

# DETUROPE



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## **SOCIAL INNOVATION POTENTIAL AND QUALITY OF LIFE: THE EXAMPLE OF HUNGARIAN SETTLEMENTS**

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### **Abstract**

As part of a major research task, our research group's previous research on social innovation examined the process, levels, stakeholders and relationship with technical and technological innovation, and analyzed the measurement of social innovation potential and its contribution to competitiveness. Our current study analyzes the complex picture created by social innovation potential and examines how social welfare can be realized in the idea of sustainable value creation, or its increase. The most important conclusion of the study is that in order to improve the quality of life, it is primarily necessary to improve the input indicators of the social innovation potential in general. Based on a novel analytical framework, the study summarizes the quantitative results on the contribution of social innovation potential to quality of life identified for the settlements in Hungary. Our study draws conclusions on how the results can be applied in the economic development decision-making process of settlements.

Keywords: social innovation, quality of life, Hungary, human potential of a settlement

### **INTRODUCTION**

The present study relies on the authors' previous research results, which investigated the process, levels, stakeholders, and relationship of social innovation with technical and technological innovation, and analyzed the contribution of social innovation potential to competitiveness in a complex analysis (Varga et al., 2020, Varga & Tóth, 2021, Varga et al, 2023, Tóth & Varga, 2024, Tóth et al., 2024). To enrich the research area, we have initiated further studies analysing the relationship between the potential indicator for measuring social innovation and factors of quality of life.

The quantification of the contribution of social innovation potential to quality of life is a relevant challenge, and within the framework of the present study we undertake this analysis for the settlements of Hungary. Among the studies of the relationship between social innovation potential and the quality of life, there is not a study in which the contribution of social innovation to the quality of life has been quantified. In order to quantify the relationship between quality of life and social innovation in the context of settlements, we

attempt to investigate the potential of linking the indicator of social innovation potential and quality of life factors in settlements.

The national and international literature is paying increasing attention to the study of social innovation and its impacts. Among the investigated areas, the study will focus on issues of measurability and impact on quality of life. Conceptualizing social innovation, determining the logic and measurement levels of the social innovation process, and modelling based on empirical research are relevant challenges, but the literature on this subject take a different approach to these issues. The authors have been studying social innovation for almost 10 years, with a particular focus on the issue of measurability. As members of the social innovation research group, the authors present a new segment of research with their current study. While the logic of social innovation processes and the possible relationship of social innovation and quality of life have been systematically investigated in previous research (Varga et al., 2020, Varga & Tóth, 2021, Veresné Somosi et al., 2023, Tóth et al., 2024), the impact of social innovation potential on quality of life has not been examined in depth. In the current research framework, the focus is primarily put on the measurement of social innovation potential, which is the set of capabilities that facilitate the creation of social innovations (Kocziszky et al., 2015, Szendi, 2018, Kleverbeck et al., 2019, Nagy & Tóth, 2019, Tóth et al., 2024), distinct from the basic conditions for social innovation, which are necessary for the creation and implementation of innovations in a given region or organisation (Szendi, 2018, Nemes & Varga, 2015, Varga, 2017). In this research, the authors identify social innovation as a process in which, in addition to measures (outcomes) aimed at increasing quality of life, the emergence of novel structures, the promotion of social empowerment, and the process of promoting attitude change and participation are emphasized.

The study aims to answer the complex question of how social innovation potential influences changes in the quality of life and to what extent the input, output and impact indicators of social innovation potential contribute to the increase in the quality of life, and whether a specific pattern can be identified in Hungarian settlements that can be related to social innovation capacity. A research gap has been identified to investigate the relationship between social innovation potential and the quality of life, with a particular focus on the applicability of the HDI (Human Development Index) indicator. In our preliminary study (Tóth & Varga, 2024), we dealt with the predominantly economic approach, based on GDP per capita. Our experience has shown that the social innovation potential and its components have only a very weak relationship with the GDP per capita, so we wanted to analyze the

quality of life in a more complex way. That is why, we adapted the use of the HDI indicator applicable at the level of domestic settlements, the settlement human potential indicator in our work.

## **THEORETICAL BACKGROUND**

Based on our previous studies (Veresné Somosi & Varga 2021, Varga & Tóth, 2021, Veresné Somosi et al., 2023, Tóth et al., 2024), we have summarized the main emphases and the focuses of each approach of social innovation. Social innovation offers new responses to social questions, while enhancing social interactions and improving the quality of life and well-being. In our opinion, it is worth exploring the links between social innovation and improving the well-being in more detail, which could also help policy-makers to develop policies that support the improvement of quality of life.

The concept of social innovation began to develop and become a theory in the mid-18th century (Veresné Somosi & Varga, 2021). Questions of social innovation appeared in papal encyclicals, in the reflections of sociologists and philosophers, and later in the studies of academics, researchers, NGOs, governmental and intergovernmental bodies, and in the scientific journals of their peers. Based on ecclesiastical doctrine and sociology, the first phase of the evolution of the concept (18th-19th centuries) can be identified as a preliminary phase, i.e. concept definition phase. In the next phase (20th century), the theory of innovation and the separation of technical, economic and social innovations became more prominent. In the first decade of the 2000s, the focus was on solutions to meet society's needs, innovative ideas, and the phase of innovative cooperation continued. From 2010 onwards, the focus is on social problem-solving based on the involvement of the individual, and on the study of social processes that improve living standards, using a process-oriented approach. A prominent trend of social innovation theories emphasises the improvement of quality of life by solving social problems (Pol & Ville, 2009, Peyton Young, 2011).

Murray et al. (2010) identify the concept of social innovation as leading to social transformation and shaping, the development of new products, services and programmes, organisational change and the emergence of social enterprises, and as a new model of governance and community decision-making. Social initiatives are launched by members of society and are organised to meet specific needs. Following the transformation of social relations, new scenarios and solutions lead to an improvement in the quality of life, creating opportunities for community development (CRISES, 2012).

The basic purpose of social innovations is to increase the quality of life. The most important mission of social innovation is generating social values and enhancing quality of life and sustainable development (Howaldt et al. 2014, Phills et al. 2008). Social innovation can offer valuable opportunities among which a group of people can choose and thus improve their quality of life (Pol & Ville, 2009). An important question is how we want to measure this. Several possibilities emerge in the literature (Lipták, 2017, Veresné Somosi & Balaton, 2021), however, only few attempts have been made to quantify such a relationship. There is an approach which follows certain spatial adaptation of the GDP per capita and HDI indicators. The research uses spatial adaptation of the HDI, one of the most widely used social indicators. Social Development Reports, published regularly by the United Nations, are the HDI indicator to rank countries and make recommendations to policy-makers. The HDI is an indicator of people's living standards that is much more closely aligned in its complexity to the daily impact on the average person than GDP, which is of particular importance only to a small, wealthier section of society (Köpeczi-Bócz, 2011). However, most countries still use the GDP-based calculation. The primary reason for this is that the HDI is calculated in a multi-dimensional and multi-indicator system. Indeed, the HDI has three dimensional components:

- - long and healthy life,
- - education,
- - standard of living.

Based on the above, there is a very complex measurement system for HDI, based on at least four indicators as originally defined. The HDI indicator has been used regularly since 1990. It is one of several indicators which measure human well-being aiming to capture how human beings develop, and indeed measures quality of life. It is an indicator to replace GDP as a measure of social well-being because, as HDI developers argue, economic growth is a necessary but not sufficient condition for social well-being.

In scientific discourse, there has been an intense debate for decades about measuring the standard of living and quality of life, as well as examining well-being. It is agreed that GDP alone is unsuitable for measurement, but a consensus solution for a substitute has not yet been reached (György, 2024). The measurement criteria not captured by GDP can be divided into three parts: welfare, well-being and sustainability. Well-being can be interpreted more broadly including individual happiness, health and overall quality of life. In 2007, the European Commission held a wide-ranging conference which focused on presenting the most suitable indices for measuring development. One such index is the HDI, which was the first to attempt

to quantify a country's well-being within institutionalized frameworks through a simple indicator, incorporating elements beyond financial aspects, such as life expectancy at birth, literacy, and educational attainment. According to the HDI concept, besides economic performance, a long and healthy life and education are the other two dimensions that fundamentally determine individuals' choices. Thus, the HDI is a composite index that aggregates three dimensions. The main goal of composite indicators is to characterize the given problem as fully as possible with a single measure. In this sense, the HDI offers an alternative to GDP for measuring social well-being. Its value ranges between 0 and 1, where 1 represents the maximum level of development. The index is formed by averaging three indicators, which measure the following dimensions (HCSO, 2008): the goal of a “long and healthy life” is quantified by life expectancy at birth, “education” is represented by the adult literacy rate and the enrollment ratio in various levels of schooling, and “standard of living” is represented by the per capita gross domestic product adjusted for purchasing power parity. The variables included in the HDI indicator are objective, though the methodology is simplified, as it is based on a weighted arithmetic mean. Currently, the index examines 189 countries, categorizing them into four different groups: very high, high, medium, and low human development countries. Creating this index was a significant step towards measuring the well-being of the countries of the world, providing a simple and transparent indicator. However, it should be developed and improved. The UN has partially addressed this by creating the IHDI (Inequality-adjusted Human Development Index), which describes regional inequalities, and numerous scientific publications address regional issues. In the framework of this research, we use Lipták's (2017) calculation method at the settlement level to examine the relationship between social innovation potential and the quality of life.

Social innovation and quality of life are two interrelated concepts that play crucial roles in the development and sustainability of communities. Social innovation refers to the development and implementation of new ideas, strategies, and projects that address social needs and challenges, while quality of life means the overall well-being of individuals and communities. According to our literature review, the sources of the topic explore the relationship between social innovation potential and quality of life, drawing on various theoretical frameworks and empirical studies. Social innovation potential is the capacity of a community or society to generate, adopt, and implement innovative solutions to social problems. Factors influencing social innovation potential include (EC, 2013, Schmitz et al., 2013):

- human capital: education, skills, and creativity of the population,

- economic resources: availability of financial resources to support innovation
- social capital: networks, trust, and collaborative relationships,
- social requirements: needs, demands, commitment and attitudes
- institutional framework: policies, governance, and supporting structures that facilitate innovation.

Quality of life refers to the overall well-being of individuals and communities, encompassing multiple dimensions (Szigeti, 2016):

- welfare: economic stability, income, and employment,
- well-being: individual's perception of happiness and life satisfaction,
- health: physical and mental health, access to healthcare services,
- education: access to quality education and lifelong learning opportunities,
- social relationships: family ties, community engagement, and social networks,
- environment: quality of the natural and built environment, housing,
- political framework: governance and public participation.

According to Lundvall (1992), innovation systems involve the interactions between various actors and institutions that contribute to the innovation process. A robust innovation system can enhance social innovation potential, leading to economic growth and improved quality of life. Putnam (2000) argues that social capital – networks, norms, and trust – facilitates coordination and cooperation for mutual benefit. High social capital can enhance social innovation potential, leading to improved quality of life through collective problem-solving and community resilience. Access to healthcare and overall population health are critical for sustaining social innovation activities. Healthier populations are more likely to engage in innovative practices, leading to improved quality of life (Mulgan et al., 2007).

Economic resources provide the necessary funding and infrastructure for social innovation projects. Research indicates that regions with higher economic stability and income levels tend to have greater social innovation potential and better quality of life (Hidalgo & Hausmann, 2009). Research comparing urban and rural areas shows that urban areas often have higher social innovation potential due to better access to resources and networks. However, innovative rural projects also significantly improve quality of life by addressing unique local needs (Murray et al., 2010). The relationship between social innovation potential and quality of life is complex and versatile. Theoretical perspectives and empirical evidence suggest that enhancing social innovation potential through education, economic stability, social capital, and supportive institutions can lead to significant improvements in quality of life. Policy-makers and stakeholders should focus on creating environments that foster

innovation and address social needs, ultimately contributing to the well-being and community development.

## DATA AND METHODS

In order to measure social innovation potential, we compiled an indicator system based on the literature (Benedek et al., 2015) used for our previous studies. For a more transparent structure, the indicators of the complex social innovation potential are presented in a footnote, grouped into input, output and impact indicators<sup>1</sup>. The social innovation potential indicator was developed in 2019 by our research group, and the variables included in the study have

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<sup>1</sup> The indicator system consists of 3 parts: input, output and impact indicators. In our previous study (Tóth et al., 2024), 8 indicators were included in each of the three groups. The indicators were compiled for the period until 2020 for the settlements of Hungary (a total of 3155 settlements). An exception is the indicators from the census (2011). When compiling the indicator system, it had to be taken into account that the indicators do not point in the same direction (e.g. the lower value for the unemployment rate means the positive, while in relation to the amount of tenders paid per inhabitant, the higher the value, the more positive the situation in terms of social innovation). In the case of indicators where low values represent a favorable situation, the reciprocal of the indicators is calculated. We normalized the indicators in each indicator group in order to make our data on different scales comparable with each other. We calculated the average of the normalized data in each indicator group. No weighting was done during the calculations (not highlighting any one factor to the detriment of others).

The following indicators were included among the input indicators:

1. Number of NGOs per 10,000 inhabitants
2. Number of active enterprises per 1,000 inhabitants
3. Number of non-profit enterprises per 1,000 inhabitants
4. Child population as a percentage of the resident population
5. Number of elderly persons per 100 children
6. Age-dependency ratio (children (0-14 years) and elderly population (65 and up) as a percentage of the population aged 15-64)
7. Activity rate (taxpayers/population\*100)
8. Average number of completed classes, 2011

The output indicators included the following indicators:

1. Amount paid per capita
2. Proportion of participants in public employment schemes in relation to the population aged 15-64
3. Number of participants in cultural events per 1 000 inhabits
4. Proportion of disadvantaged pupils
5. Number of people receiving social catering per 1 000 inhabitants
6. Number of people receiving home help per 1 000 inhabitants
7. Unemployment rate
8. Patient turnover per family doctor and family pediatrician

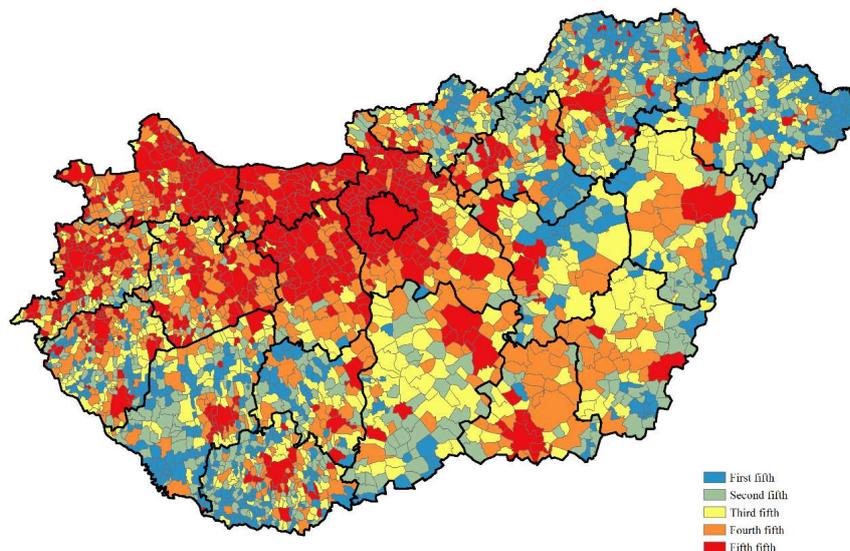
The following indicators were included among the impact indicators:

1. Income per capita (thousand HUF)
2. Proportion of the population aged 7 and over with primary education (including those who have not completed school)
3. Proportion of single person households
4. Proportion of families with three or more children
5. Number of registered crimes per 1 000 inhabitants
6. Number of places in permanent residential care facilities per 1 000 in-habitants
7. Percentage of taxpayers earning in the income bracket 0–1 million HUF
8. Proportion of public spaces regularly cleaned.

