced.

The resulting interpretations of the optimal dendrogram and the subsequent visual comparison were created in a cartogram in the R programming language.

3 Pieces of evidence and evaluation of the hotel industry in selected countries Croatia, Czech Republic, Hungary, North Makedonia, Slovakia, Turkey, Ukraine

We present the identification of hotels in the above countries according to selected factors (identifiers). We have included 160 hotels from 7 named countries in the survey. We use standard abbreviations (CRO – Croatia, CZ – Czech Republic, HU – Hungary, NM – North Macedonia, SK – Slovakia, TR – Turkiye, UA – Ukraine) to denote the countries. The representative sample of hotels is documented by the data of basic indicators – factors:

Factor: Hotel management systems:

The number of 66 independent hotels comprised 41.25 % of the studied samples. The highest number of independent hotels was formed by hotels in Northern Macedonia and Slovakia. Hotel companies in the chain a total number of 45 formed a 28.12 % share of the studied sample of all hotels. These hotels had the highest representation in Hungary and Turkey. The same situation in reversed order (Turkey, Hungary) is also in the competence of hotel companies. The total number of 39 individual hotel companies represents 24.37 %. These hotels presented Turkey and Hungary with the highest number. 10 "other hotels" did not fit into any of the above-mentioned types of hotel competence. This is a share of 6.26 % of the total number of surveyed hotels.

Figure 4   Hotel management systems
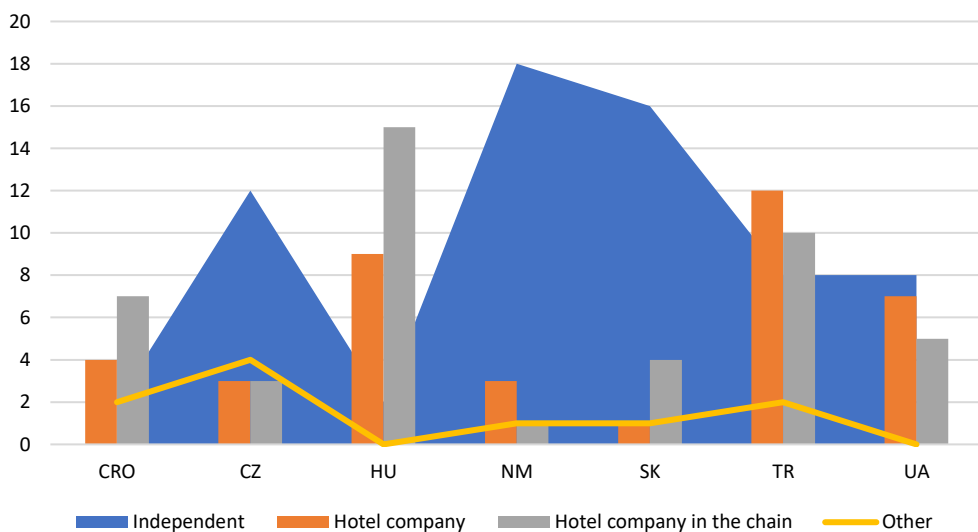
Source: author´s processing by questionnaires

Factor: Room capacity of the hotels

The total number of rooms in the 160 surveyed hotels was 17,100 rooms. The highest number of hotels 26.85 % consist of units with 21 – 50 rooms. These are mainly hotels in Ukraine. The capacity of 51 – 100 rooms was reported by 22.5 % of hotels with the highest number in Hungary. The capacity of large hotels of 201 rooms and more is presented by a share of 21.25 % of the total number of the surveyed sample of hotels. This group is dominated by hotels in Turkey.

Figure 5   Hotel room capacity
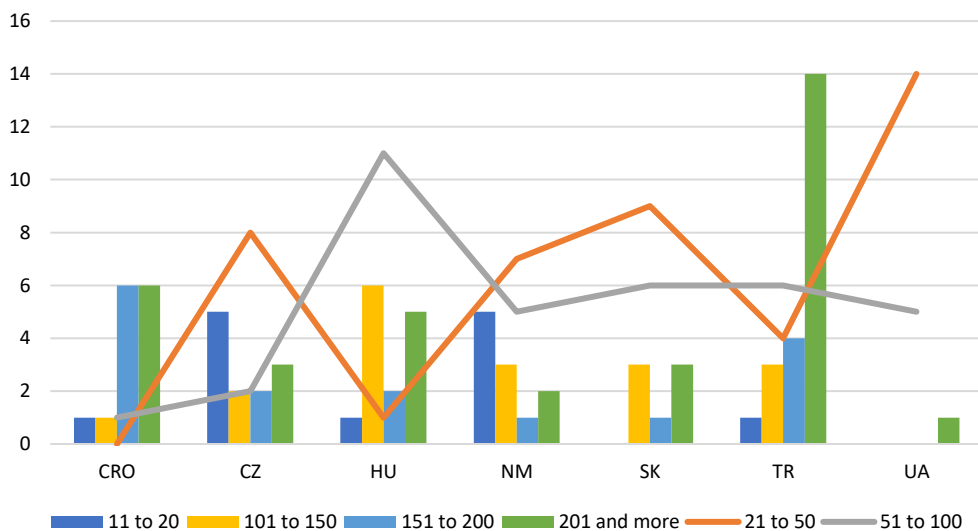
 Source: author´s processing by questionnaires

Factor: Classification of hotels* according to the level of offered services

In terms of hotel classification, the prevailing hotel category was 4*. These represented 49.4 % of the total number of hotels. 4* hotels had the highest representation in Hungary with 24.1 %. 3* hotels were 27.5 % of the total number of surveyed hotels. The Czech Republic had the highest number of hotels in the 3* 22.7 %, as did the Slovak Republic with 22.7 %. The 5* hotel category represented 23.1 % of the total number of hotels. In Turkey, 5* hotels dominated with a share of 51.4 %.

Figure 6   Classification of the hotels

CRO   CZ   HU   NM   SK   TR   UA
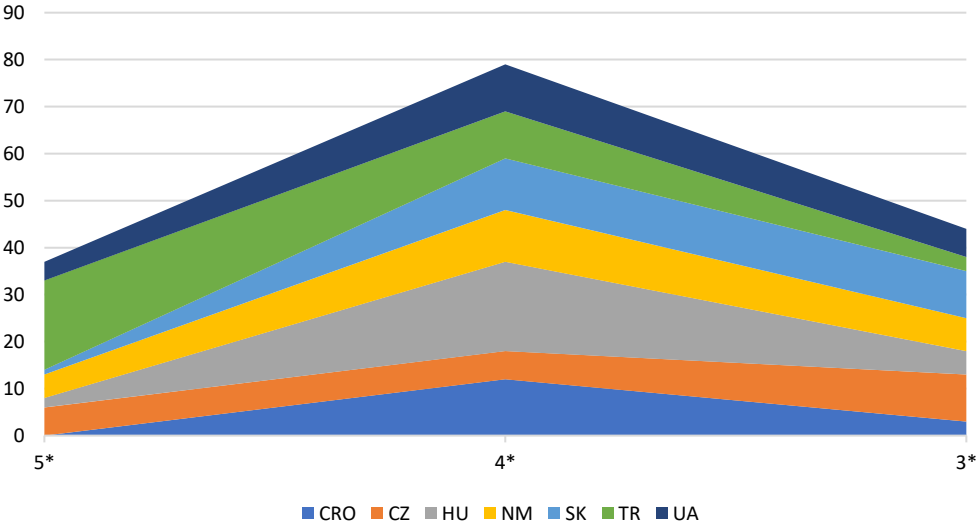
A summary of the three indicators (factors) is documented in the graphical overview.

**Figure 7**   Selected hotel indicators in the studied countries

CRO   CZ   HU   NM   SK   TR   UA
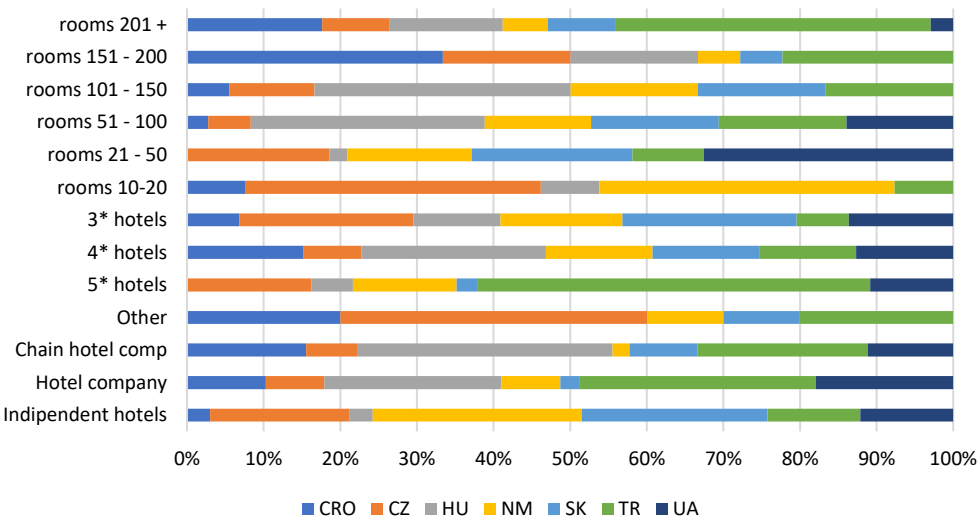
Factor: Type of hotel by offered services

A sample of 11 hotel types is involved in the sample of 160 surveyed hotels. Respondents assigned some hotels to more than one type of hotel. 40.6 % of the hotels presented themselves as "Holiday resort"; mainly in Turkey 36.9 % and Croatia 20 %. City hotels accounted for 34.4 % of the total number of hotels surveyed. The hotels in Hungary 29.1 % and North Macedonia 25.5 % achieved the most prominent position in this category. Business hotels had a relatively balanced representation in each surveyed country. This segment represented a share of 11.9 %. Wellness, spa and medical hotels were present in 18 % of the total number of hotels. Slovakia showed a 26 % share of these hotels, which means the highest representation of these hotels in the surveyed sample.

Figure 8   Type of the hotels
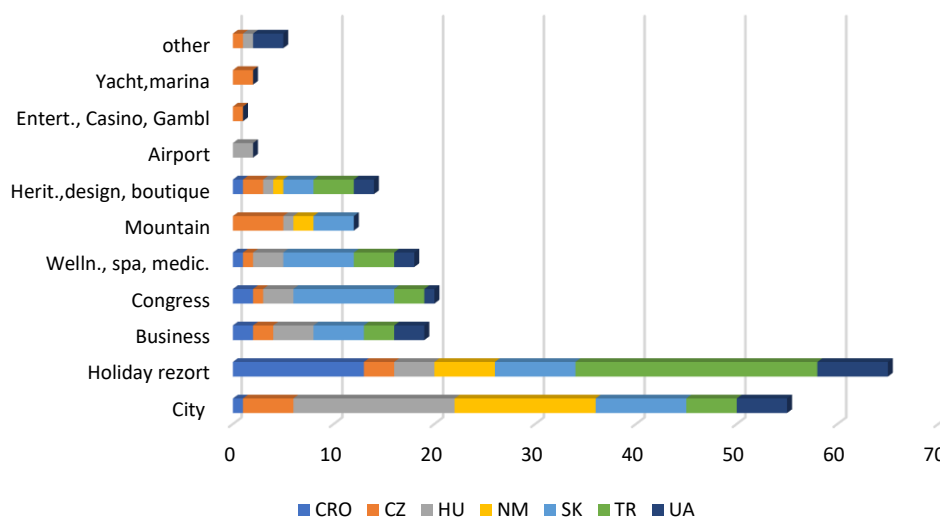
Source: author´s elaboration

Factor: Season of the hotel operation

73.12 % of the surveyed hotels operate in year-round mode. 26.88 % of hotels in holiday destinations have a limited number of months of operation, mainly in Turkey at 10 % and in Croatia at 8.75 %.