For more information: Tóth G, Varga K, Benkó KF, Dávid LD. (2024). Social innovation potential and economic power: The example of Hungarian districts. *Journal of Infrastructure, Policy and Development*. 8(3), 3042. <https://doi.org/10.24294/jipd.v8i3.3042>

been revised several times over the period. The quantification of the social innovation potential has been referred to in several publications or research report (Varga et al., 2020, Veresné Somosi & Varga, 2021, Varga & Tóth, 2021, Varga et al, 2023, Tóth & Varga, 2024, Tóth et al., 2024), but in order to fully understand the study, the methodology is described in the footnote of this chapter, too. The detailed calculation can be found in the study of Tóth et al. (2024) which presents a part of our research and serves as a precursor to the present study. The composite indicator measuring social innovation was calculated from the average of the three indicator groups (Figure 1). The magnitude of the complex indicator of the social innovation potential in the majority of the settlements was influenced to the greatest extent by the impact indicators. This study, using the values of the social innovation potential calculated for each settlement (Figure 1), aims to use the HDI indicator to formulate novel findings that clarify the relationship between certain indicators of social innovation potential and quality of life.

**Figure 1:** A composite indicator measuring the social innovation of Hungarian settlements

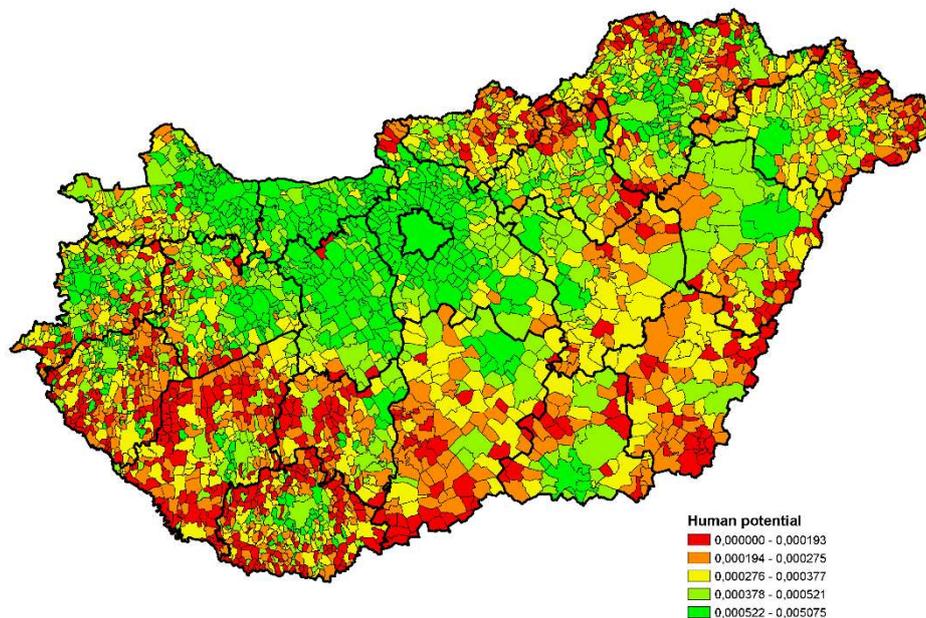


Source: own editing (based on HCSO data)

In terms of the spatial image of the social innovation potential, one can assume that the capital (Budapest), its agglomeration and the northern part of Transdanubia are in the most favorable position (fifth fifth), accompanied by the county seats and their catchment areas. We find disadvantaged settlements in the border and peripheral regions of North-East and South-West Hungary, as well as those located near the shared borders of Heves and Jász-Nagykun-Szolnok, Somogy and Tolna, and Borsod-Abaúj-Zemplén and Szabolcs-Szatmár-Bereg counties (in the first fifth).

In the new part of our present analysis, with the help of multiple linear regression, we first tried to investigate the extent to which the components of the social innovation potential we had created determine the quality of life for the settlements of Hungary (3155 settlements), which this time we attempted to quantify with the human potential of the settlement. According to Lipták (2017), when measuring the development of human capital at regional levels, we encounter challenges because indicators such as the HDI or human potential vary when calculated for smaller territorial units compared to national levels, necessitating the use of appropriate indicators available for the specific regional unit. In the current adoption of the human development index, we obtained it by using the aging index (2020), the average number of classes completed by 15-64-year-olds (2011), and the per capita income (2020). We calculated the indicators and then normalized the indicators in order to filter out scale differences. By multiplying the normalized indicators and calculating the cube root of the product, we obtained the human potential of the settlement. In practice, this meant that, after calculating each sub-index, the final values of the human potential of the settlement were calculated by using the geometric average, the product of the sub-indices, multiplied by the third root.

**Figure 2.** Human potential at settlement level, 2020



Source: own editing (based on HCSO data)

As Figure 2 shows, the agglomeration of Budapest, the northern part of the Transdanubian region, the county seats and their catchment areas are in the most favourable position in terms

of human development potential. Disadvantaged settlements are mainly located in the South Transdanubian region and in the Southern Great Plain. In general, the most disadvantaged peripheries are the outer peripheries along the national border and the inner peripheries along the border of the counties. According to our previous studies (Varga et al., 2023, Tóth et al., 2024), the social innovation potential and the current development situation of settlements move together, but social innovation can create a positive displacement potential in the medium term, in line with slowly changing territorial processes. Investing in social innovation potential has a fundamental impact on competitiveness and, according to our study, on improving quality of life.

## RESULTS

The fit of the multiple linear regression model (OLS) is moderately strong (adjusted  $R^2=0.487$ ), and all three components of the social innovation potential (input, output, impact) were significant. We expected that the spatial dependence can be found in this estimate, and in such a case the geographical location has an influence on the actual relationships, and thus the traditional econometric estimates will be twisted. The Moran's I statistic was used to test for spatial dependence. Moran's I formula is as follows (Moran, 1948):

$$I = \frac{n}{2A} * \frac{\sum_{i=1}^n \sum_{j=1}^n \delta_{ij} (y_i - \bar{y})(y_j - \bar{y})}{\sum_{i=1}^n (y_i - \bar{y})^2} \quad I = \frac{n}{2A} * \frac{\sum_{i=1}^n \sum_{j=1}^n \delta_{ij} (y_i - \bar{y})(y_j - \bar{y})}{\sum_{i=1}^n (y_i - \bar{y})^2}$$

where  $n$  is the number of settlements,  $y_i$  is the human potential of the settlement in each settlement,  $\bar{y}$  is the unweighted arithmetic mean of the human potential of the settlement, the number of neighborhood relations is denoted by  $A$ , and the value of the coefficient  $\delta_{ij}$  is 1 if  $i$  and  $j$  are adjacent, otherwise 0. (Dusek, 2004).

The global autocorrelation of the human potential of the settlement for all settlements in Hungary: Moran I: 0.424.

When interpreting the data, it is important to note that the calculated indicator should be interpreted in the following ranges and ways:

$I > -1/N-1$ , positive spatial autocorrelation,  
 $I = -1/N-1$ , no spatial autocorrelation,  
 $I < -1/N-1$ , negative spatial autocorrelation

$0.424 > -0.00032 (-1/3155-1) \rightarrow$  positive spatial autocorrelation

In the present case, this means positive spatial autocorrelation, i.e. the spatial concentration of similar values is higher than would be expected as a result of natural processes. There are settlements with high human potential next to settlements with high potential, and settlements with low human potential are situated next to settlements with low potential. Our null hypothesis, i.e. there is no spatial dependence, can therefore be rejected.

The size of the human potential of the settlement can be characterized by spatial separation or spatial clusters. We therefore felt it necessary to further investigate the spatial dependence. This was also confirmed by the results of the normality and heteroscedasticity tests, which are significant. In other words, our indicators show spatial dependence, so we can state that it is necessary to create a spatial model that pays attention to such characteristics (Varga, 2002, Anselin & Rey, 2014, Váry, 2017).

We found that the spatial dependence can be estimated, so we decided to use a spatial model. The concept of lags (LAG) is applied when performing spatial analyses. The general model of spatial lags can be described as follows:

$$y = \rho W y + \beta X + \varepsilon$$

where  $y$  is the vector of values of the outcome variable,  $\rho$  is the coefficient of the spatially lagged outcome variable (i.e. the spatial autoregression parameter),  $W$  is the row-standardized weight matrix,  $\beta$  is the parameter vector of exogenous explanatory variables,  $X$  is the matrix of exogenous explanatory variables,  $\varepsilon$  is the vector of values of the error term (Varga, 2002, Anselin & Rey, 2014, Váry, 2017).

Another common form of spatial econometric modelling is the application of the spatial error autocorrelation model (ERROR). The general formula of this model is illustrated in the equations below:

$$y = \beta X + \varepsilon$$

and

$$\varepsilon = \lambda W \varepsilon + \xi$$

where  $\varepsilon$  is the vector of autoregressive error terms,  $\lambda$  is the spatially lagged parameter coefficient of the autoregressive error terms, and  $\xi$  is the vector of independent, identically distributed error terms with zero expected value (Varga, 2002). Spatial dependence can be indicated if  $\lambda$  is significant, since in this case interactions between nearby spatial units are reflected in the error term values.

There is also a combination of the two spatial econometric models presented above, in which both spatial lags and spatial error autocorrelation appear in the combined model.

We performed our calculations using the GeoDaSpace software applying queen neighborhood. Several types of neighbourhood matrices have been modelled (e.g. rook and second or third degree queen neighbourhood, etc.) but the model fit is always degraded. Regarding heteroscedasticity, we applied White's standard error. The multicollinearity of our model is 25.7, which meets expectations. The Lagrange Multiplier tests were significant for both spatial delay and spatial error models. Since the coefficient values were higher in the case of the spatial delay model, we continued our analysis with it afterwards. This section presents the results of two regression models – Ordinary Least Squares (OLS) and Spatial Lag – applied to assess the relationship between social innovation indicators and quality of life at settlement level. The results include the constant, coefficients for input, output, and impact indicators, the spatial lagged coefficient, and the Pseudo R<sup>2</sup> values.

**Table 1** Results of the applied models

Denomination	OLS	SPATIAL LAG
Constant	-0.001365***	-0.001203***
Input indicators	0.007953***	0.006952***
Output indicators	0.003366***	0.002083***
Impact indicators	0.001068***	0.000502***
Spatial lagged coefficient	–	0.420581***
Pseudo R <sup>2</sup>	0.487	0.572

\*\*\* p<0,001, \*\* p< 0,01, \* p<0,1

Source: own calculation

The constant term in both models is significantly negative, indicating a baseline value when all indicators are zero. For the OLS model, it is -0.001365, while for the Spatial Lag model, it is -0.001203. The triple asterisks (\*\*\*) denote statistical significance at the 0,1% level, indicating high confidence in these estimates.

The coefficients for input indicators are positive and significant, showing a strong positive relationship between the input indicators of social innovation and the quality of life. The OLS model shows a coefficient of 0.007953, while the Spatial Lag model shows a slightly lower coefficient of 0.006952. This suggests that as input indicators improve, the quality of life increases.

The coefficients for output indicators are also positive and significant. The OLS model has a coefficient of 0.003366, and the Spatial Lag model has a coefficient of 0.002083. This

indicates that better output indicators are associated with improved quality of life, although the relationship is weaker compared to input indicators.

The impact indicators have positive and significant coefficients in both models, with the OLS model showing 0.001068 and the Spatial Lag model showing 0.000502. This indicates a positive but relatively weaker relationship between impact indicators and quality of life compared to input and output indicators.

The Spatial Lag model includes a spatial lagged coefficient of 0.420581, which is highly significant. This indicates the presence of spatial dependence, suggesting that the quality of life in one district is influenced by the social innovation activities in neighboring districts. This coefficient captures the spillover effects, emphasizing the importance of considering spatial relationships in the analysis.

The Pseudo  $R^2$  values indicate the goodness-of-fit for the models. The OLS model has a Pseudo  $R^2$  of 0.487, while the Spatial Lag model has a higher Pseudo  $R^2$  of 0.572. This suggests that the Spatial Lag model explains a greater proportion of the variance in the quality of life, highlighting the relevance of spatial dependencies.

The explanatory power of spatial models improved compared to traditional OLS, Pseudo  $R^2 = 0.572$ .

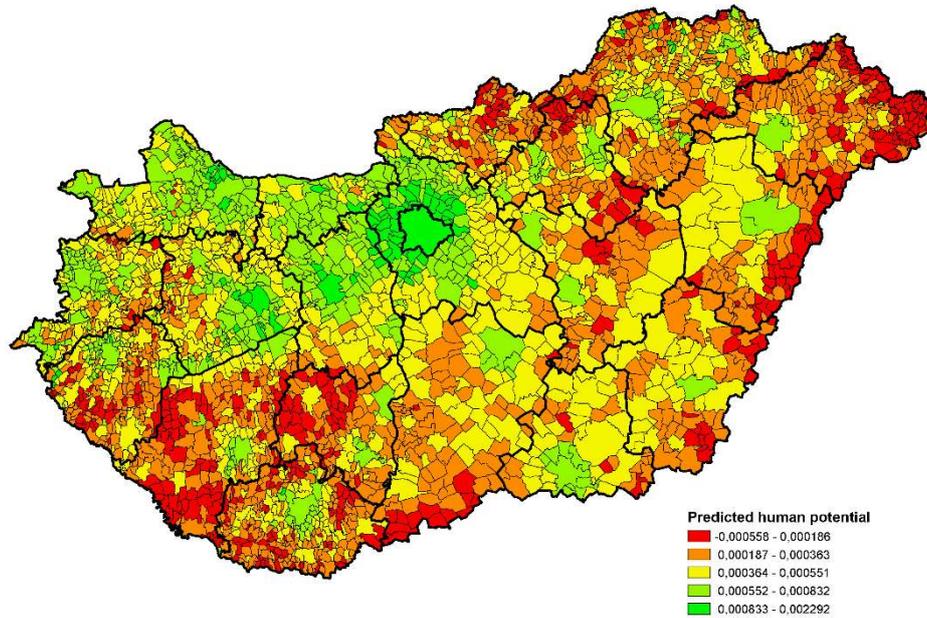
The spatially lagged explanatory variable has the greatest effect. This means that there are hotspots in the country where the human potential of the settlement is higher, and it is more likely that if the human potential of the settlement is high in the given settlement, it is also high in the surrounding settlements.

The input indicators have the greatest impact on the human potential of the settlement, followed by the output and then the impact indicators.

The Anselin-Kelejian test dealing with the spatiality of the error terms is not significant, i.e. no spatial structure is visible in the error terms. Therefore, there is no need to use a combined model that handles the spatiality of the error terms as well.

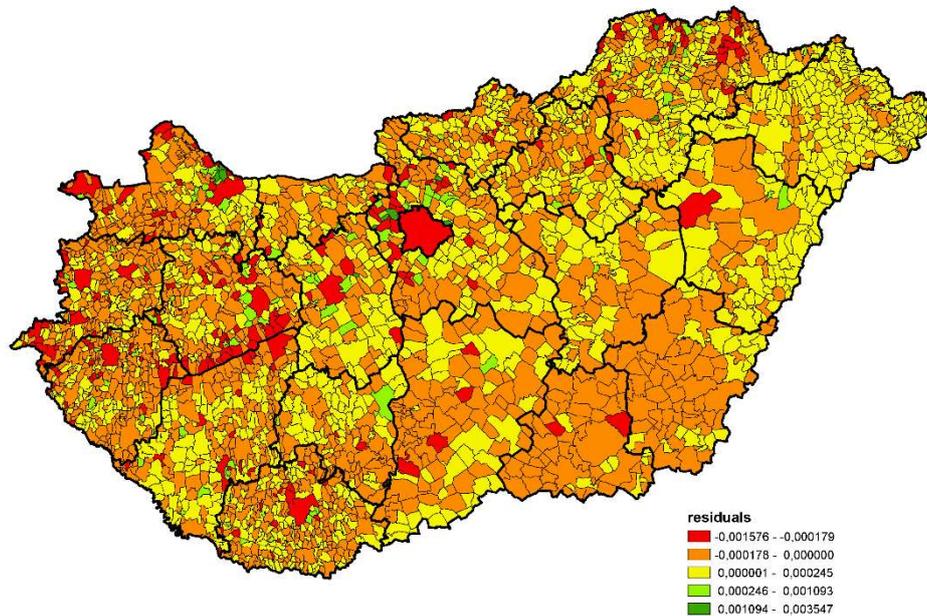
The results (Figure 3) and residuals (Figure 4) of the spatial delay are presented below. In terms of social innovation potential, the agglomeration of Budapest, the northern part of Transdanubia, the county seats and their catchment areas are in the most favorable position. Disadvantaged settlements are primarily found in Southern Transdanubia and the Southern Great Plain. In general, the outer peripheries along the national border and the inner peripheries along the county border are in the most unfavorable situation. In its basic structure, the spatial delay model also supports this pattern.

**Figure 3.** Results of a spatial model for estimating human potential at settlement level (LAG)



Source: own editing

**Figure 4.** Residuals of a spatial model estimating human potential at settlement level (LAG)



Source: own editing

The residuals show that Budapest, the settlements on the shore of Lake Balaton and some county seats (such as Pécs, Győr, Szombathely, Zalaegerszeg) are overvalued, while the value of the settlements in the catchment areas of the metropolitan centers is mainly underestimated.

We also performed the calculations by counties. The explanatory power of the spatial models ranges quite widely. Pseudo R<sup>2</sup> shows values of 0.33-0.78. The more variables are not significant or only significant at a low level, the lower the explanatory power of the model is.

With the exception of 3 counties, the spatially lagged variable also has a significant effect on the settlement's human potential. The input indicators are significant for all counties. When examined separately for each county, the output and impact indicators are only significant in a very small number of cases.

## **CONCLUSION AND DISCUSSION**

The research focused on the measuring of social innovation potential and quality of life at settlement level. Social innovation and improving quality of life are closely related concepts (Cajaiba-Santana, 2014, Pol & Ville, 2008, Veresné Somosi & Varga, 2021, Borzaga & Bodini, 2014), however, few attempts have been made to quantify their relationship.

Based on our examination, we can state that by using the social innovation potential, it is basically possible to give a good spatial estimate of the quality of life, which we have quantified in our present work with the spatial human potential. To improve the quality of life, it is primarily necessary to improve the input indicators, followed by the output and impact indicators.

In order to improve the quality of life, it is also necessary to continue and strengthen family and employment policy measures (of which the activity rate and the child population ratio are the most prominent) based on our results, which are closely related to the implemented social innovation projects or good practices.

The results of both the OLS and Spatial Lag models demonstrate significant positive relationships between social innovation indicators (input, output, and impact) and the quality of life. The Spatial Lag model, with a higher Pseudo R<sup>2</sup> and a significant spatial lagged coefficient, provides a more comprehensive understanding by accounting for spatial dependencies. These findings underscore the importance of considering both direct and spatial effects of social innovation activities when assessing their impact on the quality of life.

The majority of settlements with the highest human development scores are located in Central Hungary and the Western Transdanubia region. The lowest human development scores are mostly found in the settlements of Northern Hungary, Southern Transdanubia and Northern Great Plain. The values also show that the differences in human resource development between the centre and the periphery are significant.

From the generalisability's point of view, a further task is to define the general relationship between the different levels of measurement and to relate their measurement methods. On the other hand, the development of a database of good practices is another research task, since a so-called good practice repository could provide practical advice to decision-makers and participants in the social innovation process. Further exploration of the above lines of research could lead to the discovery of important correlations that could complement the research carried out in this study.

## SUMMARY

As part of a major research task, our research group's previous research on social innovation examined the process, levels, stakeholders and their relationship with technical and technological innovation, and analyzed the measurement of social innovation potential and its contribution to competitiveness. Our current study analyses the complex picture created by social innovation potential and examines how social welfare can be realized in the idea of sustainable value creation, or its increase. The most important conclusion of the study is that to improve the quality of life, it is primarily necessary to improve the input indicators of the social innovation potential in general. Based on a novel analytical framework, the study summarizes the quantitative results on the contribution of social innovation potential to the quality of life, considering all settlements in Hungary. Our study draws conclusions on how the results can be applied in the economic development decision-making process of settlements.

## Acknowledgement

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# **DETERMINANTS OF THE CROATIAN PRE-PANDEMIC INBOUND TOURISM DEMAND: EVIDENCE FROM THE DYNAMIC PANEL APPROACH**

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## **Abstract**

Tourism is a vital sector for the Croatian economy. During the pre-pandemic period, Croatia reported increasing numbers of tourist arrivals and experienced a significant contribution of tourism to GDP and earnings. This research aims to investigate the impact of economic and supply-side determinants on inbound tourism demand. The analysis was conducted on panel data with a five-year long-time dimension and forty-seven incoming countries included in the cross-sectional dimension. In order to investigate determinants of Croatian inbound tourism demand, this research relies on the Two-step System Generalized Methods of Moments (GMM). The results suggest that supply-side determinants and tourist arrivals from the previous year positively affect inbound tourism demand. However, none of the economic determinants proved to have a significant effect on the number of tourist arrivals. Consequently, our findings suggest that infrastructural enhancements and quality services that could lead to an increased number of repeated visits and recommendations are crucial for Croatian inbound tourism demand.

Keywords: inbound tourism, tourism demand, tourism management, services marketing

## **INTRODUCTION**

Croatia is a tourism-oriented country, with the contribution of tourism amounting to 39.8 billion Croatian Kunas in 2017 (Statista, 2023). Previous research suggests that the impact of tourism on economic growth is greater in smaller, tourism-specialised countries (Easterly & Kraay, 2000), such as Croatia. Specifically, research proves that the higher ratio of the number of tourists visiting the country and the country's population is associated with higher economic growth (Sequeira & Maças Nunes, 2008). The primary research question in this study pertains to the determinants of inbound tourism demand in Croatia. More precisely, this study aims to investigate whether economic and supply-side determinants influence inbound tourism demand in Croatia. The research focuses on the period before the pandemic, which has been a common procedure in some of the recent studies (e.g., Simundic, 2022). Studying

inbound tourism in the pre-pandemic period separately from the post-pandemic period can be highly beneficial for making comparisons and drawing parallels, providing valuable insights for future tourism planning (Bhuiyan, Crovella, Paiano & Alves, 2021; Esquivias, Sugiharti, Rohmawati & Sethi, 2021). Specifically, concerning Croatian tourism, research on the determinants of tourism demand in the pre-pandemic period can hold a strategic value. Croatian tourism development strategy up to 2020 defined specific goals and specific measures for their achievements (Croatian Ministry of Tourism, 2013). Reflecting on what has happened in the period covered by tourism strategy can be beneficial for the goals achievements assessments and draw attention to the specific points of tourism planning success and failure, which have already been discussed in previous studies (Tica & Kožić, 2015). Additionally, according to our knowledge, this study is the first to explore the determinants of inbound tourism demand in Croatia, incorporating only data from the years following Croatia's entrance to the EU. The results may be of interest to decision-makers, especially in the context of understanding the economic and supply-side factors influencing tourist arrivals and consequently creating appropriate tourism development strategies. Apart from these obvious practical implications, our research enriches the current body of literature on inbound tourism demand by employing the dynamic panel approach in a new context.

In the following text, we will provide a literature review on the topic, explain our methodological approach and procedures, present the main findings, provide discussion, and make conclusions by putting our findings in the context of previous empirical studies.

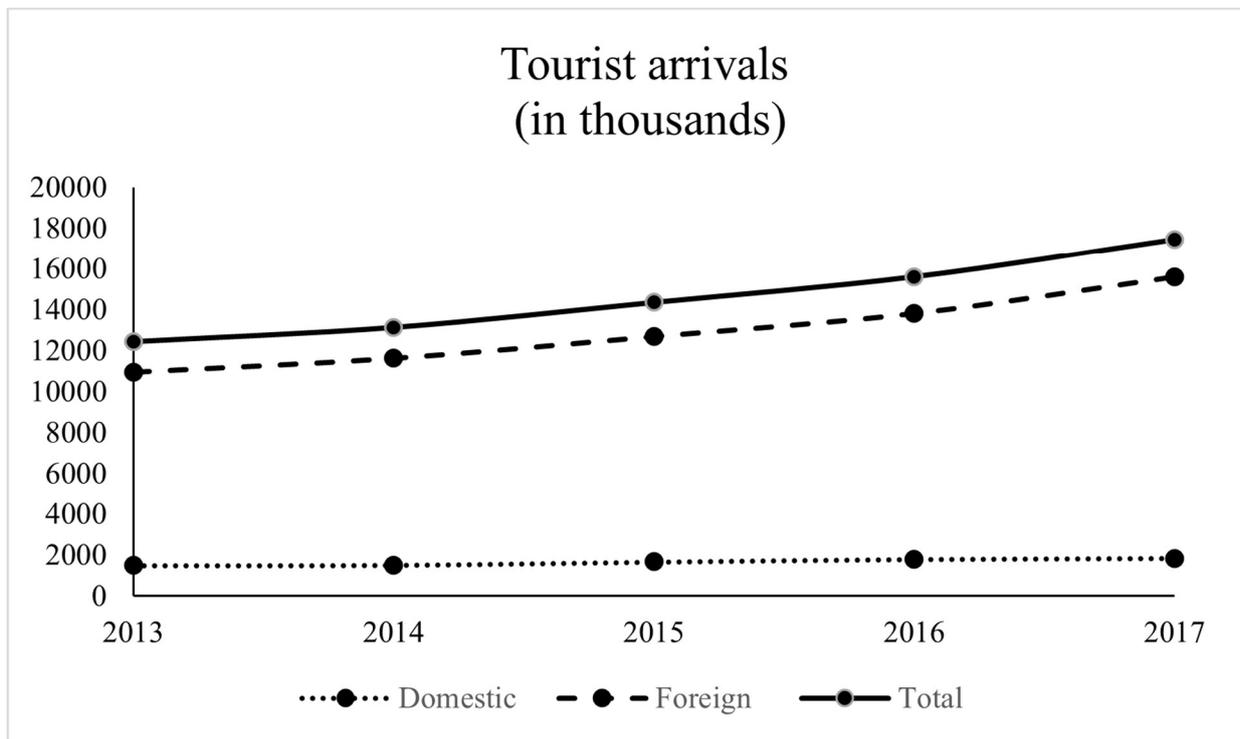
## **THEORETICAL BACKGROUND**

### **Tourism in Croatia**

Croatia is one of the most popular European summer destinations (Holidu, 2023). Figure 1 represents how total arrivals changed during the observed period. It is apparent that international tourist arrivals had a predominant share in tourism demand during all the observed years. The number of international tourist arrivals ranged from 10.948.000 in 2013. to 15.593.000 in 2017. The number of tourist arrivals performed steady growth, indicating no shock that would change the trend and lead to significant decreases. Furthermore, Table 1 shows that almost all of the countries holding top positions among international visitors were European countries, as expected due to geographical distance, cultural similarities, and the

huge base of Croatian immigrants in some of these countries. Together, these ten countries held above 50% of the overall market share in 2013, 2015, and 2017. Finally, with the share in GDP above 10%, as well as the share in exports of goods and services above 30%, tourism proved a significant contributor to the Croatian economy (Table 2). This short review of Croatian tourism demand and the contribution of the tourism sector to the Croatian economy indicates the high importance of this sector and points to the particular importance of inbound tourism and related analyses.

**Figure 1** Tourism demand in Croatia between 2013. and 2017



Source: Croatian Bureau of Statistics (2018)

**Table 1** Top ten tourist arrivals to Croatia 2013-2017.

Country	Arrivals in 2011	Market share %	Country	Arrivals in 2015	Market share %	Country	Arrivals in 2017	Market share %
Germany	1.932	15.54	Germany	2.124	14.81	Germany	2.616	15.01
Slovenia	1.067	8.58	Slovenia	1.192	8.31	Austria	1.331	7.64
Italia	1.017	8.18	Austria	1.120	7.81	Slovenia	1.298	7.45
Austria	969	7.79	Italia	1.111	7.75	Italia	1.110	6.37
Czechia	652	5.24	Czechia	696	4.85	Poland	934	5.36
Poland	636	5.12	Poland	675	4.71	UK	751	4.31
France	449	3.61	UK	491	3.42	Czechia	742	4.26
UK	389	3.20	France	466	3.25	Hungary	546	3.13
Slovakia	337	2.71	Hungary	436	3.04	France	536	3.07
Hungary	326	2.70	Slovakia	381	2.66	USA	452	2.59

*Note: Source: Croatian Bureau of Statistics; Tourist arrivals are in thousands*

**Table 2** Contribution of tourism to Croatian GDP and export earnings

Year	Tourism receipts (billion US\$)	GDP (billion US\$)	Exports of goods and services (billion US\$)	Tourism receipts % of GDP	Tourism receipts % of exports of goods and services
2013	9.72	59.36	23.60	16.37	41.19
2014	10.08	59.21	25.28	17.02	39.87
2015	8.21	50.74	23.18	16.18	35.42
2016	9.22	52.39	24.55	17.60	37.56
2017	10.53	55.94	27.47	18.82	38.33

Source: World Bank

### Inbound tourism demand

Tourism scholars have been showing considerable interest in examining the impact of economic and non-economic determinants on inbound tourism demand across numerous countries for over two decades now. Commonly considered determinants include the Gross Domestic Product (GDP) of the origin country (e.g., Habibi, 2017; Tang & Tan, 2015), tourism price in the destination country (TP) (e.g., Garín-Munoz, 2006), tourism price in alternative countries (TPS) (Dogru, Sirakaya-Turk & Crouch, 2017; Tang, Yuan, Ramos & Sriboonchitta, 2019), and tourism capacities measured, for instance, by the number of hotel rooms (e.g., Habibi, 2017).

Typically, the GDP of the origin country has a positive effect on tourist arrivals, given that demand for tourism services generally increases as income levels increase (Choyakh, 2008; Habibi, 2017; Kim & Song, 1998). Regarding tourism prices, economic theory suggests that an increase in prices leads to a decrease in tourist arrivals, as demonstrated in previous research studies (e.g., Ibrahim, 2011; Phakdisoth & Kim, 2007). The theory of consumer behaviour, along with several empirical studies on tourism demand (Dogru et al., 2017; Seetana, Durbarry & Ragodoo, 2010; Tang et al., 2019), suggests that tourism demand depends not only on tourism prices in the destination country but also on prices in alternative destinations. The expected impact of this variable differs based on whether the alternative country serves as a complementary or substitute destination (Habibi, 2017; Kim & Song, 1998). Finally, variables expressing a country's tourism capacity are often taken as predictors of inbound demand, with empirical research indicating that an increase in capacity positively affects the international tourism demand (Habibi, 2017).

Most previous studies conducted on Croatian data aimed to forecast tourist demand using various methods such as ARIMA (Baldigara & Mamula, 2015), ARAR (Apergis, Mervar & Payne, 2017), ARDL methods (Mervar & Payne, 2007), VAR, and GARCH models (Tica & Kožić, 2015). Several studies are grounded in panel methodology (Erjavec & Devčić, 2022;

Škrinjarić, 2011; Škuflić & Štoković, 2011). Some of these studies were concerned with forecasting demand and explaining the effects of seasonality (Baldigara & Mamula, 2015; Apergis, Mervar & Payne, 2017). However, in available studies focused on identifying factors affecting Croatian inbound tourism demand, GDP of the origin country and gross wages (Tica & Kožić, 2015), accommodation capacity and relative prices represented in exchange rates (Erjavec & Devčić, 2022), capital investments and tourists contentment (Škrinjarić, 2011), as well as accommodation ratings (Škuflić & Štoković, 2011), emerged as significant determinants of Croatian international tourism demand. However, these studies were often limited by the number of origin countries and demand factors that they considered. Additionally, upon a thorough review of the available literature, we can conclude that limited effort has been invested in analysing Croatian inbound tourism demand after the entrance to the EU. Focus on the pre-pandemic period, i.e., the period after the entrance of Croatia to the EU, the inclusion of available origin countries and the examination of the impact of both economic and supply-side determinants using a dynamic panel approach, make this study unique and adds to its scientific and practical contributions.