25

**Figure 9**   Opening time of the hotels in standard conditions
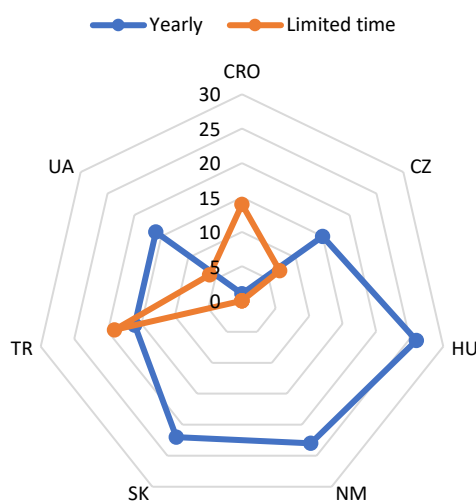
Factor: Number of employees

The number of employees in all the surveyed hotels amounts to 5,860 persons. The average number of employees is 36.6 persons per hotel. The highest share of hotels 31,25 % shows the group the number of 21 – 50 employees. The highest number of these hotels is in Hungary. There are 30,6 % of hotels in the group of hotels with the number of

In 30.6 % of the hotels work 1 – 20 employees. The highest number of hotels is in the Czech Republic. The number of employees of 71 – 100 persons was reported by 10 % of hotels in Turkey. The number of employees 151 and more employees are reported by 10.6 % of the hotels. The dominant highest number of hotels in this category is in Turkey.

Figure 10   The number of employees in the hotels

Legend: 51 to 70 | 71 to 100 | 101 to 150 | 151 and more | 1 to 20 | 21 to 50
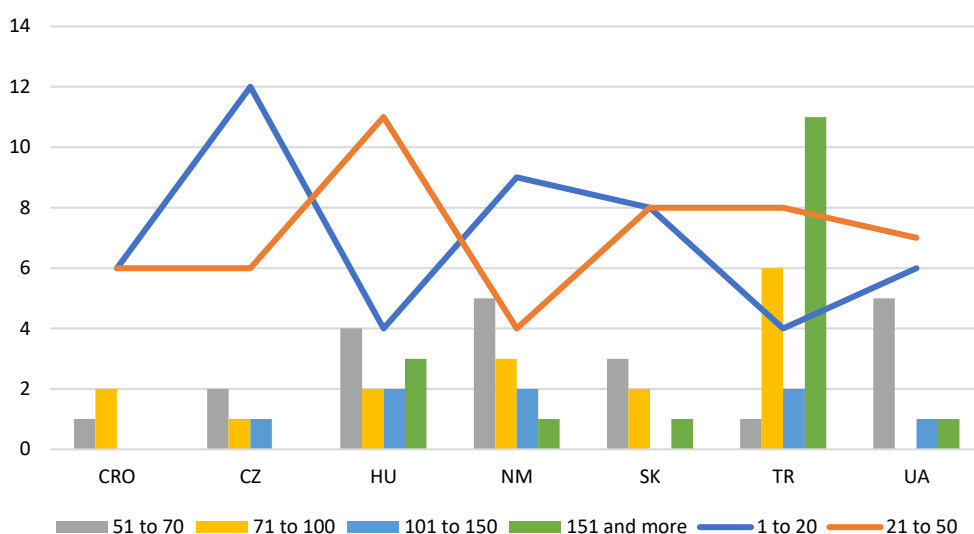
Turkish hotels correlate with the number of rooms and the number of employees in medium level 0.652. Such that the higher the number of rooms, the higher the number of employees. Czech hotels also show a directly proportional medium correlation 0.635 in terms of the low number of hotels with the lowest number of employees. Croatian hotels do not confirm these phenomena of mutual relations.

3.1   Economy, initiatives and state financial support to the hotels

Factor: Operating costs

During the pandemic, hotels reported increased operating costs in all countries. However, some hotels showed no increase in operating costs in Hungary 19.23 %, Slovakia 15.79 %, and Croatia 13.33 %. The increased range of up to 10 % of the total number of hotels surveyed in each country was again recorded by Croatian hotels at 46.67 % and Hungarian hotels at 46.15 %. The highest values in the increase of more than 30 % of operating costs were presented by hotels in Turkey at 40 % and hotels in Northern Macedonia at 36.6 %. The highest number of 30.01 % of the surveyed hotels showed an increase in operating costs by up to 20 %. The highest percentage was 50 % for hotels in the Czech Republic and 42.11 % for hotels in the Slovak Republic.

Figure 11   Increased operating costs
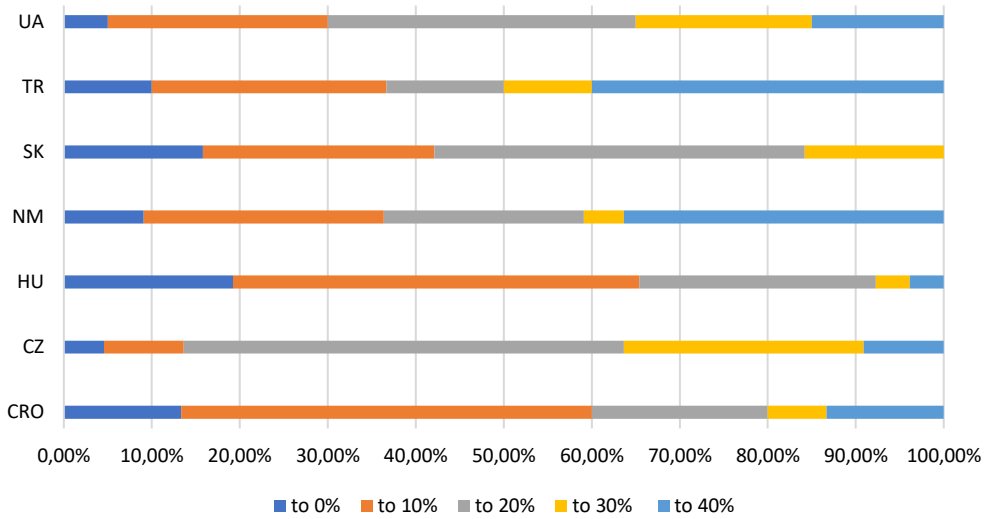
The COVID-19 crisis has significantly affected the economic activities of the hotel industry. Human resources and their employees are essential in the services of hotel facilities. Despite this fact, it cannot be said that hotels had the conditions for maintaining employment on a sufficient scale in all countries.

**Figure 12**   Financial support to employment from the state in the year 2020 and 1-4/2021
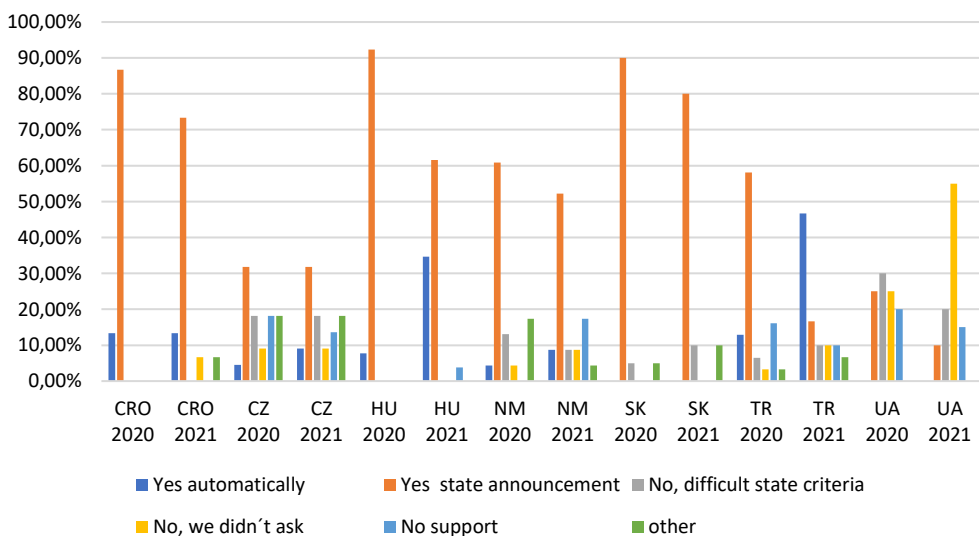
Factor: State financial support for employment

In 2021, financial support to maintain employment was automatically granted mainly to hotels in Turkey 46.67 % and Hungary 34.62 %. In both years under review, no automatic support from the state was received by hotels in the Slovak Republic and Ukraine. The state granted employment support based on a call for proposals in all surveyed countries. This instrument was used intensively to the maximum extent by hotels in the Slovak Republic 90 % of the demanded hotels in 2020 and 80 % of the hotels in 2021, similarly by hotels in Hungary in 2020 to the extent of 92.31 %. In both years, 86.67 of the surveyed hotels in the Czech Republic in 2020 and 73.33 % of the hotels in 2021 responded to the call from the state. Hotels in Ukraine were 20 % in 2020 and 15 % in 2021, and a relatively high share of hotels in the Czech Republic 18.8 % in 2020 and 13.64 % in 2021, did not receive any financial support for employees. Hotels in Ukraine and the Czech Republic did not receive any financial support.