Dynamic panel analysis has proven to be the most commonly employed method for analysing determinants of inbound tourism demand (Chiu, Zhang & Ding, 2021; Garín-Munoz, 2006; Garin-Munoz & Montero-Martin, 2007; Habibi, 2017; Habibi & Abbasianejad, 2011; Habibi, Rahim, Ramchandran & Chin, 2009; Tang, 2018). Particularly intriguing is that estimating dynamic panels enables researchers to measure the effects of lagged dependent variables (usually the number of tourist arrivals). Researchers interpret this variable as the influence of word-of-mouth communication (WOM) (e.g., Garín-Munoz, 2006; Habibi, 2017) or repeated tourist visits (Garin-Munoz & Montero-Martin, 2007).

## **DATA AND METHODS**

The models estimated in this research build upon previous studies. The study encompasses 47 origin countries and a period of 5 years (2013-2017). The countries included are those for which there is data available within tourism reports provided by the Croatian Bureau of Statistics. The period of 5 years (2013-2017) was chosen because it fits into the timeframe of the Croatian tourism development strategy up until 2020 and covers inbound tourism data upon the entrance to the EU. An overview of the variables, their descriptions, calculation methods, and data sources is provided in Table 3. Descriptive statistics are presented in Table 4.

**Table 3** Variable descriptions

Variable	Variable mark	Variable description	Calculation methods	Data source
Tourist arrivals	TA	The number of tourists arriving from the country of origin to Croatia in a specific year		Croatian Bureau of Statistics (2018)
Income	GDP	Real GDP per capita in the origin country		WDI (2023)
Tourism price	TP	Croatian CPI divided by the CPI of the origin country, adjusted for the exchange rate (calculation according to Habibi, 2017)	$TP_{i,t} = \left( \frac{CPI_{h,t}}{CPI_{i,t}} \right) \times \left( \frac{ER_{h,t}}{ER_{i,t}} \right)$	WDI (2023)
Tourism prices in alternative destinations	TPS	Pondered consumer price index in alternative countries (calculation according to Habibi, 2017; Kumar, Kumar, Patel, Hussain Shahzad & Stauvermann, 2020)	$TPS = \sum_{j=1}^6 \left( \frac{CPI_j}{EX_j} \right) w_j$	WDI (2023)
Number of rooms	RN	Number of rooms in all accommodation types available in Croatia		Croatian Bureau of Statistics (2018)

Source: Authors' work

Notes: In the  $TP_{i,t}$  equation,  $CPI_{h,t}$  represents the consumer price index in Croatia during period  $t$ ,  $CPI_{i,t}$  is the consumer price index in the origin country,  $ER_{h,t}$  represents the exchange rate of Croatian currency and US dollar,  $ER_{i,t}$  is the exchange rate of the origin country's currency and US dollar; in the  $TPS_j$  equation  $j = 1, 2, 3, 4$  and  $5$  represent Spain, Italy, France, Greece, Albania and Montenegro (alternative countries were selected based on geographical proximity and the significance of maritime tourism);  $w_j$  is the share of the origin country in the overall number of international tourist arrivals to selected countries and is calculated  $w_j = (TTA_j / \sum_{j=1}^6 TTA_j)$ , where  $TTA$  represents the number of international tourists arriving in the alternative country.

**Table 4** Descriptive statistics

<b>Variables</b>	<b>Mean</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Standard deviation</b>	<b>Within groups standard deviation</b>	<b>Between groups standard deviation</b>
lnTA	11.40	7.60	14.78	1.65	0.21	1.65
lnGDP	10.06	7.66	11.73	0.87	0.09	0.87
lnTP	0.66	-5.25	2.39	1.85	0.32	1.84
lnTPS	4.84	5.03	5.22	0.09	0.09	0.00
lnRN	12.78	12.68	12.91	0.08	0.08	0.00

Source: Authors' work

The log-log model is the most common functional form used to measure tourism demand. Its utilisation is primarily rooted in the ease of thinking in terms of elasticity, as well as empirical findings that have demonstrated its superiority over the linear form (Song & Witt, 2006; Witt & Witt, 1995). Therefore, the log-log functional form is employed in this study.

Since we estimated two different models, the one without and the one with year dummies included, the equations for our models are:

$$\ln TA_{i,t} = \beta_1 \ln TA_{i,t-1} + \beta_2 \ln TPS_t + \beta_4 \ln TP_{i,t} + \beta_5 \ln GDP_{i,t} + \beta_6 \ln RN_t + \varepsilon_{i,t} + \eta_{i,t}$$

(Model 1)

$$\ln TA_{i,t} = \beta_1 \ln TA_{i,t-1} + \beta_2 \ln TPS_t + \beta_4 \ln TP_{i,t} + \beta_5 \ln GDP_{i,t} + \beta_6 \ln RN_t + d_t + \varepsilon_{i,t} + \eta_{i,t}$$

(Model 2)

When the model includes a lagged dependent variable as a predictor and independent variables are not strictly exogenous, Ordinary Least Squares (OLS) cannot be applied. In such situations, scholars often utilise the Generalized Method of Moments (GMM), where lagged values of the dependent variable and independent variables serve as instruments (Biagi, Brandano & Detotto, 2012). The Arellano-Bond GMM procedure is considered suitable for analysing two-dimensional panel data characterised by a short time dimension and a larger cross-sectional dimension, as is the case with this study. In this procedure, lagged values of the dependent variable for two or more periods are considered valid instruments (Albaladejo, González-Martínez & Martínez-García, 2016; Rey, Myro & Galera, 2011; Habibi, 2017). However, a short time dimension and not a very large cross-sectional dimension can lead to overfitting biases due to a large number of instruments (Roodman, 2009b). Therefore, the number of lags in the instruments is limited to a maximum of two per variable, following previous practices (e.g., Albaladejo et al., 2016; Sequeira & Maçãs Nunes, 2008). The lagged dependent variable, the number of rooms, and GDP are treated not as strictly exogenous but as predetermined variables, meaning they are considered correlated with past error terms. Tourism price and the price of tourism in alternative destinations are treated as endogenous variables. Treating these variables as endogenous implies that they are correlated with the

idiosyncratic error term from the current and previous periods. Since it is expected that prices in alternative countries and tourism prices in Croatia can be affected by tourism demand from current and previous periods, treating these variables as endogenous and specifying instruments seems a valid approach.

A review of available literature has found that, when applying GMM to the analysis of inbound tourism demand, some authors do not use dummy variables for years (e.g., Brida & Risso, 2009; Leitão, 2015), while others use them to control for the effects of specific events (e.g., Garín-Munoz, 2006). The third group of scholars tends to estimate both models with and without time dummies (e.g., Lio, Liu & Ou, 2011). Considering the practice in this field, as well as the recommendation of Roodman (2009a) regarding the inclusion of dummy variables for years, both model specifications were estimated in this study.

The models were estimated using the "Two-step system" GMM and the `xtabond2` command following Roodman's instructions (2009a). The "Two-system" GMM is suitable for the analysis of dynamic panels with a lagged dependent variable as one of the predictors (Arellano & Bover, 1995; Blundell & Bond, 1998). "System GMM" is often preferred when there is a short time dimension because the "Difference GMM" model performs poorly under such circumstances (Blundell & Bond, 1998), which corresponds to the characteristics of this research. Regardless of evidence in favour of System GMM in the available literature, we conducted a formal test to decide between the "System GMM" and "Difference GMM" following the widely exploited rule of Bond, Hoeffler & Temple (2001) (Table 5). It should be noted that due to downward bias in standard errors in the "Two-step system" GMM, the "Windmeijer correction" was applied (Windmeijer, 2005).

Diagnostic tests for both of our models were appropriate, and the results obtained from these two models were not significantly different, leading to consistent conclusions (Table 6).

**Table 5** Comparison of "Difference GMM" and "System GMM" models

<b>Model</b>	<b>Variables</b>	<b>Pooled OLS model</b>	<b>Fixed Effects model</b>	<b>One-step Difference GMM model</b>	<b>Two-step Difference GMM model</b>
Model 1	L.lnTA	0.99	0.24	0.17	0.21
Model 2	L.lnTA	0.99	0.24	0.12	0.17
Conclusion	Since the coefficients for the lagged dependent variable in the models estimated using the "Difference GMM" estimators are lower than the coefficients from the models estimated using the "Fixed Effects," the coefficients in the "Difference GMM" models are biased, and the "System GMM" is employed (Bond, Hoeffler & Temple, 2001).				

Source: Authors' work

## RESULTS

Data analysis was conducted in STATA 13. The results are in Table 6.

**Table 6** Comparison of the GMM results for estimated models

Variables	Model 1	Model 2	Expected sign
L.lnTA	0.96 [0.02]***	0.96 [0.03]***	+
lnGDP	0.02 [0.04]	0.01 [0.04]	+
lnTP	-0.01 [0.02]	-0.01 [0.02]	-
lnTPS	-0.13 [0.13]	-0.11 [0.14]	-/+
lnRN	0.38 [0.12]**	0.39 [0.12]**	+
Diagnostic tests			
Year dummies	NO	YES	
Wald test	1.22e+06 (0.000)	1.36e+06 (0.000)	
Hansen test	26.35 (0.237)	26.18 (0.199)	
AR (1) test	-1.77 (0.077)	-1.76 (0.078)	
AR (2) test	0.48 (0.628)	0.49 (0.628)	
No. of observations	188	188	

Source: Authors' work

Note: \* represents a significance at a 10% level, \*\* represents a significance at a 5% level, \*\*\* represents a significance at a 1% level; Standard errors (SE) are placed in square brackets below the regression coefficients; p-values for diagnostic tests are in parentheses; dummy variables for years are included in model 2, but the program excluded some due to collinearity, which is a practice in the `xtabond2` command in STATA; the values for the remaining dummy variable for the year 2016 in the model are non-significant and not reported.

Prior to interpreting the coefficients, we examined the models' diagnostics. First-order autocorrelation exists at a significance level of 5%, while it is not present at a significance level of 10% ( $p=0.077$  and  $p=0.078$ ). More importantly, second-order autocorrelation isn't observed in any of our models ( $p=0.628$  and  $p=0.628$ ), indicating insufficient evidence to reject the null hypothesis of the absence of second-order serial autocorrelation (Arellano & Bond, 1991). Concerning the report of subsequent diagnostic tests, there is usually no consensus among authors. Some employ the practice of the Sargan test reporting only (e.g., Habibi, 2017), others rely on the values of the Hansen test (e.g., Uddin, Ali & Masih, 2017), while the third group of scholars report values for both tests (Permatasari & Esquivias, 2020). However, the Hansen test is considered superior to the Sargan test because the Sargan test, although not affected by the proliferation of instruments, requires homoskedastic errors, which is rare in practice (Roodman, 2009b).

Regarding the Hansen test for the assessment of the instrument's validity, Roodman (2009a,b) warns that scholars should not settle for values just above the significance thresholds (0.05 and 0.1) but also points out that values of 0.250 and above can be a reason for concern. The p-values of the Hansen test for our models are 0.237 and 0.199. Both values are in the appropriate range (0.1-0.25), indicating the validity of the instruments used. Although there is no clear rule regarding the appropriate number of instruments, the number of instruments in our models is way below the number of groups (28 vs. 47), which is a requirement that must be satisfied. The Wald test is significant at a 1% level.

The effects of the  $\ln\text{TPS1}$  and  $L.\ln\text{TA}$  variables are significant in both models. A 1% increase in tourist arrivals from the previous year is associated with a 0.96% (models 1 and 2) increase in tourist arrivals in the current year in the short term, with a significance level of 1% and other conditions unchanged. Additionally, a 1% increase in the number of rooms is associated with a 0.38% (model 1) and 0.39% (model 2) increase in tourist arrivals in the short term, with significance at a 5% level and other conditions unchanged. Other variables, although having expected signs, didn't show significant effects on tourist arrivals in our study.

## DISCUSSION

Our findings regarding the tourism capacity measured by the number of available rooms align with previous empirical studies that proved the positive effect of such capacity on the inbound tourism demand (e.g., Ghosh, 2022; Habibi, 2017). The GDP coefficient has the expected sign, but the effect isn't significant. While most studies proved a significant impact of the origin country's income on tourist arrivals, some scholars warn that the results could vary based on what is taken as a proxy for income (Dogru et al., 2017). In the study by Habibi et al. (2009), the GDP coefficient is positive but non-significant as well. Since the research is conducted on tourism data for Malaysia, in the interpretation of their results, the authors conclude that Malaysia isn't perceived as a luxurious vacation destination. Therefore, the number of tourist arrivals does not increase significantly with the increase in income in origin countries. This could be the case with Croatia as well. Although the effect of tourism prices has a negative sign, it is non-significant, which is in line with the results of some other studies (Naudé & Saayaman, 2005; Deluna & Jeon, 2014). This could be due to tourists visiting Croatia not willing to sacrifice their holiday quality due to price increases. Additionally, even with price increases, tourists might perceive Croatia as not as expensive as some other holiday destinations. Consequently, the growth of tourism prices does not significantly affect tourists' decisions.

Furthermore, the coefficient for the tourism price in alternative destinations is negative but non-significant. Generally, depending on whether countries are substitutes or complementary destinations, coefficients for this variable can be positive (e.g., Seetaram, 2012) or negative (e.g., Habibi, 2017). However, since the coefficient is not significant, one cannot point at a strictly complementary character of alternative destinations.

## CONCLUSION

Our research indicates that a short-term inbound tourism demand in Croatia depends on the number of arrivals from the previous year, indicating a significant number of repeated visits and recommendations (Garín-Munoz, 2006; Garin-Munoz & Montero-Martin, 2007). The number of international tourists arriving in Croatia is under the influence of tourism capacity. Therefore, we can conclude that the supply side positively affects tourist demand in Croatia, with the variable representing it not necessarily meaning just a higher number of accommodations available but better tourism infrastructure in general (Habibi & Abbasianejad, 2011). The results align with previous findings that suggest that increased investments in tourism and infrastructure enhance the destination's reputation (Albaladejo et al., 2016), leading to a higher number of visits. Insights derived from non-significant coefficients are also important. For example, the non-significant coefficient for the GDP of the origin country aligns with findings from previous research that draw attention to the dependence of tourism demand in Croatia on the development of Eastern Europe and the middle class, making it challenging to target high-income tourists in the short term (Tica & Kožić, 2015). All of this implies that, in the short term, Croatian tourism must invest in attractive facilities and overall infrastructure. Additionally, providing quality service and memorable experiences is vital to encourage tourist returns and increase recommendations.

The main limitations of this study are the short time dimension and some of the potentially interesting variables that may influence tourism demand not being included in our models. Recommendations for future research include adding data from a broader time period and additional determinants of tourist demand to the model, as well as considering alternative ways of expressing tourism prices or costs.

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## **SUSTAINABLE HOTEL PRACTICES: A COMPARISON BETWEEN HIGHER AND LOWER RANKING HOTELS**

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### **Abstract**

The hospitality sector is increasingly recognising the importance of sustainability due to the growing demand for an environmentally and socially conscious tourism market. This article analyses sustainable hotel practices in Slovakia and identifies differences between higher- and lower-ranking hotels. In the summer of 2021, 108 hospitality managers were surveyed to rate the importance of sustainable practices and their company's performance in implementing them. Factor analysis was used to identify relationships among sustainable hotel practices, based on their importance ratings. Based on the importance and performance ratings, a Mann-Whitney U test has been used to compare the differences in the implementation of sustainability practices between higher- and lower-ranking hotels. The study highlights issues that stakeholders should address to support the sustainable development of the hospitality sector. It suggests that higher-ranking hotels have a greater interest in sustainable practices than lower-ranking ones. Furthermore, Slovak hotels only considered sustainable practices as part of their survival strategy during the pandemic. These findings have relevance beyond Slovakia and can inform tourism policy agendas that better justify the importance and benefits of sustainable practices for the hospitality sector.