Figure 13   The financial support (financial aid) for rental costs (fixed costs) in 1-4/2021 from the state budget
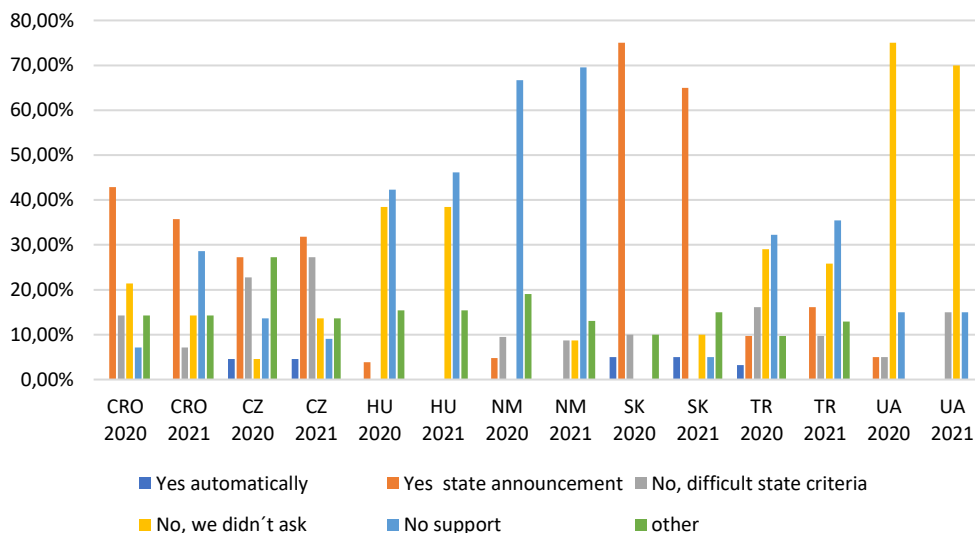
Reimbursement of fixed costs, with an emphasis on maintaining the lease of the premises, was not granted automatically. Based on the call, 75 % of hotels in the Slovak Republic and 65 % of hotels in 2020 and 2021, respectively, have taken advantage of the support possibility. The situation was similar in Croatia and the Czech Republic with a significantly lower share of surveyed

hotels, on average at 35 % in 2020 and 31.49 in 2021. The complicated criteria set by the state were perceived by hotels in the Czech Republic 22.73 %. The consequence was passivity on the part of the hotels distrust, and finally a negative attitude; Hotels did not apply for support in 2020 in Ukraine 75 % and 70 % in 2021, in Hungary 38.46 % of hotels in both surveyed years. No support from the state was received by hotels in Northern Macedonia 66.67 % in 2020 and 69.57 % in 2021, in Hungary 42.31 % of hotels in 2020 and 45.15 % of hotels in 2021.

**Figure 14**   Setting of criteria for state financial support
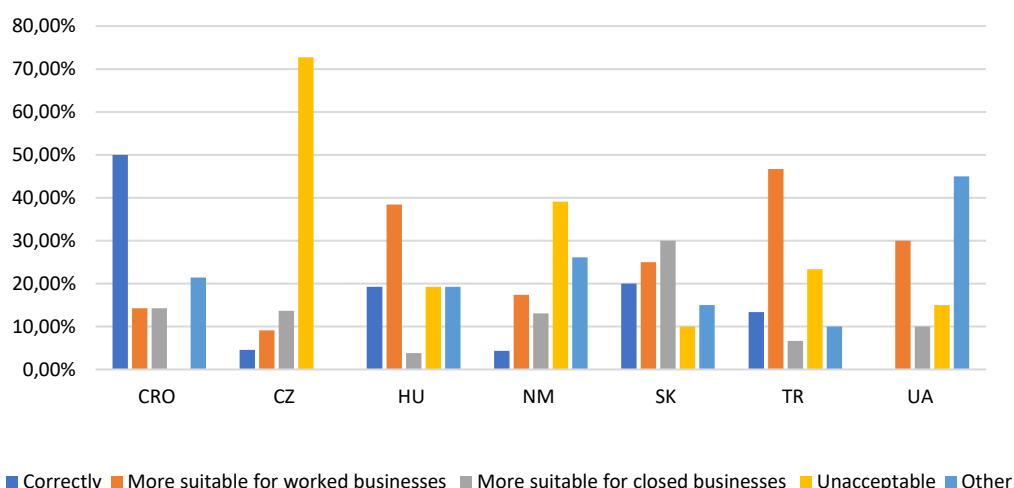
About criteria for financial support from the state had been set correctly and agreed upon by hotels only to a minimal extent. Only Croatia hotels agreed to 50 %. In Ukraine, on the other hand, none of the hotels surveyed considered the criteria to be correct. On average, 25.84 % of the hotels from all countries surveyed agreed that the criteria had been set for functioning hotels, especially in Turkey 44.67 % of the hotels, Hungary 38.46 %, and Ukraine 30 %. In all countries hotels also agreed with the option that the criteria were "More suitable for businesses that closed". Here, the number of hotels was significantly lower, at an average of 13 %. Higher values than the above average are shown by SK at 30 %, Croatia at 14.29 % and the Czech Republic 13.64 %. Unacceptable criteria were marked by hotels from the Czech Republic 72.73 % and Northern Macedonia 39.13 %. Unacceptable criteria were also marked by selected Turkish hotels 23.33 % and UA hotels 15 %. The criteria for state support were set in all surveyed countries.

Factor: Revenue decrease the basic criteria for state financial support

All the surveyed countries set conditions for financial support except CZ, where 95.45 hotels expressed a preference for state support without a set limit on the decrease in revenue. However, what is surprising are the answers of hotels in other states which report set limits and at the same time selected hotels claim the opposite about no limit support (HU share 80.77 % of hotels in both years, UA 73.68 % in 2020 and 57.89 % in 2021, TR 40.74 % in 2020 and 39.29 % in 2021. In addition to this answer, other hotels reported set limits of reduced revenue of 50 %, 40 % or 30 %.

Figure 15   The revenue decrease a basic condition for state financial support in the year 2020 compared to 2019 and in 1-4/2021 compared to 2019
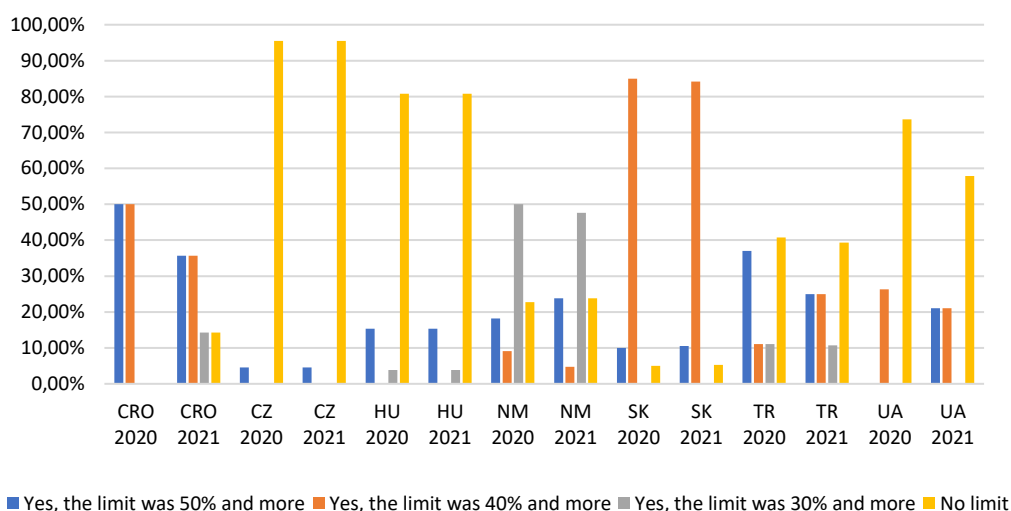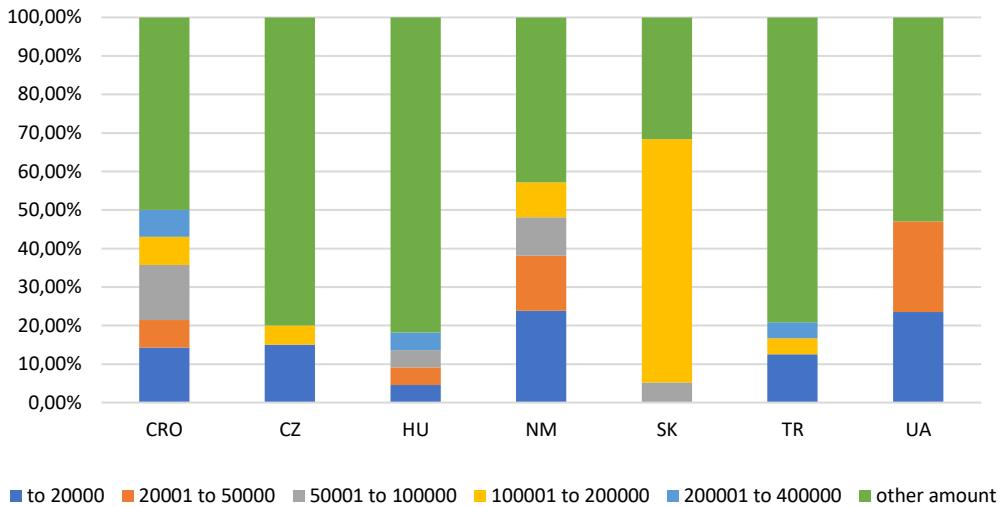

Source: author´s elaboration

From the above it can be concluded that the hotels were not fully informed about the possibilities of state financial support to a sufficient extent.

The amount of State pandemic supports the hotels received differed. 23.81 % of hotels in North Macedonia and 23.58 % of hotels in UA benefited from support up to EUR 20 000 and EUR 200 000 in total, while 63.15 % of Slovak hotels had the possibility of cumulative financial support up to EUR 200 000. 59.77 % of the total number of facilities from all surveyed countries reported a different amount of financial support, higher than EUR 400 000. In terms of each

country, the "other" amount was drawn by Hungarian hotels 82 %, Czech hotels 80 % and Turkish hotels 79.17 %.

Figure 16   Maximum amount of cumulative financial support
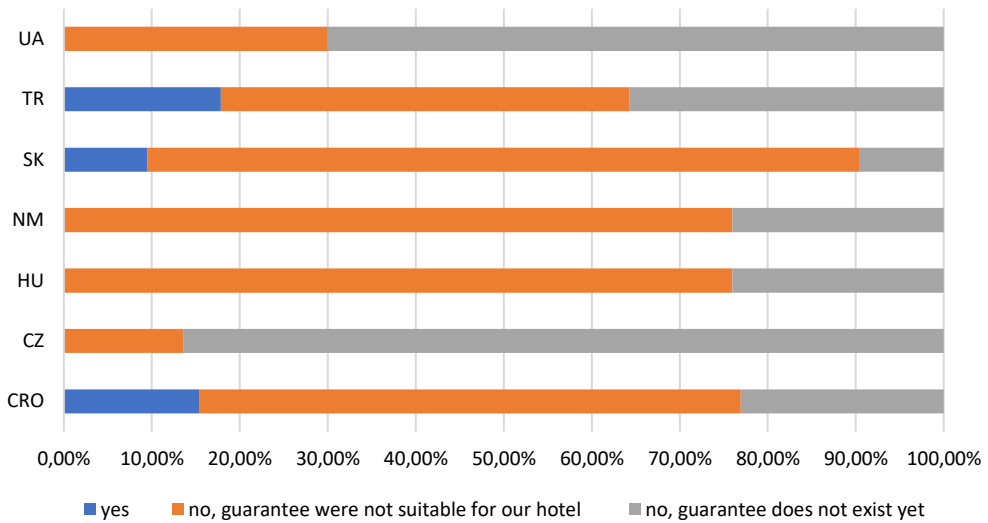

Source: author´s elaboration

All the surveyed countries provided state pandemic support. However, there were different levels of support, different conditions of support and different starting dates for financial support.