Keywords: sustainable hotel practices, factor analysis, importance-performance analysis, higher-ranking hotels, lower-ranking hotels, Slovakia

### **INTRODUCTION**

The debate about sustainable practices has become significant for the tourism industry as it is being driven towards implementation of sustainable practices by consumers, regulations, and competition. Booking.com's 2021 Sustainable Travel Report revealed that 81% of travellers plan to stay in sustainable accommodation in the upcoming years. The European Union's Green Deal aims to reduce emissions by at least 55% by 2030, compared to 1990 levels. Within tourism, the role of the hospitality sector, and hotels in particular, is critical for the achievement of these sustainability goals. The key aspect of sustainability is to balance corporate interests with the needs of stakeholders. Thus, organisations must build a productive management relationship with their stakeholders and understand the implications of their

operations in all dimensions of sustainability. In this context, due to the potential negative environmental, cultural, and social impacts of tourism, hotels have a responsibility to act in a sustainable way (Santos, Méxas, Meiriño, Sampaio, & Costa. 2020).

Sustainable tourism has only recently been recognised as important in Central and Eastern European (CEE) countries, as noted by Novacka, Pícha, Navratil, Topaloglu, & Švec (2019) and Scholz, Linderová, & Konečná (2020). The Slovak hospitality sector is under increasing pressure from consumers, the media, and competition to adopt sustainability initiatives. Examples of such efforts include the development of a national strategy for sustainable tourism and the membership of the Slovak Association of Hotels and Restaurants in the International Hotel Environment Initiative. However, the implementation of sustainable practices in the Slovak hospitality sector is still falling behind (Gúčík & Marciš, 2017; Novacka et al., 2019).

The recent pandemic has also presented challenges and opportunities for hotels of all categories to maintain and improve their sustainability efforts (Jones & Comfort, 2020; Elkhwesky, Salem, & Varmus, 2022). Despite the potential for the pandemic to prompt a shift toward more sustainable practices, the reality is that sustainability is still not sufficiently enforced in the practices of tourism businesses (Aksoy et al., 2022; Mohammed, 2022). From a hospitality perspective, both higher- and lower-ranking hotels have faced an unprecedented crisis that has influenced their attitudes toward sustainability. However, only a few studies have directly compared the differences in sustainable practices between hotels of different ranking. These challenges are not unique to the hospitality sector in Slovakia or other Central and Eastern European countries with similar conditions, but also extend to the broader tourism industry. The tourism industry is expected to bounce back after the pandemic, possibly continuing with unsustainable practices (Ioannides and Gyimóthy, 2020). Therefore, it is essential to understand how hospitality managers perceive the importance of sustainable hotel practices and the performance of their companies in implementing them, as this will be crucial in further promoting a sustainable and resilient post-pandemic industry.

Hence, this article aims to analyse sustainable hotel practices and identify differences between higher- and lower- ranking hotels in Slovakia. To achieve this objective, we conducted the following research. First, we took a survey of 108 hotels in Slovakia, where hospitality managers rated the importance of sustainable hotel practices and their implementation in their respective companies. Then we applied factor analysis to identify the components that explain the relationships among sustainable hotel practices based on their importance ratings. Importance performance analysis was used to uncover sustainable

practices that Slovak hoteliers consider important and evaluate their firm performance. Using the importance and performance ratings, we conducted the Mann-Whitney U test to compare the differences in the implementation of sustainability practices between higher- and lower-ranking hotels. In light of the recent pandemic, we sought the input of hospitality managers regarding the impact of Covid-19 on their sustainable hotel practices.

After the introduction, the second section reviews sustainable hotel practices. The third section describes our methodology, including the data collection process, the design of exploratory factor analysis, and the application of IPA. In the fourth section, we present the findings of our study. Finally, the fifth section outlines our conclusions and provides managerial implications based on the results.

## **THEORETICAL BACKGROUND**

Sustainable tourism takes into account economic, social and environmental impacts, with the objective of reducing negative effects and increasing positive ones. It strives to preserve natural resources, protect cultural heritage, and support local communities while providing tourists with a quality experience (UNWTO, 2013). To achieve this, a delicate balance between the needs of tourists, the tourism industry, and the environment and communities impacted by tourism must be maintained (Streimikiene, Svagzdiene, Jasinskas, & Simanavicius, 2020). Furthermore, sustainable tourism emphasises responsible practices such as reducing carbon emissions, conserving water and energy, minimising waste and pollution, and supporting local businesses and communities (Kummitha, 2020).

Tourism has become a strong catalyst for economic development. This is demonstrated on a global scale as, before the pandemic, the tourism industry was responsible for 10% of economically active jobs, 10% of GDP, 28 % of service exports and was the third largest export category in the world after fuels and chemicals, and ahead of automotive products and food (UNWTO, 2020). Despite obvious positive effects of tourism, existing practices result in numerous negative impacts, such as increased consumption of energy, water, and disposable products, increased CO<sub>2</sub> production rates, commoditisation of local culture rather than maintaining its authenticity, and disruption of local economic systems, among others (Santos, Méxas, & Meiriño, 2017).

These negative impacts further highlight the need for managerial and operational challenges in the tourism industry. The hospitality sector is known to place great emphasis on good environmental and social management, compared to other sectors within the tourism

industry (Santos et al., 2017; Elkhwesky, Salem, & Varmus, 2022). This is because sustainability has several benefits for hotels and other hospitality businesses. By implementing sustainable practices, these businesses can reduce their operating costs, improve their efficiency and ultimately, their profitability (Kularatne, Wilson, Månsson, Hoang, & Lee, 2019). In addition to financial benefits, sustainability also has a positive impact on the environment and local communities. By implementing sustainable practices, hotels can minimise waste, conserve natural resources, and reduce their carbon footprint. This helps to foster social responsibility, creating a positive reputation among guests and the local community (Babu, Kaur, & Rajendran, 2018; Raub & Martin-Rios, 2019; Chan, 2021).

Today's travellers are increasingly aware of societal and environmental issues and are looking for sustainable options when travelling. Many consumers now demand that today's hotels develop a higher level of 'green consciousness'. Therefore, it is imperative that hotels apply more sustainable solutions to reduce pollution, increase customer satisfaction, and avoid reputational challenges (Wong, Kim, Lee, & Elliot, 2021). By offering sustainable practices, hotels can attract environmentally conscious customers willing to pay a premium for environmentally friendly services and products (González-Rodríguez, Díaz-Fernández, & Font, 2020; Nelson, Partelow, Stäbler, Graci, & Fujitani, 2021). Furthermore, governments around the world are implementing regulations and policies that aim to promote sustainable practices and reduce carbon emissions (Siakwah, Musavengane, & Leonard, 2020).

The literature on this topic is extensive and researchers focus on best practices related to 'greening' of the hospitality sector (Baker & Mearns, 2017; Kim, Barber, & Kim, 2019). For example, recent studies have explored sustainability innovations (Dias, Costa, Pereira & Santos, 2021), environmentally sustainable policies (Khatter, McGrath, Pyke, White & Lockstone-Binney, 2019) and green human resource management practices (Nisar et al., 2021). Several studies focus on the impact of sustainability certifications on hotel performance (Bianco, Bernard, & Singal, 2023), as well as the impact of hotel star rating on the sustainable hotel performance (Santos, Veiga, Águas, & Santos, 2019; Pereira, Silva, & Dias, 2021).

Santos et al. (2019) and Pereira et al. (2021) have also discussed the relationship between hotel star rating and the implementation of sustainable and environmentally friendly practices. Hotels classified as luxury or upscale ones providing a higher level of service and amenities are typically considered as higher ranked (luxury and first-class hotels). These hotels are usually located in prime locations such as city centres or main resorts and provide guests with a variety of facilities, such as restaurants, bars, fitness centres and spas. With larger budgets

and more resources at their disposal, higher-ranking hotels are more likely to invest in sustainable practices (Santos et al., 2019). They may be using renewable energy sources such as solar panels, invest in LEED certification for their buildings, or apply energy management systems to implement expensive but effective measures. On the other hand, hotels that offer a basic level of service and amenities are considered lower-ranking (standard, economy, and tourists class). These hotels can be smaller, have fewer rooms, and be located in non-prime areas, i.e. rural or peripheral locations. Lower-ranking hotels may have smaller budgets and more limited resources (Pereira et al., 2021). They can focus on simple, low-cost measures like installing low-flow faucets and showerheads, using LED lighting, or implementing a recycling programme. Additionally, they may be more dependent on educating and training employees to promote sustainable practices.

However, only a few studies have specifically compared the differences in sustainable practices between higher and lower-ranking hotels. An exception is the approach taken by Stylos & Vassiliadis (2015), who investigated the perceived importance of sustainability practices and policies in Greek hotels with four and five stars. Their findings indicated that a hotel star rating has a significant impact on the importance attributed to economic measures and socially responsible practices in respective hotels.

The COVID-19 pandemic has brought attention to changes that may be necessary to transition to a more sustainable future in the tourism industry (Jones & Comfort, 2020). An increasing number of authors (Santos et al., 2017; Bianco et al., 2023; McKinsey & Company, 2023) and international organisations (e.g., UNWTO, WTTC, EU) argue that sustainability in the hospitality sector must be the top priority for the next decades. The pandemic has caused that consumers are even more concerned about the environment when making purchasing decisions than before. Therefore, the question remains whether there are notable differences in the importance and performance of sustainable practices between these two categories of hotels considering the new challenges caused by the pandemic.

By adapting to new conditions and finding ways to prioritise sustainability, hotels can help create a more resilient and sustainable future for the tourism industry. These challenges are relevant not only for the Slovak hospitality sector or CEE countries with similar conditions but also for the wider tourism industry, which has been booming again after the pandemic, even with habitual unsustainable practices. Therefore, this article aims to answer the following questions:

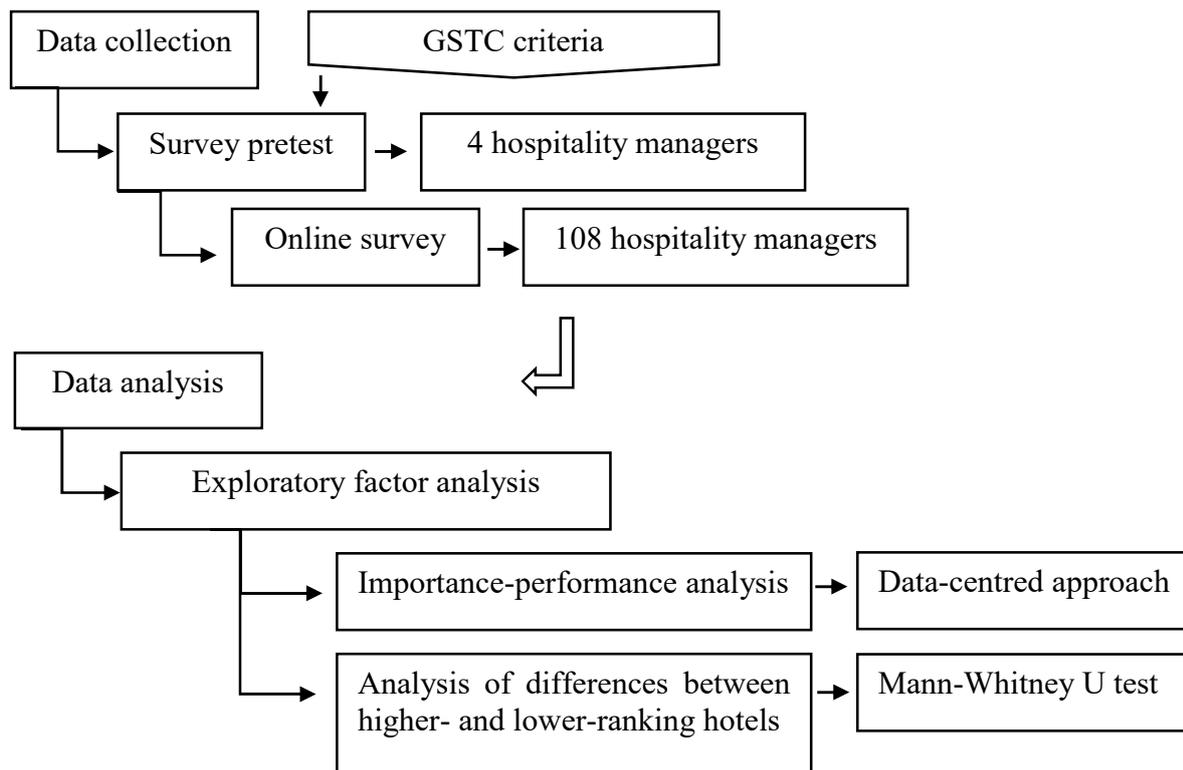
- 1) How do hospitality managers perceive the importance of sustainable hotel practices and the performance of their companies in implementing them?

- 2) What are the differences in implementing sustainability practices between higher- and lower-ranking hotels?

### DATA AND METHODS

The objective of this article is to examine sustainable hotel practices and to distinguish variances between higher- and lower-ranking hotels in Slovakia. This study focuses on Slovakia, a destination situated in the Central and Eastern European region (CEE). The CEE countries are favoured with an exceptional natural and cultural heritage (Miskolczi, Jászberényi, Munkácsy & Nagy, 2022) but have so far experienced only a moderate number of visitors. The practices of tourism businesses in these countries can offer valuable information about the sustainable development of tourism. Another reason why the researchers chose Slovakia are their physical and personal connections, which guided their focus on local hotels. The research process is illustrated in Figure 1.

**Figure 1** Research process



Source: authors.

The first step was identifying a set of sustainable hotel practices. Various frameworks have been proposed to evaluate the implementation of sustainable management in the hospitality sector (see e.g. Santos et al., 2017; Santos et al., 2020), reflecting its varying nature. Worldwide, the Global Sustainable Tourism (GSTC) Industry Criteria for Hotels represents recognised standards that define the minimum requirements for hotels to operate sustainably.

Therefore, a set of sustainable hotel practices was identified for this study based on the GSTC (2016) Industry Criteria. The list of criteria was pretested with four hospitality managers. In an online call, they provided feedback that led to some adjustments and a reduction in the number of attributes. Managers considered the applicability and suitability of the criteria for the hotels in Slovakia. Ultimately, hoteliers made a list of 20 practices that they consider essential for sustainable hotel management, as shown in Table 1.

**Table 1 Sustainable hotel practices**

Focusing on local purchasing	Encouraging guests to use efficient transport alternatives
Supporting local employment	Offering alternative fuel sources
Offering sustainable (green) tourism products	Minimizing the use of harmful substances
Legal compliance with regulations	Supporting biodiversity conservation and preservation
Guest education and information about sustainable management	Applying environmental management scheme
Performing staff training on sustainable management	Protecting natural and cultural heritage
Providing alternative transport services	Managing energy conservation
Community support activities	Managing water conservation
Monitoring customer satisfaction	Solid waste reduction actions
Offering products and services for visitors with special needs	Applying cost-effective technology

Source: adapted from GSTC, 2016.