Factor: State guarantee related to the loan

Only in three countries, CRO, SK, and TR, hotels reported the possibility of a state guarantee to obtain a bank loan. Out of the total number of all hotels surveyed 54.94 % stated the answer "No, the criteria of the state guarantee were not suitable for our hotel (our hotel company)". The existence of the possibility of the state guarantee was not known by 38.95 % of all hotels, especially by 86.36 % of hotels in CZ and 70 % of hotels in UA. This shows that the information and awareness of the hotels were not sufficient. This statement can be deduced from the data in the countries CRO, SK, and TR, where selected hotels received a state guarantee for the loan, and other hotels in these countries expressed that the guarantee does not exist at all, e.g., 35.77 % of Turkish hotels, 23.08 % of hotels in CRO.

Figure 17   Request for a state guarantee for related to bank loan
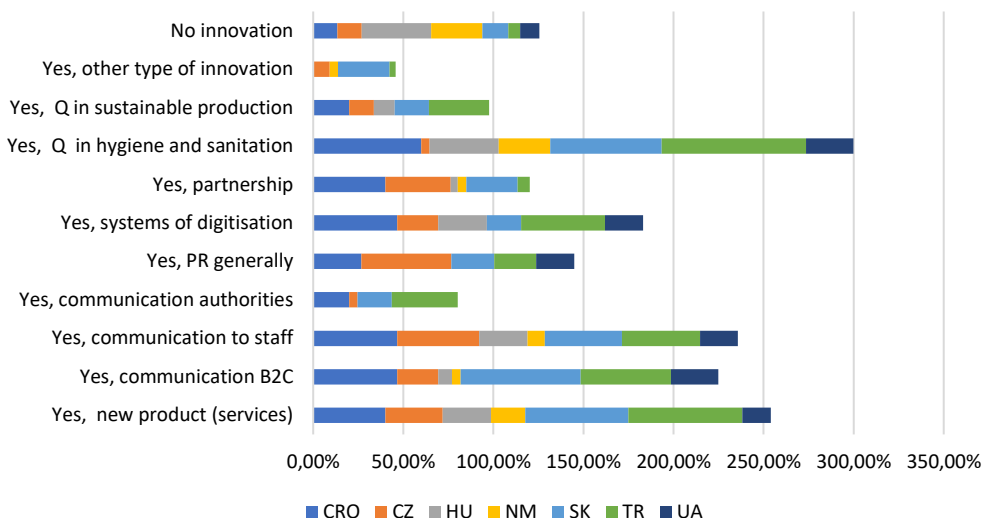

Source: author´s elaboration

The state guarantee for the granting of loans has not been a frequent instrument for obtaining external financial resources. Awareness of the possibility of a state guarantee has not been sufficient, especially in the CROs and TRs. Hotels used the possibility of a guarantee in these countries and a large number of hotels thought that there was no state guarantee (TR 35.71 % of hotels, CRO 23.8 % of hotels.

3.2   Innovations in hotels during the period of COVID-19

Factor: Innovations

The crisis period of the COVID-19 pandemic provoked operational changes in the introduction of innovations. Hotels responded to the new conditions and introduced innovative elements. Innovations were following new regulations and new conditions for the protection of the life and health of people and businesses, too. The average level of innovation of all hotels surveyed is 25.5 %.

Figure 18   Innovations of some processes or operations in the hotel business due to pandemic

Source: author´s elaboration

Hotels focused the highest efforts on implementing Q in hygiene and sanitation 42.82 %. The leaders in Q product introduction were hotels from Turkey 80 %, Slovakia 61.9 % and Croatia 60 %. New products and quality improvement were reported by hotels from Turkey 63.33 %, Slovakia 57.17 %, and Croatia 40.0 %. Sustainability of production is practiced by hotels at an average level of 13.94 %. The leading position in this area is maintained by Turkish hotels in the range of 33 %. On the contrary i.e. not interested in innovation was reported by up to 17.93 % of respondents who answered that they are not interested in innovation. From the above we can conclude that innovative processes were mainly applied by hotels in Turkey 38.67 %, Slovakia 36.67 % and Croatia 34.67 %. On the other hand, the worst results concerning the non-adoption of innovation were in hotels in Hungary, where the percentage of no innovation was 38.46 % and in North Macedonia 28.6 %.

Figure 19   Innovations on average
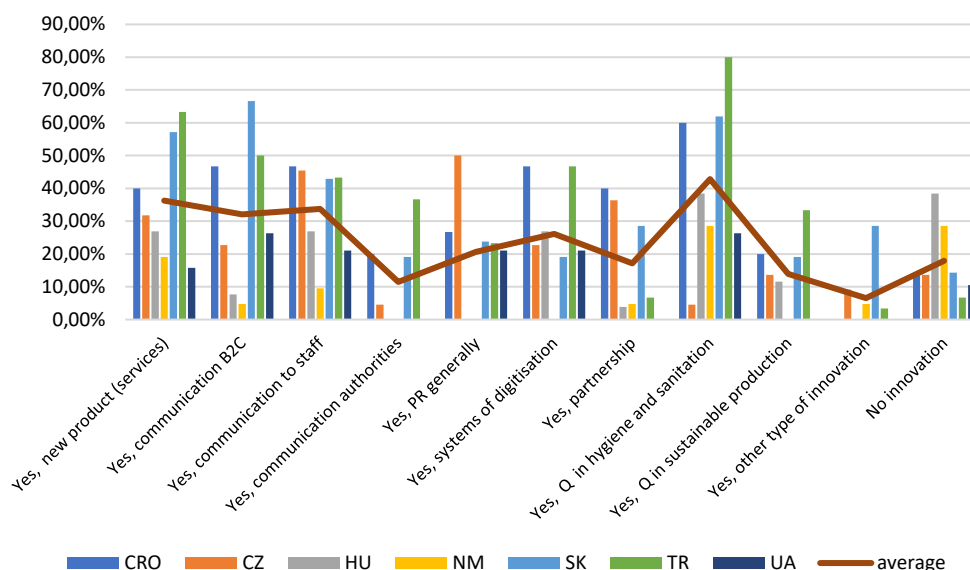
The pandemic crisis has been an accelerator for innovations to protect life and health as much as possible by respecting hygiene and creating new products. B2C communication played a significant role 33.69 % in which new approaches of online communication were also reflected. Hotel responses on innovation systems related to digitalization in communication increased innovation by 28.6 %.

3.3   Consequences of the pandemic crisis

In the impact of the pandemic crisis, the surveyed hotels anticipated the course of their business with different expectations. The reduction in the number of rooms in hotels was expected mainly by hotels in Slovakia at 33.33 % and in North Macedonia at 29.73 %. A big cut in the number of employees is expected by hotels in Hungary 53.85 % and in Ukraine 52.63 %. Optimistic views about operating in the same conditions as before the crisis are expected by 51.72 % in Turkey. Uncertainty was expressed mainly by Croatian hotels 40 %, hotels in North Macedonia 29.36 % and in Slovakia 23.81 %. The probable closure of hotels was not significant in the expectations. Only three countries are likely to anticipate hotel closures on a relatively low scale. The Czech

Republic and North Macedonia 9.09 % and Turkey 6.09 %. The catastrophic scenario of hotel closures was not expected by any of the surveyed hotels at the time of the survey.

From the view of the pandemic crisis impacts the hotels expectation is significant in reducing the number of the rooms. There is very high correlation 0.901 in the independent hotels, a high correlation 0.736 in hotel chains and 0.771 in hotel companies. A moderate correlation can be found in hotel chains in relation to the assumption of the same operations 0.663 and in relation to reduced number of employees 0.523.

Figure 20   Expectation to continue operating
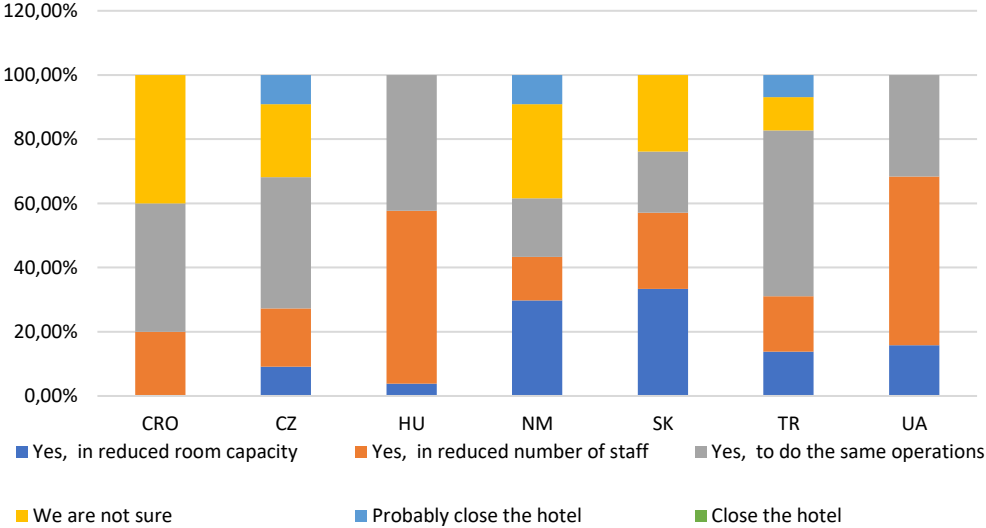
Source: author´s elaboration

In the sense of the above expectation, it can be concluded that at the time of the survey during the pandemic crisis, hotels were still at an optimistic level and expected to find options for solutions within the hotel operations.

4 Analysis of selected indicators in the hotel industry of selected countries

The findings from the questionnaire research on the impact of the COVID-19 Pandemic in the hotel industry focused on the Czech Republic, Croatia, Hungary, North Macedonia, Slovakia, Turkey and Ukraine present information in multidimensional observations. The classification of the set of objects into several, mutually exclusive, relatively homogeneous subsets (clusters, groups) was achieved by cluster analysis. We apply the above analysis in two dimensions. We apply this analysis in two dimensions: Hotel Economics and Hotel Products. By expressing the affiliation of objects to defined clusters with a single piece of data, cluster analysis effectively reduces the dimension of the task.

4.1 Economy dimension

The primary goal of the applied cluster analysis in the "economy" dimension is to compare the examined countries – Czech Republic, Croatia, Hungary, North Macedonia, Slovakia, Ukraine and Turkey according to selected standard economic indicators in the hotel industry. The purpose is to find the economic similarities and differences between individual countries in the situation of the COVID-19 pandemic in the period of 2020 and 2021. For the processing of the cluster analysis and subsequent comparison of countries, we have selected the following indicators:

- Hotel revenue (pre-tax income, loan interest payments and EBITDA depreciation)
- Revenue per room (average price of rooms sold)
- Hotel occupancy (in terms of rooms)
- Employment in the hotel (number of full-time employees)

In the first phase of the analysis, a correlation matrix was generated to consider the dependence (linkages) between the variables in the dataset we worked with. The greater the distance between points, the greater the difference between groups. Based on the correlation, a strong link among the variables was not identified, so it was not necessary to exclude the variables (hotel revenue, revenue per room, hotel occupancy and hotel employment) from further processing. The following Table 4 shows us the standardized input data for the cluster analysis of economic indicators.

Table 4   Input data of economic indicators for cluster analysis (after standardization)

V₁	V₂	V₃	V₄	V₅	V₆	V₇	V₈
-0,644	0,257	-0,315	0,642	-0,692	-0,286	-0,368	0,419
0,176	-1,541	0,788	-0,257	0,519	-0,286	0,776	-1,341
0,176	-0,642	-0,315	-0,706	-0,692	0,114	-0,368	0,419
-1,874	-0,642	-1,970	-0,706	-0,087	-1,087	-0,368	0,419
0,995	1,155	0,788	-0,706	-0,692	-0,286	-0,939	-0,754
0,995	1,155	0,788	-0,257	-0,389	-0,286	-0,653	-0,754
0,176	0,257	0,236	1,990	2,033	2,116	1,919	1,593

The legend:

V₁ – hotel revenue (2020); V₂ – revenue per room (2020); V₃ – hotel occupancy (2020); V₄ – hotel employment (2020); V₅ – hotel revenue (2021); V₆ – revenue per room (2021); V₇ – hotel occupancy (2021); V₈ – hotel employment (2021);

Source: authors' processing in statistical program R (2021)

In the first phase, we applied the methods (Complete linkage, Single linkage, Average linkage, Ward's method and Centroid method) and the Euclidean distance square through cluster analysis. We found the adequacy of the clustering method by comparing the results of the applied clustering methods using a cophenetic correlation coefficient. The resulting values of the cophenetic correlation coefficient are presented in Table 5.

.

Table 5   Cophenetic correlation coefficient of applied agglomerative hierarchical clustering methods – economic indicators

Complete linkage	0,880
Single linkage	0,889
Average linkage	**0,925**
Ward's method	0,902
Centroid method	0,806

Source: authors' processing in statistical program R (2021)

It is evident from the above result data, that the Average linkage method is the most appropriate clustering method with a value of 0.925. By using this

result, it is possible to determine the best clustering model with the mapped corresponding countries involved in our survey.

Figure 21   Cluster analysis results – Average linkage method
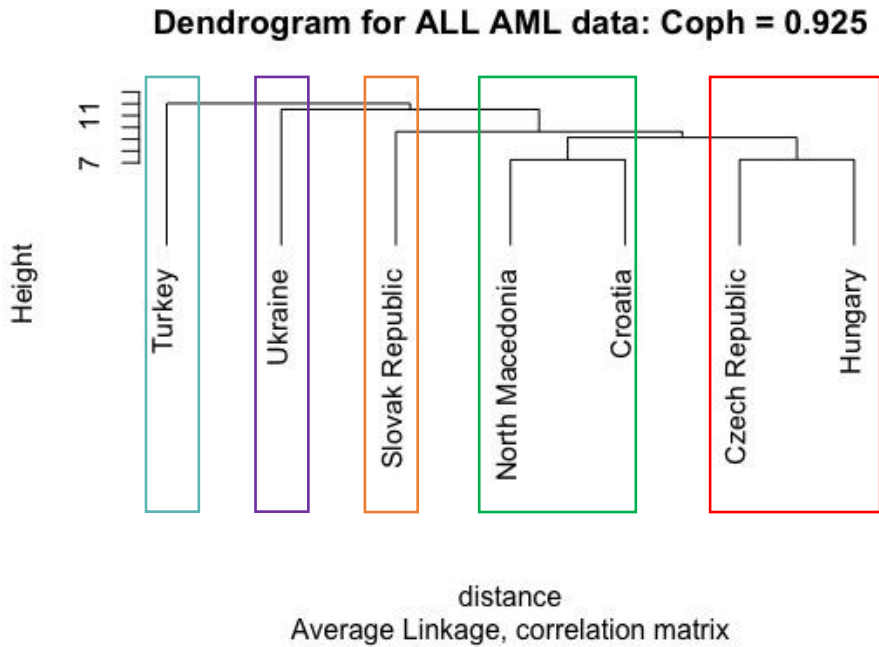
Source: authors' processing in statistical software R (2021)

The cluster analysis of the hotel industry resulted in five clusters, which comprise the following countries:

> **Cluster 1:** Turkey
>
> **Cluster 2:** Croatia, North Macedonia
>
> **Cluster 3:** Czech Republic, Hungary
>
> **Cluster 4:** Ukraine
>
> **Cluster 5:** Slovak Republic

The average of the standardized values of the monitored economic indicators in each cluster is presented in Table 6 in numerical values and in graphical interpretation in Figure 22.

Table 6   Average of the standardized values of the monitored economic indicators in each grouping

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8
Cluster 1	- 0,201	-0,378	0,224	0,623	0,620	-0,451	-0,834	-0,606
Cluster 2	-0,161	0,627	-0,194	-0,528	0,493	0,095	-0,396	-0,408
Cluster 3	-0,962	-0,330	0,276	0,405	-1,319	0,028	1,196	-0,237
Cluster 4	0,119	-0,478	-0,006	0,173	-0,397	-0,181	0,322	0,194
Cluster 5	1,247	0,410	-0,101	-0,320	0,508	0,595	-0,213	1,270

The legend:

V_1 – hotel revenue (2020); V_2 – revenue per room (2020); V_3 – hotel occupancy (2020); V_4 – hotel employment (2020); V_5 – hotel revenue (2021); V_6 – revenue per room (2021); V_7 – hotel occupancy (2021); V_8 – hotel employment (2021)

Source: authors' processing in statistical software R (2021)

Figure 22   Average of standardized values of monitored economic indicators in each cluster – a graphic interpretation
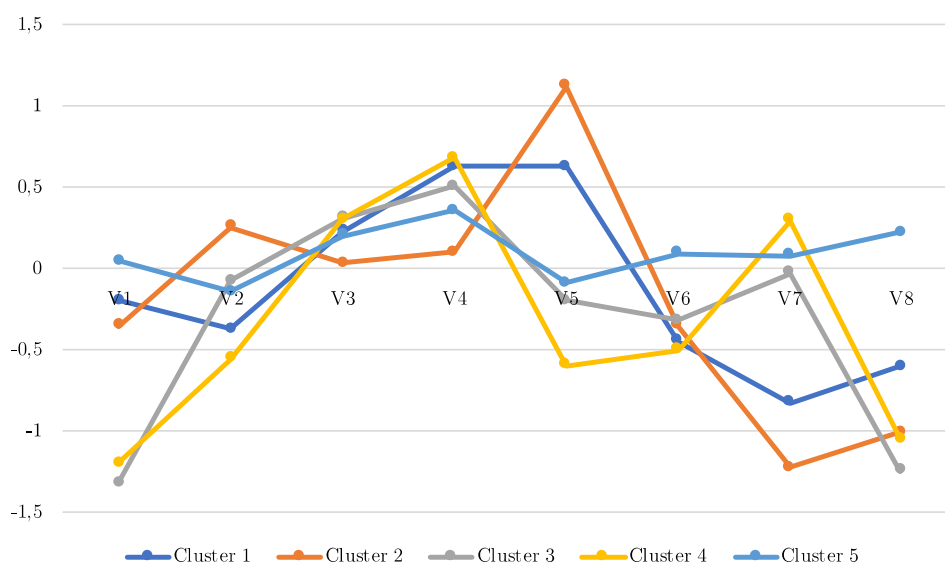
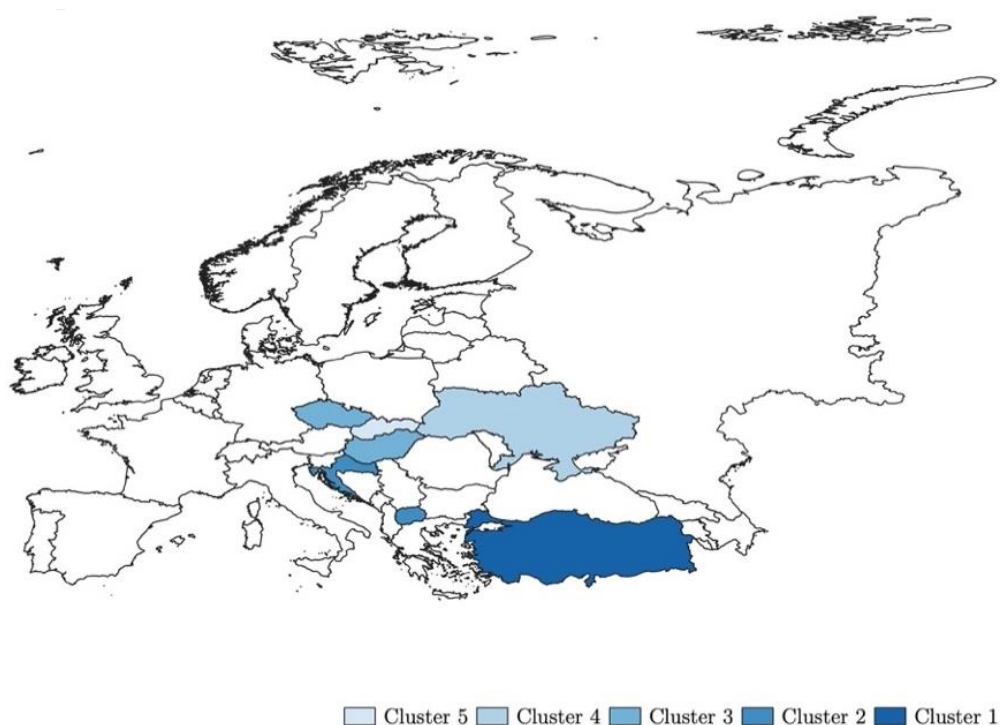**Source:** authors' processing in statistical software R (2021)

The obtained results will allow us to characterize the clusters and determine their categorization – the economic impact of the COVID-19 pandemic on the hotel industry of the surveyed countries in 2020 and 2021 compared to 2019 at the level of significance. The calculated average of each cluster determined the following five categories of affected countries:

- **Cluster 1.** It involves Turkey. From an economic point of view, it is the clear leader among the evaluated countries. The impact of the COVID-19 pandemic on the hotel industry, according to respondents' results, was stronger in 2020 compared to 2021. In 2020, most respondents chose the option -69 % to 30 % of the pandemic impact in all examined indicators. In 2021, the intensity of the COVID-19 pandemic for the hotel industry was mostly between 21 % and 31 %. It is the best result compared to the values of the other six countries.

- **Cluster 2.** There are two countries Croatia and North Macedonia in this cluster. Respondents from both countries evaluated the impact of the COVID-19 pandemic on the hotel industry (similarly to Turkey) as considerably stronger in 2020 compared to 2021. In the case of Croatia, the most of respondents rated the impact of the pandemic at 0 % intensity. The most frequently measured values ranged from -29 % to 0 % of the pandemic impact on economic indicators related to the hotel industry were in Northern Macedonia.

- **Cluster 3**. The cluster repeatedly consists of two countries, again − the Czech Republic and Hungary. For this cluster, we can assess from the obtained data that the COVID-19 pandemic affected the hotel industry in 2021 more strongly than in the first two clusters. In the Czech Republic, the values range from -69 % to -30 %, and from -100 % to -30 % in Hungary. In both cases, the year 2020 was evaluated with positive intervals.