The second step of the study involved collecting data from hospitality managers. Between June and September 2021, an online questionnaire was used to collect data from the Slovak hoteliers. According to the Statistical Office of the Slovak Republic (2022), there were 713 hotels, but only 563 publicly available email addresses were found. The sample was chosen based on the hotels' star rating (higher ranking: four- to five-star or luxury and first-class hotels; lower ranking: one- to three-star or standard, economy and tourists class hotels). The questionnaires addressed to middle and top-level managers were distributed in Slovak and English in two rounds over a four-month period. Due to the pandemic-related restrictions, the return rate of the questionnaires was negatively affected as many tourism businesses were inaccessible. However, after two rounds of email distribution, 108 questionnaires were returned, resulting in a response rate of 19.2%. Pech & Kopova (2022) obtained a similar response rate of 19% in their study that analysed the activities of microbreweries in the Czech Republic during the COVID-19 pandemic.

To test the representativeness of the sample, a chi-square goodness of fit test was performed to examine the relationship between the sample and the population of hotel establishments in Slovakia. The obtained p-value of 0.481 indicates that the sample does not

differ significantly from the population, suggesting that the sample can be considered representative (Pallant, 2007). Table 2 summarises the sample, coverage, and results of the chi-square goodness-of-fit test.

**Table 2** Survey sample

Hotel category	No	Sample	Coverage %
Higher-ranking hotels (HR) ▲	209	28	13.40
Lower-ranking hotels (LR) ▼	504	80	15.87
Total	713	108	15.15
Chi-Square	.496		
df	1		
Asymp.Sig.	.481		

Note: ▲ higher-ranking: four- to five-star (luxury and first class) hotels; ▼ lower-ranking: one- to three-star (standard, economy and tourist class) hotels.

Source: Statistical Office of the Slovak Republic, 2022; authors.

In the survey, hotel managers were asked to assess the significance of 20 sustainable hotel practices using a seven-point Likert scale (ranging from 1 for "not important" to 7 for "very important" in terms of sustainable hotel management). They were also asked to rate their hotel's performance in terms of addressing these practices, using a scale ranging from 1 for "well below the target" to 7 for "well above the target". An open-ended question on how Covid-19 has influenced their sustainable hotel practices was also included in the survey.

In the third step, we used data reduction techniques to identify the underlying structure of the set of 20 practices and to reveal a set of components that could explain the variances between these attributes. We used exploratory factor analysis (EFA) with a varimax method rotation and Kaiser Normalization to analyse the importance ratings of sustainable hotel practices. Factor analysis is a statistical technique used to identify the underlying structure of a set of variables or items (Oguz, Timur, & Seçilmiř, 2021). To perform Exploratory Factor Analysis (EFA), we used the statistical software SPSS 23.

The reliability of the scale is indicated by its Cronbach's Alpha value, which in this case is 0.904. This value is above the minimum expected value of 0.7, indicating high reliability. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, with recommended minimum value of 0.6 (Pallant, 2007; Oguz, Timur, & Seçilmiř, 2021), was 0.902. This suggests that the variables are interrelated and share common factors. In addition, all communalities exceeded 0.72.

In total, six components were identified, which accounted for 80.67% of the variance: component 1 benefits to local development; component 2 energy, water and waste management; component 3 cleaner transportation; component 4 accessible and eco services;

component 5 sustainable tourism offer and component 6 sustainable management system (Table 3).

**Table 3** Factor analysis of the importance of sustainable hotel practices

Sustainable hotel practices	Communalities	EV	% of variance	Factor loading
<b>Component 1 Benefits to the local development</b>		4.579	22.894	
Local purchasing	.730			.618
Guest education and information	.821			.585
Staff training	.784			.653
Biodiversity conservation and preservation	.782			.591
Community support	.840			.825
Protecting natural and cultural heritage	.870			.835
Local employment	.836			.636
Customer satisfaction	.729			.617
<b>Component 2 Energy, water and waste management</b>		3.575	17.873	
Energy conservation	.864			.841
Water conservation	.855			.800
Solid waste reduction	.787			.716
Cost-effective technology	.732			.725
<b>Component 3 Cleaner transportation</b>		2.798	13.991	
Providing alternative transport services	.767			.608
Encouraging guests to use efficient transport alternatives	.867			.834
Alternative fuel sources	.834			.834
<b>Component 4 Accessible and eco services</b>		2.177	10.883	
Use harmful substances	.721			.556
Products and services for visitors with special needs	.871			.830
<b>Component 5 Sustainable tourism offer</b>		1.503	7.516	
Sustainable tourism products	.826			.701
<b>Component 6 Sustainable management system</b>		1.503	7.514	
Environmental management scheme	.797			.514
Legal compliance	.821			.789
Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.902; Bartlett's Test of Sphericity = 1,809.528; sig. = 0.000; df = 190.				

Source: authors.

In the fourth step, the results of the EFA components were used to guide the construction of the importance performance analysis. Importance-Performance Analysis (IPA) was introduced by Martilla & James (1977) to assess the management performance of specific attributes. This involves creating a two-dimensional grid with mean importance and mean performance on the vertical and horizontal axes, respectively (Oh, 2001). The plot is then divided into four quadrants using crosshairs (Chen, 2014). Martilla & James (1977) interpreted the four quadrants as follows: Quadrant (I) represents attributes that are of high

importance and high performance (Keep Up the Good Work); Quadrant (II) represents attributes of low importance and high performance (Possible Overkill); Quadrant (III) represents attributes of low importance and low performance (Low Priority); and Quadrant (IV) represents attributes of high importance and low performance (Concentrate Here).

IPA is a tool that (visually) highlights the gaps between stakeholders' perception of the importance of a specific attribute and a business's actual or perceived performance in managing that attribute. One of the significant issues in IPA is determining the best cut-off points for classifying performance and importance scores, as different classifications lead to different recommendations. Thresholds can be data-centered, scale-centered, or subjectively determined. Martilla & James (1977) suggested placing the cross-hairs of the IPA grid at the actual mean values of the observed importance and performance ratings. However, the controversy about crosshair placement and measurement bias remains. Therefore, selecting the optimal cut-off points for classifying performance and importance scores is still a significant challenge. In this research, we have used the data-centred approach, which is adopted by most researchers (Chen, 2014; Oh, 2001). Appendix A presents the mean scores and standard deviations of importance and performance of selected sustainable hotel practices.

In the last, fifth, step, the importance and performance ratings were analysed using the Mann-Whitney U test to compare the differences between two independent groups of hotels. The Mann-Whitney U test, also known as the Wilcoxon rank sum test, is a nonparametric test used to compare the differences between two independent groups. This test requires meeting certain assumptions, such as having ordinal dependent variables (e.g., from a seven-point Likert scale), an independent variable consisting of two categorical, independent groups, and no relationship between observations within each group or between the groups themselves (Pallant, 2007). We performed the Mann-Whitney U test using statistical software SPSS 23. The mean ranks of sustainable hotel practices are presented in Appendix B.

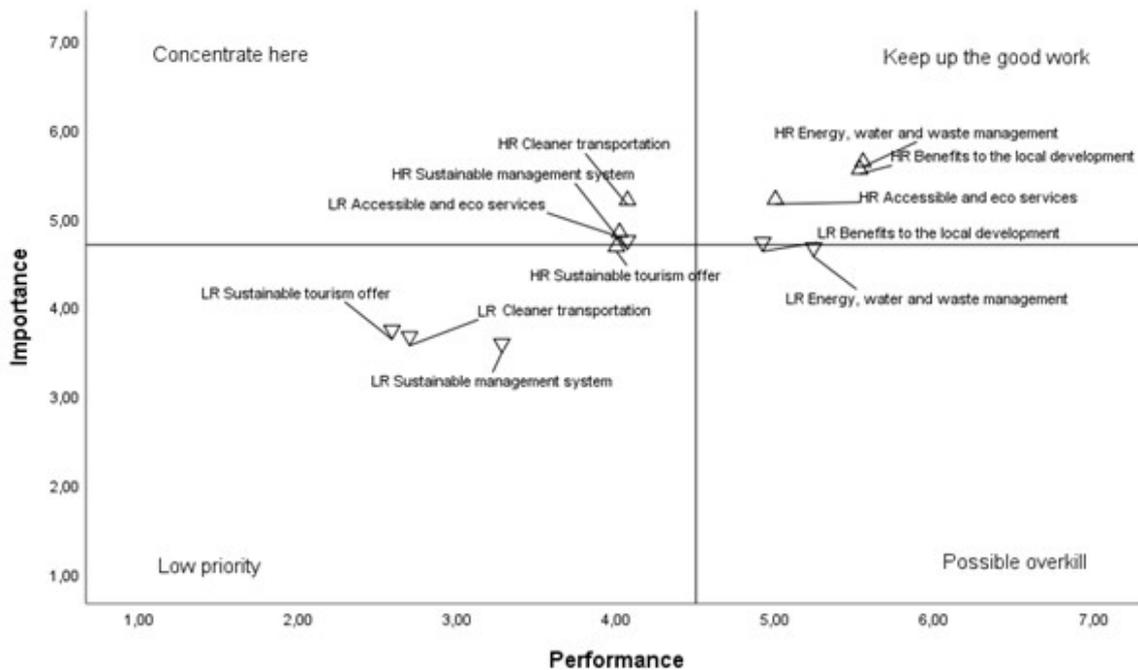
## **RESULTS AND DISCUSSION**

The study found differences between the perceptions of the managers of luxury and first-class hotels (four and five stars) and the managers of lower-ranking hotels regarding the importance of sustainable practices. Specifically, according to the managers' viewpoints, energy, water and waste management practices were evaluated as the most important component for higher-ranking hotels, while accessible and eco-services were identified as the most important

components for lower-ranking hotels. On the other hand, the study also revealed that the established sustainable management system was perceived as the least important component by managers of lower-ranking hotels. In particular, the biggest gaps (importance – performance) were identified in cleaner transportation for higher-ranking hotels and sustainable tourism offer for lower-ranking hotels.

To determine the crosshair of the IPA grid, we used the actual mean values of the observed importance (4.70) and performance ratings (4.50), following the data-centred approach. The IPA grid shows that the sustainable practices the hotels should maintain or continuously improve are located in the 'Keep up the good work' quadrant (Figure 2).

**Figure 2** Importance-performance analysis of sustainable hotel practices in Slovakia



Note: HR: ▲ Higher-ranking hotels (luxury and first class); ▼ LR: Lower-ranking hotels (standard, economy and tourist class).

Source: authors.

The hoteliers in charge of luxury and first-class hotels rated their performance in energy, water and waste management, the benefits to local development, and the accessibility and eco-services as quite good. Similarly, hoteliers of lower-ranking hotels acknowledged the importance of benefits to local development as an integral part of sustainable management, which they have been practicing to some extent. In particular, the highest rated performance is observed in customer satisfaction and energy conservation. Slovak hoteliers understand the importance of benefits for local development as essential attributes of sustainable tourism.

These practices were deemed important by hoteliers and their hotels performed well in these areas. Therefore, tourism policymakers should maintain and support this status quo, encouraging hoteliers to continue their good performance in these areas.

The "Concentrate Here" quadrant identifies sustainable hotel practices that are considered highly important but have low relative performance. This quadrant highlights practices that require strategic support. Although hoteliers consider these practices an essential component of sustainable hotel management, hotels appear to lack the ability to implement them. Managers of higher-ranking hotels believe that they should focus on improving cleaner (eco) transportation options for guests and implementing an effective sustainable management system. However, managers of lower-ranking hotels see the need to improve accessible services and minimise the use of harmful substances. These measures may not necessarily require significant financial investments, making them more appealing to hotels of lower categories.

The quadrant labelled "Possible overkill" includes sustainable hotel practices that are highly performed but are perceived as less important. This quadrant suggests that efforts and resources directed at these practices may not result in significant impacts (Azzopardi & Nash, 2013). It is concerning that lower-ranking hotels perceive energy, water, and waste management practices as less important. On closer examination, lower-ranking hotel managers rated water conservation and solid waste reduction as less important practices. According to data from the Statistical Office of the Slovak Republic (2022), the production of waste from the hospitality sector increased by 9.38% from 2009 to 2018 (reaching 11,836 tones in 2018). Smaller hotels often face barriers such as a lack of resources and the burden of ongoing maintenance costs when implementing environmental practices (Khatter et al., 2019; Trišić et al., 2021). As a result, it is necessary to provide a better justification for the importance and benefits of environmental practices for hotels.

The "low priority" quadrant includes sustainable tourism practices that both groups of hotels consider to be of low importance and low performance. Most of these practices were included by hotels of lower categories. Specifically, hoteliers in lower-ranking hotels rated alternative transportation services and sustainable management systems as practices of relatively low importance and poor performance. Hoteliers associate these practices with higher costs and do not attach much importance to them. According to the IPA technique, such practices should have low priority in terms of resource allocation. However, despite the low importance attributed to sustainable tourism products, there is a growing awareness among consumers of sustainable practices in hotels. Booking.com (2021) reported that customers have growing expectations for a sustainable tourism offer that should not be overlooked.

To compare the differences between two independent groups of hotels, we performed the nonparametric Mann-Whitney U test. The test results showed significant differences between hotels of higher and lower rank in terms of the importance of cleaner transportation ( $p < 0.05$ , two-tailed) (see Table 4 for more details).

**Table 4** Differences between higher- and lower-ranking hotels

Sustainable hotel practices	Mann-Whitney U Test ( <i>p-value</i> )	
	Importance	Performance
<b>Component 1 Benefits to the local development</b>	<b>912.0 (.145)</b>	
Local purchasing	873.5 (.073)	1,056.5 (.648)
Guest education and information	919.0 (.147)	844.0 (.050)
Staff training	936.0 (.185)	1,024.5 (.492)
Biodiversity conservation and preservation	1,030.0 (.514)	883.0 (.090)
Community support	885.5 (.091)	890.5 (.102)
Protecting natural and cultural heritage	946.5 (.209)	1,107.5 (.928)
Local employment	797.0 (.021)	988.0 (.344)
Customer satisfaction	1,102.0 (.894)	1,070.5 (.696)
<b>Component 2 Energy, water and waste management</b>	<b>914.0 (.149)</b>	
Energy conservation	895.5 (.103)	1,106.0 (.917)
Water conservation	768.5 (.012)	1,078.5 (.766)
Solid waste reduction	838.5 (.040)	1,042.0 (.562)
Cost-effective technology	856.0 (.057)	1,072.0 (.731)
<b>Component 3 Cleaner transportation</b>	<b>718.0 (.005)</b>	
Providing alternative transport services	736.5 (.006)	937.5 (.190)
Encouraging guests to use efficient transport alternatives	742.0 (.007)	832.0 (.028)
Alternative fuel sources	800.0 (.022)	719.5 (.002)
<b>Component 4 Accessible and eco services</b>	<b>1,024.0 (.501)</b>	
Use harmful substances	986.0 (.334)	925.5 (.167)
Products and services for visitors with special needs	1,034.0 (.539)	911.5 (.139)
<b>Component 5 Sustainable tourism offer</b>	<b>1,004.0 (.416)</b>	
Sustainable tourism products	900.0 (.116)	852.5 (.050)
<b>Component 6 Sustainable management system</b>	<b>990.0 (.362)</b>	
Environmental management scheme	689.5 (.002)	752.0 (.005)
Legal compliance	1,004.5 (.408)	1,102.5 (.900)

at a 95% confidence level.

Source: authors.

In summary, first-class and luxury hotel managers consider all aspects of sustainable management to be more important than lower-ranking hotel managers, except for accessible and eco-friendly services. While higher-ranking hotels acknowledge the importance of cleaner transportation, they have a lower performance in this area. On the contrary, lower-ranking hotels place less importance on cleaner transportation, such as practising alternative transport services for guests and encouraging the use of efficient transport alternatives. There are also significant differences between the two groups in the importance of local employment, water

conservation, and environmental management schemes. Managers of higher-ranking hotels view these practices as more crucial than managers of lower-ranking hotels. Additionally, significant performance differences were found in guest education, encouragement of alternative transportation options, offering alternative fuel sources, sustainable tourism products, and the application of environmental management schemes. These practices are perceived by hoteliers from higher category hotels as better implemented.