- **Cluster 4**. Ukraine is in this cluster. The impact of the COVID-19 pandemic is intense in both studied periods. In 2021, were measured values ranging in intensity from 0 % to +20 %. In 2020, values were detected fragmentedly in the interval from -29 % to +20 %.

- **Cluster 5**. There is also only one country in the cluster, the Slovak republic. This cluster presents the largest impact of the COVID-19 pandemic on economic indicators in the hotel industry. In both reference years, the interviewed respondents evaluated the impact of the pandemic by the intensity in minus values. In the year comparison, 2021 represented a very strong impact of the pandemic on the hotel industry at -100 % to -70 %. In 2020, respondents' answers were split between values ranging from -100 % to +30 %.

The cluster analysis identified the economic significance and consequences of the COVID-19 pandemic in the surveyed countries in terms of

the above-mentioned economic indicators in the hotel industry. The results proved a significant difference in economic indicators in the hotel industry of the surveyed countries. The countries under the study were divided into five clusters – categories from the lowest (Turkey) to the highest impact of the COVID-19 pandemic on the economic situation in the hotel industry (Slovak Republic). The following map gives a visual idea of the division of countries into clusters (Figure 23).

Figure 23   Map of country clusters by the level of impact of the COVID-19 pandemic affecting the hotel industry – economic indicator compared to 2019

Source: authors' elaboration in statistical software R (2021)

4.2   Hotel product

In the "product" dimension, we worked with the outputs obtained by applying cluster analysis in the previous "economy" dimension. We focused on the innovative processes and practices in the hotel industry at the time of the COVID-19 pandemic and their implementation. Again, we applied the system of seven surveyed countries, which we categorized into five clusters and labelled **Economic Cluster I. – V.**

At the beginning of the cluster analysis, we tested the suitability of the input data for each process and procedure by applying the Kaiser-Meyer-Olkin coefficient. We subsequently standardized the input data and determined the Euclidean distance. Based on the performed analysis, the individual innovated processes and procedures were classified into five clusters. This number of clusters was applied to all selected agglomerative hierarchical clustering methods.

The most appropriate model will be selected according to the calculated values of the cophenetic correlation coefficient shown in Table 7.

Table 7   Cophenetic correlation coefficient of applied agglomerative hierarchical clustering methods – innovated processes and procedures

Economic group I.	Complete linkage	0,739
	Single linkage	**0,743**
	Average linkage	0,732
	Ward's method	0,713
	Centroid method	0,718
Economic group II.	Complete linkage	0,772
	Single linkage	0,826
	Average linkage	**0,843**
	Ward's method	0,636
	Centroid method	0803
Economic group III.	Complete linkage	0,601
	Single linkage	0,643
	Average linkage	0,697
	Ward's method	**0,703**
	Centroid method	0,664
Economic group IV.	Complete linkage	0,891
	Single linkage	0,880
	Average linkage	**0,897**
	Ward's method	0,876
	Centroid method	0,895
Economic group V.	Complete linkage	0,882
	Single linkage	0,850
	Average linkage	**0,885**
	Ward's method	0,882
	Centroid method	0,877

Source: authors' elaboration in statistical software R (2021)

According to the mentioned results, the most suitable clustering methods for the evaluation of hotels were selected from the studied countries as follows:

- Economic Group I. (Turkey) = Single linkage method.
- Economic Group II. (Croatia, North Macedonia), IV. (Ukraine) and V. (Slovak Republic) = Average linkage method.
- Economic Group III. (Czech Republic, Hungary) = Ward's method.

The Single linkage method was used to calculate all paired differences between indicators in cluster 1 and indicators in clusters 2, ..., 5. The criterion for the linkage is the smallest difference.

Subsequently, pairs of clusters with minimum distance between them were merged at each stage.[1]

In terms of our research, the difference in clustering methods is conditioned by the results of the cophenetic correlation coefficient. This coefficient represents the sample correlation coefficient between the cophenetic distances obtained from the dendrogram and the original distances used to construct the dendrogram (Saraçli et al., 2013).

The cophenetic correlation coefficient evaluated the efficiency of the clustering methods applied and determined their credibility measures. The clustering is shown in Figure 24.

From the dendrograms, it is easy to see which innovative processes and procedures were reported by the respondents in our questionnaire survey. These were responses to the question:

***Did you innovate certain processes and procedures because of the pandemic?***

1. Yes, we developed a new product (new service).
2. Yes, in the area of communication with customers.
3. Yes, in communication with employees.
4. Yes, communication with state and local government at the county, and city municipality level.

---

[1] Practically, there is not one and only the best clustering method; the difference among these methods lies in the point (distance) of their merging into the resulting clusters (Meloun and Militký, 2002; Gáll et al., 2021).

5. Yes, in the area of Public Relations.
6. Yes, we have developed digitalization.
7. Yes, partnership and co-operation.
8. Yes, quality systems, and systemic measures in hygiene and sanitation processes.
9. Yes, systemic measures in quality and sustainable service production
10. Yes, other types of innovation.
11. No, we did not expand or develop the innovations

The resulting dendrograms represent the clustering process as a logical tree. Cluster 1 expresses the highest intensity and the highest significance of the examined phenomenon, cluster 5 expresses the lowest intensity, i.e., the lowest significance of the examined phenomenon. The vertical axis of the dendrograms indicates the distance at which the linkage occurred (recalculated for Euclidean distance and the most efficient clustering method).

Figure 24   Results of the cluster analysis in the analyzed Economic Groups I. – V.

Economic group I. (Turkey)

Cluster Dendrogram

distance
hclust (*, "single")
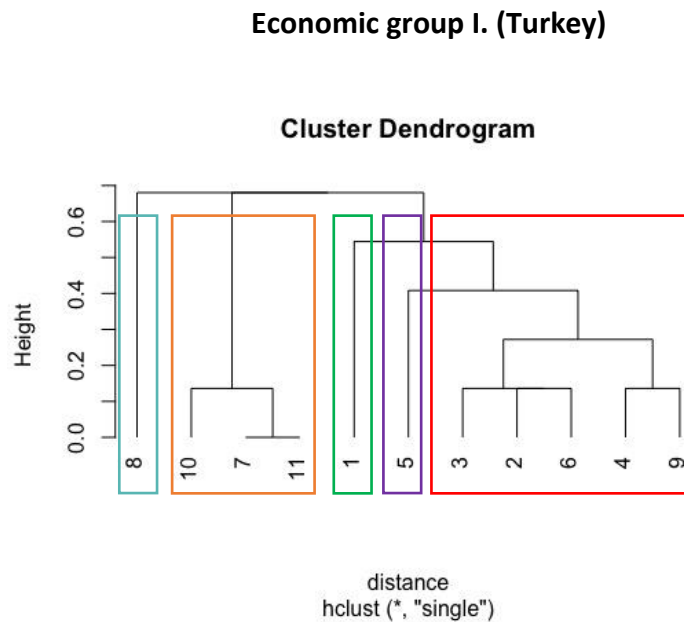
Economic group II. (Croatia, North Macedonia)

Cluster Dendrogram

distance
hclust (*, "average")
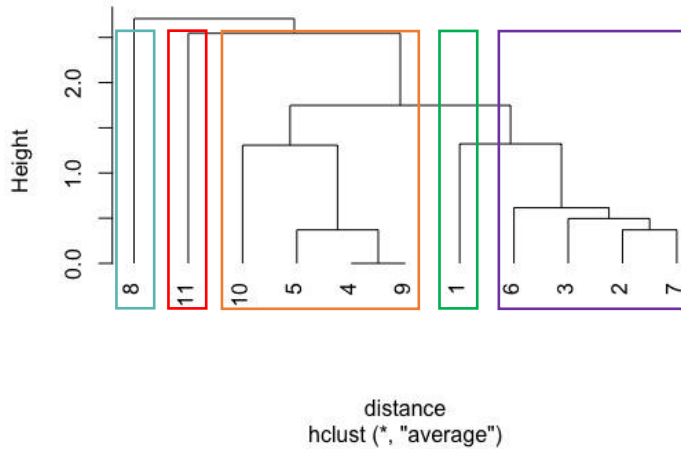
Economic group III. (Czech Republic, Hungary)

Cluster Dendrogram

distance
hclust (*, "ward.D")
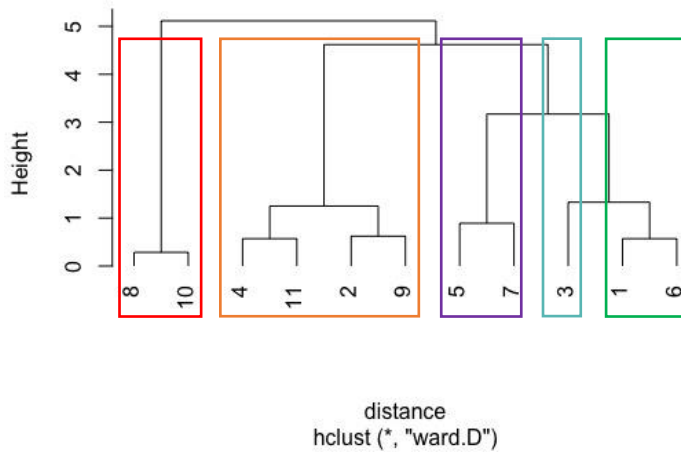
Economic group IV. (Ukraine)

Cluster Dendrogram
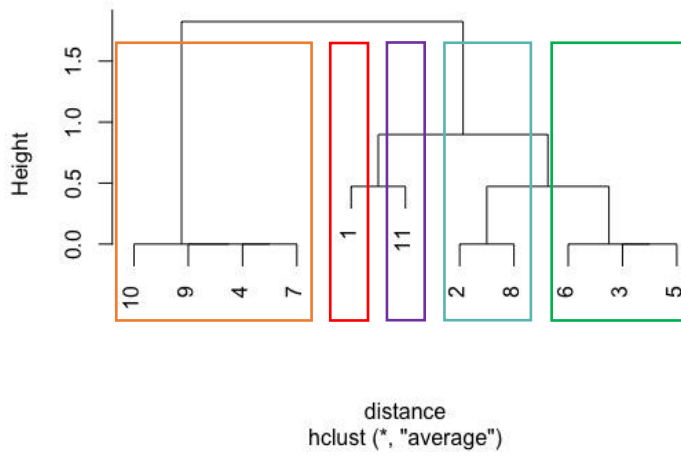
distance
hclust (*, "average")

Economic group V. (Slovak Republic)

Cluster Dendrogram
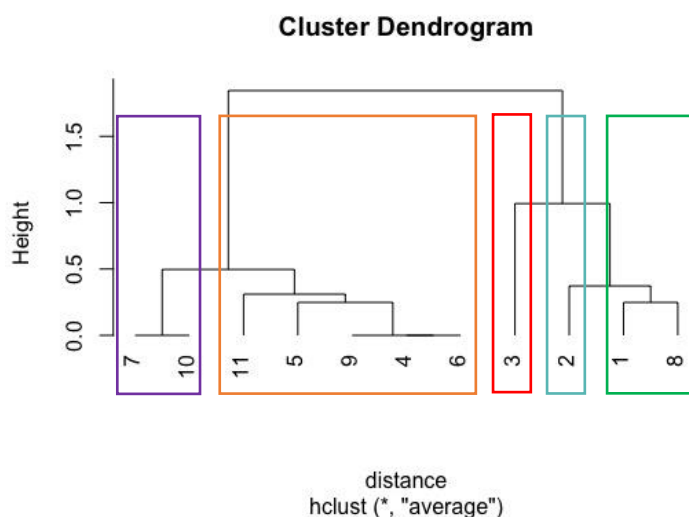
Source: authors' processing in statistical program R (2021)

Before evaluating the results, themselves, it was necessary to calculate the average standardized values of the set indicators for the clusters in the given Economic groups. The calculated average of the standardized values subsequently determined the order of the clusters of innovated processes and procedures, ranging from the most innovated processes and procedures (cluster 1) to the least innovated processes and procedures (cluster 5) during the COVID-19 pandemic. The surveyed countries are grouped in the above Economic Groups I. – V. Based on the numerical values of the variables, the order is determined in Table 8.

Table 8   Average of standardized values of observed innovative processes and procedures in each cluster of analyzed Economic groups

	Economic group I.	Economic group II.	Economic group III.	Economic group IV.	Economic group V.
	Turkey	Croatia, North Macedonia	Czech Republic, Hungary	Ukraine	Slovakia
Cluster 1	1,125 / 2.	0,648 / 2.	0,470 / 2.	0,257 / 3.	1,297 / 2.
Cluster 2	0,254 / 3.	0,146 / 4.	-0,676 / 5.	1,203 / 1.	1,670 / 1.
Cluster 3	-0,507 / 4.	-0,800 / 5.	1,041 / 1.	0,730 / 2.	0,428 / 3.
Cluster 4	-1,232 / 5.	1,630 / 1.	0,157 / 4.	-1,160 / 5.	-0,812 / 5.
Cluster 5	1,805 / 1.	0,334 / 3.	0,203 / 3.	-0,214 / 4.	-0,316 / 4.

Source: authors' processing in statistical software R (2021)

The calculated average of the individual clusters identified five categories of the significance of the innovative processes and practices in each Economic group. Those are presented in Table 9 below:

Table 9 Identification of innovative processes and procedures in the individual clusters of the analyzed Economic groups

Economic group I. (Turkey)
Cluster 1
• quality systems, system measures in hygiene and sanitation processes
Cluster 2
• development of a new product (new service)
Cluster 3
• communication with customers • communication with employees • communication with the state administration and self-government at the level of the region, city, municipality • development of digitalization • systemic measures in quality and sustainable service production
Cluster 4
• PR
Cluster 5
• partnership and cooperation • another kind of innovation • no innovation development
Economic group II. (North Macedonia, Croatia)
Cluster 1
• quality systems, system measures in hygiene and sanitation processes.
Cluster 2
• development of a new product (new service)
Cluster 3
• no innovation development
Cluster 4
• communication with customers • communication with employees • development of digitalization • partnership and collaboration

Economic group II. (North Macedonia, Croatia)
Cluster 5

- communication with the state administration and self-government at the level of the region, city, municipality
- PR
- Systemic measures in quality and sustainable production of services
- other types of innovation

Economic group III. (Czech Republic)
Cluster 1

- communication with employees

Cluster 2

- development of a new product (new service)
- development of digitalization

Cluster 3

- quality systems, system measures in hygiene and sanitation processes
- other types of innovation.

Cluster 4

- PR
- Partnership and cooperation

Cluster 5

- communication with customers
- communication with the state administration and self-government at the level of the region, city, municipality
- systemic measures in quality and sustainable production of services
- no development of innovation

Economic group IV. (Ukraine)
Cluster 1

- communication with customers
- quality systems, system measures in hygiene and sanitation processes

Cluster 2

- communication with employees
- PR
- development of digitalization

Cluster 3

- development of a new product (new service)

Cluster 4

- no development of innovation

Economic group IV. (Ukraine)
Cluster 5
• communication with the state administration and self-government at the level of the region, city, municipality
• partnership and cooperation
• systemic measures in quality and sustainable production of services
• other types of innovation
Economic group V. (Slovak Republic)
Cluster 1
• communication with customers
Cluster 2
• development of a new product (new service)
• quality systems, system measures in hygiene and sanitation processes
Cluster 3
• communication with customers
Cluster 4
• partnership and cooperation
• other types of communication
Cluster 5
• communication with the state administration and self-government at the level of the region, city, municipality
• PR
• Development of digitalization
• Systemic measures in quality and sustainable production of services
• No innovation development

Source: authors' elaboration in statistical software R (2021)

	The highest frequency of variables	Frequency
Cluster 1	quality systems, system measures in hygiene and sanitation processes communication with customers quality systems, system measures in hygiene and sanitation processes communication with employees	3x 2x 1x 1x 1x
Cluster 2	development of a new product (new service) development of digitalization communication with employees PR	4x 2x 2x 1x
Cluster 3	communication with employees communication with customers communication with the ration and self-government at the level of the region, city, municipality development of digitalization systemic measures in quality and sustainable service production no development of innovation Quality systems; systemic measures in hygiene and sanitation processes other types of innovation new product (new service) development	2x 1x 1x 1x 1x 1x 1x 1x 1x 1x
Cluster 4	Partnership and cooperation PR communication with customers communication with employees development of digitalization no innovation development other types of innovation	3x 3x 1x 1x 1x 1x
Cluster 5	communication with the state administration and local government at the level of the region, city, municipality systemic measures in quality and sustainable production of services other types of innovation no innovation development PR partnership and cooperation development of digitalization other types of innovation	3x 3x 2x 2x 2x 1x 1x

Source: authors' elaboration in statistical software R (2021)

5   Conclusion

Data collection for the research on the economic situation in the hotel industry during the COVID-19 period in 2020 and 2021 was carried out by making enquiries in specific hotel businesses in 7 selected countries in Central, Southern and Eastern Europe; Croatia, Czech Republic, Hungary, North Makedonia, Slovakia, Turkey, and Ukraine. A sample of 11 hotel types is involved in the framework of 160 surveyed hotels. In terms of hotel classification, the survey represented 5*, 4*, 3* hotel categories.

The COVID-19 crisis has significantly affected the economic activities of the hotel industry. The criteria for state support were set in all surveyed countries. In all studied countries except Croatia, selected hotels marked the criteria as unacceptable. This opinion presented hotels mainly in Czech Republic and North Macedonia. However, there were also opinions from hotels that the criteria, were more suitable for closed hotels than for hotels that were operating even in crisis conditions.

Human resources and their employment are essential in the services of hotel facilities. In spite of this fact, it cannot be said that hotels had the conditions for maintaining employment on a sufficient scale in all countries. The state granted employment support responded to the call from the state in all surveyed countries was offered. But relatively high share of the hotels in Ukraine and in the Czech Republic did not receive any financial support for employees.

Revenue decrease as the basic criteria for state financial support was set in all surveyed countries. The hotels reported set limits of reduced revenue of 50 %, 40 % or 30 %. In the other hand at the same time selected hotels claim the opposite about no limit support. Probably, the hotels were not fully informed about the possibilities of state financial support to a sufficient extent.

The state guarantee for bank loans has not been a frequent instrument for obtaining external financial resources. Awareness of the possibility of a state guarantee has not been sufficient, especially in Croatia and Turkey.

The survey confirmed the hypothesis that all countries provided state financial support during the pandemic crisis. However, there were different levels of support, different conditions of support and different starting dates for financial support.

In terms of economic indicators in the hotel industry, we can conclude that changes during the COVID-19 pandemic period were different in the countries studied.

The pandemic crisis has been an accelerator for innovations to protect life and health as much as possible by respecting the quality of hygiene and creating new products. in which new approaches to online communication were also reflected. Hotel responses on innovation systems related to digitalization in communication B2C played a significant role. Innovative processes were mainly applied by hotels in Turkey Slovakia and Croatia. In contrast, the worst results concerning the non-adoption of innovation were in hotels in Hungary and North Macedonia.

In the impact of the pandemic crisis, the surveyed hotels anticipated the course of their business with different expectations. The catastrophic scenario of hotel closures was not expected by any of the hotels at the time of the survey. From this expectation, it can be concluded that hotels were still in optimistic level and expected to find options for solutions related to the pandemic crisis within the hotel operations.

The negative changes in the economic indicators i.e. hotel revenue (revenue before taxes, interest payments on loans and EBITDA depreciation), revenue per room (average price of rooms sold), hotel occupancy (per room) and hotel employment (number of 100 % full-time employees) were the most moderate in the hotel industry of Turkey. Compared to other studied countries, the lowest effects of the pandemic are expressed in Cluster 1. This fact of the most moderate impacts in Turkey is also supported by the results of the applied cluster analysis of innovative processes and practices. This involved the development of new products (new services), communication with customers, communication with employees, communication with state and local government at the county, city, and municipality levels, and the development of digitalization in the hotel industry. The above-mentioned phenomena represent positive changes in the impact of the COVID-19 pandemic on hotel businesses. The positive phenomena were also observed by hotels in the other surveyed countries. This is reflected in the clusters consisting of the countries Croatia, North Macedonia (Cluster 2), Czech Republic, Hungary (Cluster 3), Ukraine (Cluster 4) and the Slovak Republic (Cluster 5).

The applied analyses allow us to identify the current economic development of the hotel industry in the studied countries affected by the COVID-19 pandemic and their prioritization – crisis management in terms of innovating certain processes and procedures due to the pandemic.

Bibliography

1. ASBURY, S. & JACOBS, A. (2014). *Dynamic risk assessment: The practical guide to making risk-bbased decisions with the 3-Level Risk Management model*. London: Routledge.

2. AVEN, T. (2019). *The science of risk analysis,* Foundation and practice. London: Routledge.

3. BALÁŽ, P. et al. (2010). *Medzinárodné podnikanie: na vlne globalizujúcej sa svetovej ekonomiky.* Bratislava: Sprint dva.

4. BENČIČ, S., KITSAY, Y. A., KARBEKOVA, A. B. & GIYAZOV, A. (2020). *Specifics of Building the Digital Economy in Developed and Developing Countries*. In: Popkova, E., Sergi, B. (eds) Digital Economy: Complexity and Variety vs. Rationality. ISC 2019. Lecture Notes in Networks and Systems, vol 87. Springer, Cham. https://doi.org/10.1007/978-3-030-29586-8_5

5. COFACE. (2019). *Coface country & sector risks handbook.* Retrieved April 15, 2020, from: http://static.coface.com/handbook/coface-country-sector-risks-2019.pdf

6. ČASTOKRÁL, Z. (2017). *Manažment rizik v současných podmínkách*. Praha: UJAK.