On 6 March 2020, Slovakia reported its first confirmed case of COVID-19, which triggered a series of restrictions to contain the virus. The pandemic has significantly affected the hospitality sector, including sustainable hotel practices. Although hotels were completely closed for several weeks, they had to implement new health and safety protocols, such as enhanced cleaning and disinfection measures, reduced occupancy levels, and social distancing guidelines, to comply with the new regulations. Hoteliers revealed that these measures resulted in changes in hotel operations and guest experiences, as one respondent said for all: *'Safety and financial concerns taking priority over sustainability'*.

The frequent changes in the COVID-19 regulations, coupled with unclear government information and limited preparation time, had a considerable impact on hotel operations. Hotels, both of higher and lower ranking, were forced to reduce their workforce. However, not all the employees lost their jobs. Some hotels allowed their employees to temporarily change their workplace, such as in the food industry, supermarkets, and other services (which was not legal before). The government launched subsidy programmes, including the De Minimis scheme, to support tourism businesses impacted by the pandemic. The most commonly offered form of assistance was wage support to employees. However, the hoteliers surveyed confirmed that the aid arrived too late or was insufficient. During the COVID-19 pandemic, three hotels also took advantage of the opportunity to train their employees and recommend the online educational programme ECO TANDEM. In the first half of 2021, Slovak tourism businesses were able to participate in the ECO TANDEM online educational programme, which focused specifically on the principles of sustainability and circular economy in the tourism industry.

Based on the open responses of the hoteliers, it can be concluded that the Slovak hotels saw sustainable practices during the pandemic as part of their "survival" strategy. This strategy involved reducing operating costs, maintaining employment, complying with changing regulations, ensuring safe access for guests, and mutual support from local businesses.

## CONCLUSIONS

Sustainability aims for long-term effects, taking into account ethical, social, environmental and economic dimensions. The importance of sustainability as a key driver of success in the hospitality sector has been widely acknowledged (Ertuna, Karatas-Ozkan, & Yamak, 2019). It is evident that hotel businesses must be more attentive to these discussions by proposing an inclusion of sustainable practices in managerial and operation strategies, observing: the interests of employees (e.g., social benefits and volunteering), customers (physical accessibility, healthy commercial offer, etc.), suppliers (e.g., Code of Conduct and responsible purchasing) and so on. Similarly, companies will also have to design the best environmental and economic practices according to the specific concerns of each of their stakeholders (Santos et al., 2017).

The results of the study indicate that first-class luxury hotels show a greater commitment to sustainable management practices. This is consistent with previous research by Chan (2011) and Stylos & Vassiliadis (2015), who found that higher-tier hotels place more importance on and implement sustainable practices more effectively. Both the top and the lowest ranked hotels recognise the importance of local development and perform well in this area. However, sustainable tourism offerings are not a priority, and lower-ranking hotels place less importance on energy, water, and waste management. In particular, there is a significant difference in the importance placed on cleaner transportation by hotels. What is more, Slovak hotels viewed sustainable practices during the pandemic as a supplement to their survival strategy, including cost reduction, maintaining employment, complying with regulations, ensuring guest safety and supporting local businesses.

Sustainable hotel practices in Slovakia have received limited research attention. While Jarossová & Knošková (2018) focused on pro-ecological activities and the views of hotel employees and consumers, Novacka et al. (2019) examined environmental practices and differences between hotels in CEE countries. These studies indicate that the Slovak hospitality sector is increasingly prioritising sustainability concerns. However, policy makers and other stakeholders lack proper recommendations that are informed by the perspectives of hoteliers. Consequently, it is unclear which sustainable practices hospitality managers consider essential and implement.

The results of the study are applicable not only to Slovakia or CEE countries but also to the sustainable development of the hospitality sector worldwide. Policymakers must prioritise supporting initiatives and policies that improve hotel performance in areas that hospitality managers consider important, but currently show low performance. If a tourist destination

aims to implement sustainability, all businesses in the tourism sector must work together to support this goal. Eliminating barriers that prevent the implementation of sustainable practices and promoting effective initiatives can motivate hospitality managers to adopt more sustainable management practices.

To improve sustainability practices in hotels, managers of higher-ranking hotels should prioritize cleaner transportation options and effective sustainable management systems, while lower-ranking hotels should focus on accessible services and the reduction of harmful substances. Both categories should also educate guests about their sustainable practices. Additionally, hotels of all ranks should maintain their strengths in energy conservation, waste management, and local development to align with the growing consumer demand for sustainable tourism.

Research has several limitations that must be acknowledged. First, there are no established guidelines for developing a set of attributes to be used in Importance Performance Analysis (IPA). Another limitation is the use of a data-centric approach to determine the IPA matrix. Different discriminating criteria could lead to different results, and a modified version of the IPA analysis may provide a more comprehensive demonstration of its application. Additionally, there is no consensus on what constitutes sustainable hotel practices. Although the list of practices used in this study could have been expanded, doing so could have made the survey too complex and difficult for hospitality managers to complete. It is important to remember that more does not always mean better, and especially in the case of sustainability, simpler and easier-to-apply measures are often more appropriate than complex and demanding systems.

Future research in this field could expand its scope by including additional sustainable hotel practices and other relevant factors, such as chain affiliation, location, and hotel specialization. Furthermore, more comprehensive and in-depth research techniques, such as qualitative, field, and longitudinal or experimental design research, could be used to enrich this topic. The hotel sector faces current challenges, such as high prices, expensive energy, and geopolitical issues that require further research on sustainability. Post-pandemic research could assess how COVID-19 reshaped sustainability priorities and identify practices that balance sustainability with the resilience of tourism businesses. In addition, researchers should examine the role of cost-effective technologies in overcoming resource limitations, especially in lower-ranking hotels.

In conclusion, this study supports the notion that higher-ranking hotels demonstrate greater interest in sustainable hotel practices. Although the study findings cannot be generalised, they contribute to the ongoing discussion of sustainability in the hospitality sector by highlighting

the importance and performance of sustainable hotel practices for both lower and higher-ranking hotels in practice.

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**Appendix A** Mean ratings of sustainable hotel practices

Sustainable hotel practices	Lower-ranking hotels ▼				Higher-ranking hotels ▲			
	Importance		Performance		Importance		Performance	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
<b>Component 1 Benefits to the local development</b>	<b>4.73</b>	2.13	<b>4.92</b>	1.93	<b>5.55</b>	1.94	<b>5.53</b>	<b>1.66</b>
Local purchasing	4.70	2.12	5.01	1.82	5.79	1.87	5.86	1.33
Guest education and informing	4.36	2.29	4.13	1.91	5.29	2.26	5.29	1.82
Staff training	4.46	2.23	4.98	2.10	5.39	2.23	5.21	1.83
Biodiversity conservation and preservation	5.13	1.96	4.83	1.93	5.61	1.77	5.61	1.71
Community support	4.81	1.94	4.51	1.84	5.64	1.87	5.36	1.47
Protecting natural and cultural heritage	5.01	1.97	5.06	1.73	5.54	1.77	5.29	1.63
Local employment	4.21	2.17	4.70	2.10	5.43	2.03	5.32	2.06
Customer satisfaction	5.13	2.20	6.18	1.25	5.71	1.88	6.32	1.16
<b>Component 2 Energy, water and waste management</b>	<b>4.67</b>	2.08	<b>5.24</b>	1.83	<b>5.63</b>	2.02	<b>5.55</b>	1.82
Energy conservation	4.85	2.09	5.83	1.41	5.61	1.93	6.00	1.52
Water conservation	4.51	1.98	4.94	1.79	5.50	2.13	5.32	1.85
Solid waste reduction	4.60	2.21	5.68	1.69	5.75	2.12	5.68	1.94
Efficient building and infrastructure	4.73	2.05	4.54	2.08	5.68	2.00	5.21	1.91
<b>Component 3 Cleaner transportation</b>	<b>3.67</b>	2.11	<b>2.70</b>	2.10	<b>5.20</b>	2.16	<b>4.07</b>	2.59
Providing alternative transport services	4.15	2.07	3.94	2.34	5.50	2.03	4.82	2.44
Rewarding guests for using alternative transport options	3.40	2.00	2.21	1.78	5.07	2.11	3.64	2.47
Alternative fuel sources	3.46	2.20	1.95	1.52	5.04	2.38	3.75	2.78
<b>Component 4 Accessible and eco services</b>	<b>4.84</b>	1.86	<b>4.02</b>	1.91	<b>5.21</b>	2.24	<b>5.00</b>	1.94
Use harmful substances	5.13	1.74	4.20	1.79	5.54	2.10	5.29	1.84
Products and services for visitors with special needs	4.56	1.95	3.84	2.02	4.89	2.36	4.71	2.02
<b>Component 5 Sustainable tourism offer</b>	<b>3.74</b>	2.21	<b>2.59</b>	1.99	<b>4.68</b>	2.48	<b>4.00</b>	2.21
Sustainable tourism products	3.74	2.21	2.59	1.99	4.68	2.48	4.00	2.21
<b>Component 6 Sustainable management system</b>	<b>3.59</b>	2.18	<b>3.28</b>	2.33	<b>4.75</b>	2.35	<b>4.07</b>	2.42
Environmental management scheme	3.49	1.95	1.91	1.42	5.14	2.27	3.93	2.51
Legal compliance	3.70	2.39	4.65	2.25	4.36	2.39	4.21	2.36

on a seven-point Likert scale importance ranging from 1 for "not important" to 7 for "very important" for hotel sustainable management; performance ranging from 1 for "well below the target" to 7 for "well above the target" for hotel sustainability performance.

**Appendix B** Mean ranks of sustainable hotel practices

Sustainable hotel practices	Lower-ranking hotels ▼		Higher-ranking hotels ▲	
	Importance	Performance	Importance	Performance
<b>Component 1 Benefits to the local development</b>	<b>51.90</b>		<b>61.93</b>	
Local purchasing	51.42	53.71	63.30	56.77
Guest education and informing	51.99	51.05	61.68	64.34
Staff training	52.20	55.69	61.07	51.09
Biodiversity conservation and preservation	53.38	51.54	57.71	62.96
Community support	51.57	51.63	62.88	62.70
Protecting natural and cultural heritage	52.33	54.34	60.70	54.95
Local employment	50.46	52.85	66.04	59.21
Customer satisfaction	54.28	53.88	55.14	56.27
<b>Component 2 Energy, water and waste management</b>	<b>51.93</b>		<b>61.86</b>	
Energy conservation	51.69	54.68	62.52	54.00
Water conservation	50.11	53.98	67.05	55.98
Solid waste reduction	50.98	55.48	64.55	51.71
Efficient building and infrastructure	51.20	53.90	63.93	56.21
<b>Component 3 Cleaner transportation</b>	<b>49.48</b>		<b>68.86</b>	
Providing alternative transport services	49.71	52.22	68.20	61.02
Rewarding guests for using alternative transport options	49.78	50.90	68.00	64.79
Alternative fuel sources	50.50	49.49	65.93	68.80
<b>Component 4 Accessible and eco services</b>	<b>55.70</b>		<b>51.07</b>	
Use harmful substances	52.83	52.07	59.29	61.45
Products and services for visitors with special needs	53.43	51.89	57.57	61.95
<b>Component 5 Sustainable tourism offer</b>	<b>53.05</b>		<b>58.64</b>	
Sustainable tourism products	51.75	51.16	62.36	64.05
<b>Component 6 Sustainable management system</b>	<b>52.88</b>		<b>59.14</b>	
Environmental management scheme	49.12	49.90	69.88	67.64
Legal compliance	53.06	54.72	58.63	53.88

# **THE ROLE OF ARTIFICIAL INTELLIGENCE IN SHAPING THE FUTURE OF TRAVEL INDUSTRY: AN EXPERT ANALYSIS OF ARTIFICIAL INTELLIGENCE-GENERATED TRAVEL ITINERARIES**

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## **Abstract**

This research aims to assess the acceptability of AI-generated Travel Itineraries (AITIs) in the tourism sector and investigate the factors that influence their perception and use. The research involved gathering expert knowledge through direct and indirect observation of AITIs. The majority of experts found AITIs to be acceptable, expressing high levels of satisfaction with itinerary organization and suggested activities. However, experts highlighted that AITIs could be improved with more personalized information and cultural experiences. The research contributes to the growing body of academic literature on AI in the tourism industry by emphasizing the importance of high-quality, trustworthy information and the integration of cultural and personal factors to create customized and memorable travel experiences. The findings highlight the relevance of aligning AITIs with the United Nations Sustainable Development Goals (SDGs), particularly those related to innovation, sustainability, and ethical practices. The research offers insights that are valuable for tourism practitioners and policymakers in developing improved products and services that meet the evolving needs of travelers.

Keywords: tourism, SDGs, expert analysis, contemporary ICT, AI, GPT, chatbot

## **INTRODUCTION**

The tourism industry has witnessed a profound transformation in recent years, driven by the increase of new technologies and the emergence of innovative products and services (Štilić et al., 2022). Information technologies are widely recognized as valuable tools for enhancing various aspects of tourism, including online travel intermediaries, virtual tourism experiences, and the integration of robotics (Sujood et al., 2023). In alignment with the United Nations's "The 2030 Agenda for Sustainable Development" (United Nations, 2015) and its promoted Sustainable Development Goals (SDGs) (Marino, 2022), particularly those related to

sustainable economic growth, innovation, and responsible consumption (Arslan & Kekeç, 2023), this dynamic shift within the industry encompasses several research clusters, including the technological aspects of Artificial Intelligence (AI), the acceptance of AI technology, consumer perceptions, and future trends. Over time, the research focus in this field has transitioned from the early stages of AI technology (Mah, 2022) to an exploration of consumer attitudes and the acceptance of AI (Kong et al., 2022). Simultaneously, technological advancements such as AI-powered chatbots (Hicham et al., 2023) and automation are significantly reshaping the landscape of the tourism industry (Pillai & Sivathanu, 2020; Tussyadiah, 2020; Rafiq et al., 2022).

One notable innovation within the tourism sector is the introduction of Artificial Intelligence-generated Travel Itineraries (AITIs), designed to serve as valuable tools for assisting busy tourism agents and providing a foundational starting point for the creation of tailored itineraries (Rozalia Gabor et al., 2023). These AITIs offer to provide personalized, efficient, and cost-effective travel experiences by automating the itinerary planning process for industry professionals. Moreover, AITIs have the potential to contribute to the SDGs by promoting sustainable tourism practices (Abdinematabad et al., 2024) and reducing the environmental impact of travel through more efficient planning and resource utilization.

However, despite the rapidly growing popularity of AITIs and the increasing integration of AI-driven solutions in the tourism domain, there exists a notable research gap regarding the expert evaluation of AITIs and their potential enhancements. Expert evaluation comes before user (tourist) evaluation and real-world implementations in this knowledge-driven process of employing AI in the tourism sector. This establishes the fundamental knowledge that will drive future industry advancements.

To address the research gap more explicitly, it is imperative to examine the expert evaluation of AITIs and explore the complex factors that influence their assessment and potential improvements. This research aims to fill this gap in our understanding of AI applications within the tourism industry, recognizing that knowledge and expertise lay the foundations for successful practical implementations. The insights garnered from this investigation are certain to have far-reaching implications for both tourism practitioners and policymakers, particularly in supporting the SDGs related to innovation, infrastructure, and responsible consumption. By systematically exploring the elements that shape experts' evaluations and potential enhancements of AITIs, the tourism sector can develop improved products and services that are better aligned with industry standards and traveler expectations.

Furthermore, the purpose of this research is to provide insights into the potential of AI to improve the travel experience for travelers. As the tourism industry evolves, it is critical to investigate new technologies and innovative products and services that have the potential to enhance the travel experience. In line with the SDGs, the research seeks to contribute to the development of sustainable and innovative products and services in the tourism industry by better understanding the acceptability of AITIs.

This research is guided by a set of specific research questions tailored to expert evaluation:

To what extent do experts find AITI acceptable?