7. Elaborated: Make the SDGS a reality. (2017). Retrieved August 18, 2021, from: https://sdgs.un.org; https://sustainabledevelopment.un.org/index.php?page=view&type=20000&nr=7043&menu=2993; https://sdgs.un.org/goals/goal3; https://sdgs.un.org/events/using-sdg-partnership-guidebook-34387; https://sdgs.un.org/topics/disaster-risk-reduction; https://sdgs.un.org/events/exploring-impact-covid-19-pandemic-msmes-27233; https://sdgs.un.org/events/economic-and-social-impacts-covid-19-27230

8. EVERITT, B. S., LANDAU, S., LEESE, M. & STAHL, D. (2011). *Cluster Analysis.* New Jersey: John Wiley and Sons Inc.

9. FESER, E. J. & LUGER, M. I. (2003). Cluster analysis as a mode of inquiry: Its use in science and technology policymaking in North Carolina. *European Planning Studies, 11*(1), DOI: https://doi.org/10.1080/09654310303664

10. FESER, E. J. (2008). *On building clusters versus leveraging synergies in the design of innovation policy for developing economies*. Retrieved December 26, 2021, from: http://works.bepress.com/edwardfeser/25/

11. GÁLL, J., STREŽO, M. & ÖZOĞLU, M. (2021). *Vybrané štatistické metódy v cestovnom ruchu.* Praha : Wolters Kluwer ČR.

12. GOELDNER, CH. J. & RITCHIE, J. R. B. (2016). *Tourism, Principles, Practices, Philosophies*. John Wiley & Sons (US).

13. HAN, J., KAMBER, M. & PEI J. (2011). *Data Mining: Concepts and Techniques.* Burlington: Elsevier Science.

14. HELLIWEL, J. F., LAYARD, R. & SACHS, J. D. (2020). *World Happiness report.* Retrieved December December 27, 2021, from: https://worldhappiness.report/ed/2020/

15. HENDERSON, J. C. (2007). *Managing tourism crises.* Oxford: Elsevier.

16. HENNIG, CH., MEILA, M., MURTAGH, F. & ROCCI, R. (2015). *Handbook of Cluster Analysis.* New York: CRC Press.

17. ME, A. & FU, H. (2020). *How Covid-19 is changing the world: a statistical perpective*. Committee for the Coordiation of Statistical Activities, p. 36: https://unstats.un.org/unsd/ccsa/documents/covid19-report-ccsa.pdf

18. ME, A. & FU, H. (2021). *How Covid-19 is changing the world: a statistical perpective, Volume III*. Committee for the Coordiation of Statistical Activities, p. 81: https://unstats.un.org/unsd/ccsa/documents/covid19-report-ccsa_vol3.pdf

19. MELOUN, M. & MILITKÝ, J. (2002). *Kompendium statistického zpracování dat: Metody a řešené úlohy včetně CD.* Praha: Academia.

20. MELOUN, M., MILITKÝ, J. & HILL, M. (2017): *Statistická analýza vícerozměrných dat v příkladech.* Praha: Univerzita Karlova v Praze.

21. MIKOLAJ, J. (2001). *Rizikový manažment.* Žilina: Fakulta špeciálneho inžinierstva Žilinskej univerzity v Žiline.

22. NOVACKÁ, Ľ. (2009). Podniky cestovného ruchu na medzinárodnom trhu v období globálnej krízy. *Ekonomické Rozhľady: Vedecký Časopis Ekonomickej Univerzity v Bratislave*, *38*(3).

23. PAS 3001:2016. TRAVELING FOR WORK. (2016). *Responsibilities of an organization for health, safety and security. Code of practice.* Retrieved October 15, 2021, from: https://www.britishstandard.org. uk/pub/pas-30012016-9780580919848.aspx

24. REZANKOVÁ, H., HÚSEK, D. & SNÁŠEL, V. (2007). *Shluková analýza dat.* Praha: Profesional Publishing.

25. R CORE TEAM. (2020). *A language and enviroment for statistical computing.* Retrieved December 23, 2021, from R Foundation for Statistical Computing: http://www.R-project.org/

26. RISK ASSESMENT (2014). Retrieved October 15, 2021, from: https://www.hse.gov.uk/pubns/indg163.pdf

27. RYBÁROVÁ, D. & GRISÁKOVÁ, N. (2010). *Podnikateľské riziko*. Bratislava: Iura Edition.

28. SAS. (2019). *Model Risk Management for Insurance,* Retrieved November, 11, 2021, from SAS Institute Inc.: sas.com/content/dam/SAS/documents/marketing-whitepapers-ebooks/sas-whitepapers/en/sas-mrm-for-insurance-white-paper.pdf

29. SARAÇLI, S., DOĞAN, N. & DOĞAN, İ. (2013). Comparison of hierarchical cluster analysis methods by cophenetic correlation. *Journal of Inequalities and Applications*, 203, DOI: https://doi.org/10.1186/1029-242X- 2013-203

30. SCHWAB, K. et al. (2018). *The Travel & Tourism Competitiveness Report.* Retrieved October 20, 2021, from: https://www3.weforum.org/ docs/WEF_GRR18_Report.pdf

31. SCHWAB, K. et al. (2019). *The Travel & Tourism Competitiveness Report.* Retrieved October 20, 2021, from: https://www3.weforum.org/ docs/WEF_Global_Risks_Report_2019.pdf

32. SCHWAB, K. et al. (2020). *The Travel & Tourism Competitiveness Report*. Retrieved October 20, 2021, from: https://www3.weforum.org/docs/WEF_Global_Risks_Report_2019.pdf

33. SCHWAB, K. et al. (2021). *The Travel & Tourism Competitiveness Report.* Retrieved October 20, 2021, from: https://www3.weforum.org/docs/WEF_The_Global_Risks_Report_2021.pdf

34. STANKOVIČOVÁ, I. & VOJTKOVÁ, M. (2007). *Viacrozmerné štatistické metódy s aplikáciami.* Bratislava : Iura Edition spol s. r. o.

35. SURVEY MONKEY. (2021). Retrieved from: https://www.survey monkey.com/

36. ŠIMÁK, L. (2006). *Manažment rizík*. Žilina: Žilinská univerzita v Žiline.

37. UMLAUFOVÁ, M. & PFEFIER, L. (1995). *Prevence a řízení podnikatelské krize v aktuálním českém hospodářském prostředí*. Praha: Victoria publishing.

38. UNDRR. (2020). *Understanding risk.* Retrieved August 15, 2020, from: https://www.undrr.org/building-risk-knowledge/understanding-risk

39. UNDRR (2021). *Strategic Framework 2022 – 2025*. Retrieved August 20, 2021, from: https://www.undrr.org/publication/undrr-strategic-framework-2022-2025

40. UNWTO. (2020). COVID-19 Related Travel Restrictions – A Global Review for Tourism, Retrieved November, 11, 2021, from: https://webunwto.s3.eu-west-1.amazonaws.com/s3fs-public/2021-07/210705-travel-restrictions.pdf

41. VOCHOZKA, M., EZROVÁ, H., KAFKA, T., MULAČ, P., MULAČOVÁ, V., OPEKAROVÁ, L., PÁRTLOVÁ, P., TUČEK, J. & VÁCHAL, J. (2012). *Podniková ekonomika.* Praha: Grada Publishing.

42. WTTC. (2021). *A Platform for Government Engagement 2021.* Retrieved June 12, 2021, from: https://wttc.org/Governments#Best%20Practices%20During%20COVID-19

43. WTTM. (2021). *TO RECOVERY & BEYOND: The Future of Travel & Tourism in the Wake of COVID-19.* Retrieved November 12, 2021, from: https://wttc.org/Initiatives/To-Recovery-Beyond

44. ZINN, O. J. (2017). The meaning of risk-taking – key concepts and dimensions. *Journal of Risk research*, *22*(1), DOI: https://doi.org/10. 1080/13669877.2017.1351465

45. ZUZÁK, R. (2004). *Krizové řízení podniku (dokud ještě není v krizi).* Praha: Professional Publishing.

Attachment – Questionaire in English

* 5. Identifitacion data " The number of rooms"

- [ ] 10-20
- [ ] 21-50
- [ ] 51-100
- [ ] 101-150
- [ ] 151-200

* 6. Identification data "The number of employees (permanent full-time)"

- [ ] 1 - 20
- [ ] 21 - 50
- [ ] 51 - 70
- [ ] 71-100
- [ ] 101-150
- [ ] 151 and more

* 7. Identification data " Opening time of the hotel in standard conditions "

- [ ] Yearly
- [ ] Part of the year (limited number of month)

* 8. How did/does COVID-19 affect your hotel business   in the named period 2020 compared to the year 2019

	1st Quarter 2020	2nd Quarter 2020	3th Quarter 2020	4th Quarter 2020
Hotel revenue (earnings before interest, taxes, depreciation, and amortization EBITDA)				
Revenue per sold room (average rate per room ARR)				
Hotel rooms occupancy (average occupancy in the hotel)				
Employment (the number of permanent full time employees)				

2

* 9. How did/does COVID-19 affect your hotel business in the named period 2021 compared to the year 2019

	1st Quarter 2021
Hotel revenue (earnings before interest, taxes, depreciation, and amortization EBITDA)	
Revenue per sold room (average rate per room ARR)	
Hotel rooms occupancy (average occupancy in the hotel)	
Employment (the number of permanent full time employees)	

* 10. Have you noticed increased operating costs due to special measures because of pandemic?

☐ No

☐ Yes approximately 21% - 30%

☐ Yes approximately 1% - 10%

☐ Yes approximately more than 30%

☐ Yes approximately 11% - 20%

* 11. Did you obtain the financial support (financial aid) for employment in the year 2020 from the state budget?

☐ Yes automatically

☐ No, we didn't ask the state support

☐ Yes in reference to an announcement offer from the state, in conditions of specified criteria

☐ No support

☐ other

☐ No, the state criteria were difficult and complicated

* 12. Have you obtained the financial support (financial aid) for employment in 1-4/2021 from the state budget? *

☐ Yes automatically

☐ No, we didn't ask the state support

☐ Yes in reference to an announcement offer from the state, in conditions of specified criteria

☐ No support

☐ other

☐ No, the state criteria were difficult and complicated

* 13. Did you obtain the financial support (financial aid) for rental costs (fixed costs) in the year 2020 from the state budget?

☐ Yes automatically

☐ No, we didn't ask the state support

☐ Yes in reference to an announcement offer from the state, in conditions of specified criteria

☐ No support

☐ other

☐ No, the state criteria were difficult and complicated

3

* 20. Did you ask the state institutions for some type of guarantee related to the bank loan?

☐ Yes

☐ No, the criteria of the state guarantee were not suitable for our hotel (our hotel company

☐ No, in our country the state guarantee does not exist yet

* 21. Due to pandemic, did you innovate some process or operation in your business?

○ Yes, development of new product (services)

○ Yes, communication to customers

○ Yes, communication to staff

○ Yes, communication to regional government and local municipality

○ Yes, PR generally

○ Yes, systems of digitisation

○ Yes, partnership

○ Yes, systems of Q and measures in hygiene and sanitation

○ Yes, systems of Q in sustainable production

○ Yes, other type of innovation

○ No innovation, we didn´t innovate process/operation

* 22. Do you expect to keep operating this year 2021

☐ Yes, we will do in reduced room capacity

☐ Yes, we will do in reduced number of staff

☐ Yes, we are sure to do the same operations

☐ We are not sure, it depends of pandemic conditions and pandemic measures

☐ Not sure, we will probably close the hotel

☐ No, we will close the hotel

5

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