What factors influence the use and satisfaction of AITI?

How do experts evaluate the design and quality of the AITI compared to traditional itineraries?

What is the future role of travel agents?

These questions guide the research in exploring the acceptability and factors that influence the use and satisfaction of AITI among experts in the field. Additionally, the research aims to align its findings with the broader objectives of the SDGs, contributing to a more sustainable and innovative tourism sector.

The paper's structure consists of an Introduction presenting the background, purpose, and research questions; a Literature Review covering previous research on the use of contemporary information and communication technologies, AI, and related topics; a Methodology section outlining the research design, participants, and data collection and analysis; Results presenting the research's findings; a Discussion interpreting the findings in relation to existing literature and implications; and a Conclusion summarizing the results, outlining implications, limitations, and future research for the field and practitioners.

## **THEORETICAL BACKGROUND**

AI has advanced significantly in recent years and is now used extensively across numerous industries. Healthcare (Ostherr, 2022), education (Ahmad et al., 2022), finance (Musleh Al-Sartawi et al., 2022), and marketing (Kopalle et al., 2022) are just a few of the sectors where AI is making a significant contribution to increased productivity. As AI develops, it is anticipated to have a significant impact on a number of fields, solve complex problems, and offer novel solutions. In response to the rapidly growing interest in AI (Goswami et al., 2024) and service robotics, particularly in tourism and hospitality research, Saydam et al. (2022)

conducted a systematic analysis of more than a hundred published articles to define AI and clarify associated themes

The utilization of technology, with a specific focus on the integration of AI by consumers, has been instrumental in catalyzing growth within the tourism sector, fundamentally transforming the dynamics of online interactions between consumers and the tourism industry (Rafiq et al., 2022). Academic interest in this evolving area of research dates back to as early as 1991 (Kong et al., 2022), marking the beginning of inquiries into AI's potential within the context of tourism. Kong et al. (2022) conducted an extensive analysis of AI research in tourism, tracing its trajectory from 1991 onwards. Their research demonstrates a marked shift from an initial emphasis on AI technology to a growing interest in understanding customer attitudes and the acceptance of AI within the industry. This transition reflects the evolving landscape and priorities within the field. By the end of 2020, there was an explosive growth in attention, signaling the field's promising prospects (Goel et al., 2022). Goel et al. (2022) undertook the task of synthesizing the complex factors influencing consumer adoption of Artificial Intelligence and Robots (AIR) within the hospitality and tourism context. Their work identifies critical barriers, encompassing psychological, social, financial, and technical-functional aspects that impact the uptake of AI-driven technologies. Buhalis & Moldavska (2022) explored the evolving role of voice assistants in the hospitality industry, highlighting their benefits and challenges for both hotels and guests. Voice assistants are portrayed as digital assistants enhancing customer service, operational capabilities, and cost efficiency within hotels. Their study introduces a speech-enabled interactions model as a potential solution. Additionally, voice-activated assistants such as Google Assistant and Alexa were found to be increasingly popular, allowing hotels to automate repetitive tasks and provide personalized recommendations and services (Štilić et al., 2023). Fararni et al. (2021) address the challenges of information overload faced by modern tourists and provide an overview of various recommendation approaches in tourism. Their proposal includes a hybrid recommendation-based architecture and conceptual framework for a comprehensive tourism recommender system promoting tourism in specific regions through the integration of big data, artificial intelligence, and operational research.

Rafiq et al. (2022) highlight the pivotal role of AI, particularly AI chatbots, in reshaping the tourism industry. While AI chatbots represent a recent technological advancement, their potential remains largely unexplored in the tourism and hospitality industries. Their study investigates the factors influencing AI-chatbot adoption, demonstrating their significant impact on customer engagement and experiences. Buhalis & Cheng (2020) contribute to our

understanding of chatbot technology from the perspective of technology providers. Through interviews with industry experts in the hospitality sector, they reveal that chatbots have received positive feedback and that their benefits outweigh the challenges, indicating a growing trend in industry deployment and highlighting the need to enhance their capabilities for realizing their full potential. The study by Pillai & Sivathanu (2020) identifies crucial factors underpinning chatbot adoption in tourism, such as perceived ease of use, usefulness, trust, intelligence, and anthropomorphism. Notably, technological anxiety does not significantly influence adoption. As noted by Praharaj et al. (2023), AI-driven service automation, which fosters service innovation and value creation, does not directly boost customer satisfaction or the overall guest experience, but it does influence the quantity of actual value generated. Their research also underscores the impact of traveler attachment to human agents on chatbot adoption, offering actionable insights for industry practitioners and system designers to improve chatbot accessibility and user-friendliness.

In a recent study, Zhu et al. (2023) highlight that the tourism business is regarded as one of the largest benefactors of chatbot services, notably in terms of suggestions, reservations, and other services, which have become essential for online merchants' engagement with clients. Their findings show that travel agencies should improve AI chatbots by focusing on control-involving navigation and managing the rhythm and content of interactions to enhance perceived usefulness. Ensuring prompt and clear communication, incorporating novel interaction features, and personalizing responses based on product familiarity can significantly improve customer experience and trust. On the other hand, with valuable insights, a study by Carvalho and Ivanov (2023) explores how ChatGPT can impact the tourism industry, emphasizing both its potential benefits and limitations. While ChatGPT can enhance efficiency and customer satisfaction by simplifying operations and augmenting employee skills, it also presents risks such as overreliance, potential job displacement, and cybersecurity concerns. All this affects the occurrence of risks in tourism (Huseyn 2023).

As stated, the effect of AI on employment in the tourism and hospitality industries is also a source of concern. Low-skilled workers run the risk of losing their jobs as AI continues to automate a variety of tasks (Crowley et al., 2021). This highlights the importance of ongoing investment in education and training programs that will provide workers with the skills needed for jobs of the future (Ivanov, 2020). Despite the possibility of job losses, the industry is likely to continue to adopt AI technology as it develops, and it is clear that AI will play a significant role in shaping the industry's future. The tourism and hospitality sectors can remain competitive, improve customer satisfaction, and drive growth in the coming years by

embracing AI and investing in the development of new technologies. Furthermore, AI's potential extends to business optimization within the tourism and hospitality sectors, encompassing supply chain management (Fileri et al., 2021), revenue management (Ivanov et al., 2021), and pricing optimization (Çeltek & İlhan, 2020). These areas offer opportunities to enhance profitability and decision-making processes within travel-related businesses.

## DATA AND METHODS

The research methodology comprises three phases: Introduction of the AI Language Model, Expert Selection and Interviews, and Data Analysis and Interpretation, aimed at achieving the research objectives. The proposed methodology combines in-depth interviews with travel industry professionals and expert evaluations of AITIs (Figure 1).



Source: Authors.

Phase 1 involves the introduction of AI language model. Since the purpose of this research is to assess the usefulness and quality of AITIs it is imperative to introduce the foundational tool employed in this effort to establish a contextual framework for the creation of five distinct AITIs (Appendix: A1, A3-7). The particular language model that was used in this study was developed by OpenAI Company and powered by AI (Pavlik, 2023). Trained on a substantial dataset of text information from the internet, the model is capable of generating human-like text responses in response to queries. This globally available language model employs a transformer neural network architecture and is trained using a transformer variant known as the Generative Pre-trained Transformer (GPT) (Floridi & Chiriatti, 2020). As a result, it produces text consistent with the grammatical and tonal variations present in its training data, making it suitable for a range of natural language processing tasks, including question answering. Using probabilistic language generation techniques, this language model generates answers that are based on the patterns and relationships in the text data that served as its

training set (Rudolph et al., 2023). However, it's crucial to keep in mind that the responses provided by ChatGPT are not always correct and may contain false information, a phenomenon known as “AI Hallucinations” (Nah et al., 2023). As a practical matter, verifying information obtained from this tool is necessary before use (Appendix: A2).

Phase 2 involves Expert Selection and Interviews. Ten travel experts from different backgrounds who have had at least five years of experience in the tourism industry were chosen in order to ensure a wide range of viewpoints. These experts were chosen based on their expertise, reputation, and experience in crafting travel itineraries. Both in-person and online video conferencing were used for the in-depth interviews with the travel industry experts. The semi-structured interviews were scheduled for roughly 45 minutes each. During the interviews, experts evaluated a set of AITIs and provided feedback based on several criteria, such as relevance to the destination (Yochum et al., 2020; Asaithambi et al., 2023; Vieira et al., 2024), completeness (Vincent et al., 2024; Dhond et al., 2023), accuracy (Elimadi et al., 2021; Vincent et al., 2024), usability (Brata et al., 2021), and tourist satisfaction (Yochum et al., 2020; Carreira et al., 2021). Experts also discussed potential drawbacks or challenges associated with the use of AITIs. Their feedback provides critical insights into areas where these tools can be improved.

Phase 3 involves Data Analysis and Interpretation. Using NVivo software and qualitative data analysis methods, the information gathered from the in-depth interviews and expert assessments were examined. Based on the experts' assessments of the AITIs, the data was coded and themes were identified. The quality of the AITIs as a whole, as well as any potential drawbacks or difficulties in using them, are then evaluated by conducting a data analysis on the collected information. The process of analyzing the data gathered from in-depth interviews and expert assessments follows five standard steps (Parameswaran et al., 2020; Vindrola-Padros & Johnson, 2020; Deterding & Waters, 2021):

- **Transcription.** Converting the in-depth interviews' audio recordings into written text as the first step in the process. This results in the ability to analyze the data in a more practical and effective way.
- **Coding.** This requires identifying and labeling key phrases or paragraphs from the interviews that are attributed to particular themes or topics. In this case, for instance, "organization" could be used to code quotes about the arrangement and presentation of information of AITIs.
- **Theme identification.** To achieve this, it is necessary to analyze the coded data to find any patterns, viewpoints, or opinions shared by the experts. In this case, for instance, if several

experts raise issues with the quality of the information provided in the itinerary, design, usability, effectiveness, and appeal, the theme of "Itinerary design and quality" could start to take shape.

- **Data analysis.** Data is further analyzed to determine the overall quality and accuracy of AITIs, as well as any potential limitations or challenges associated with their use.
- **Interpretation.** In the final step, the analysis' findings are interpreted to determine the value of AITIs as well as any potential drawbacks or difficulties in using them. To accomplish this, a summary of the findings, a discussion of their implications, and suggestions for further study or advancement in this field are made.

To support the qualitative analysis, descriptive statistics were used to summarize expert evaluations. Measures such as mean ratings and frequency counts were applied to quantify aspects of AITI quality, usability, and satisfaction. This quantitative approach complements the qualitative thematic analysis, providing a comprehensive view of expert opinions. By integrating both qualitative and quantitative methods, this research ensures a robust evaluation of AITIs, addressing the complex nature of travel planning and expert assessments. The combination of thematic analysis and statistical summarization offers a detailed understanding of AITIs' acceptability and potential areas for enhancement.

## RESULTS

The group of experts interviewed for the purpose of the research presented in this paper was predominantly composed of male individuals, with six out of ten experts being male. The ages among the experts ranged between 27 and 50, with a mean age of roughly 41. The group has been employed in an array of tourism professions, such as professors, managers, consultants, engineers, and assistants. Six of the experts have had degrees from higher education institutions, three with PhDs and one with a Magister of Science, demonstrating the diversity of their educational backgrounds. The years of experience in the tourism industry ranged from 5 to 22 years, with an average of approximately 14 years.

The transcription of the audio-video recordings from the in-depth interviews into text proved to be a crucial first step in the analysis of the data. As a result, it was possible to analyze the data more effectively and practically, which improved the ability to identify important themes and patterns in the analysis of experts' opinions on the use of AI in the tourism industry, specifically on assessing the acceptability of AITIs.

During the coding phase of the analysis, through word frequency query results, key phrases from the interviews were identified (Figure 2). This process simplified the identification of



Table 1, which serves as a summary of word frequency query results derived from experts' interviews, presents key information such as the word, its length, count, weighted percentage, and similar words, providing a concise overview of the most significant terms and themes identified during the analysis.

**Table 1** Word frequency query results – Summary

Word	Length	Count	Weighted Percentage	Similar Words
information	11	20	1,99	information, informations
cost	4	12	1,19	cost, costs
good	4	12	1,19	good
offer	5	12	1,19	offer, offered, offers
specific	8	12	1,19	specific, specifics
time	4	12	1,19	time, times
needs	5	11	1,09	need, needed, needs
availability	12	9	0,89	availability, available
applications	12	8	0,80	applicable, application, applications
tourism	7	8	0,80	tourism
organization	12	7	0,70	organization, organized, organizing
precise	7	7	0,70	precise, precisely
better	6	7	0,70	better
development	11	7	0,70	develop, developing, development
increase	8	7	0,70	increase, increasing, increasingly
possible	8	7	0,70	possibilities, possibility, possible
help	4	6	0,60	help
important	9	6	0,60	important, importantly
making	6	6	0,60	making
content	7	6	0,60	content, contents

Source: Authors.

As a result of the coding process used in this study, it was possible to create codes and subcodes that could be used to categorize quotes and paragraphs into different topics. The main codes were identified as Information quality, Itinerary Design and Usability, Itinerary Effectiveness and Appeal, Comparisons, Improvement or Feedback, Targeting, Challenges and Advancement codes. Under the first three aforementioned codes, there were subcodes identified as well. For the Information Quality code, several subcodes were identified, including Completeness, Relevance, Objectivity, Trustworthiness and Cultural Sensitivity. Completeness refers to the extent to which all relevant information is included in the itinerary, while Relevance assesses the accuracy and usefulness of information provided. Objectivity

measures the impartiality and lack of bias in the information, and Trustworthiness evaluates the credibility and reliability of the information. Finally, Cultural Sensitivity assesses the degree to which the information is respectful and appropriate for diverse cultures. For the Itinerary Design and Usability code, several subcodes were also identified, including Clarity, Organization, User-friendly and Timeliness. Clarity refers to the degree to which the information is clear and easily understood, while Organization assesses the arrangement and presentation of information. User-friendly measures the ease of use and accessibility of the information, and Timeliness evaluates the currency and up-to-date nature of the information. Finally, for the Itinerary Effectiveness and Appeal code, several subcodes were identified, including Alignment, Uniqueness, Balance (organization), Effectiveness and Applicability. Alignment measures how well the itinerary aligns with travel trends and consumer preferences, while Uniqueness measures the originality and differentiation of the itinerary compared to other sources. Balance (organization) assesses the organization and balance of the itinerary, while Effectiveness measures how well the itinerary meets the needs of travelers and the travel industry. Applicability assesses how applicable the itinerary is to a wide range of travelers.

Comparison code refers to the process of evaluating and comparing the itinerary to ones created by the travel agents in travel organizations. This included comparing pricing, features, or overall value for the customer. Experts highlighted the differences, or the lack of them, by comparing the generated AITIs to similar, already-available products. Improvement or feedback code refers to feedback from experts on areas of the AITIs that could be improved. It involves identifying areas for improvement and suggesting specific changes that could enhance the overall quality of the AITIs. Experts emphasized the importance of soliciting feedback from consumers to continuously improve the itinerary and meet evolving travel trends and preferences. Targeting code refers to the process of targeting specific consumer segments with the AITIs. Experts emphasized the importance of understanding the target audience and creating an itinerary that meets their specific needs and desires. Challenges code refers to the obstacles and difficulties that could be possible while executing the AITIs. This includes challenges related to logistics, budget, or regulations. Experts discussed the need to identify potential challenges and develop strategies to overcome them to ensure the AITIs run smoothly and meet customer expectations. Advancement code refers to the need for innovation and progress in itinerary design, execution, and acceptance. Experts highlighted the importance of staying up-to-date with the latest travel trends and technologies to ensure the traditional travel agencies remain competitive and appealing to consumers. This involves incorporating new technologies while utilizing various digital tools or platforms.

As a further step, i.e., theme identification, coded data was used to find any patterns, viewpoints, or opinions shared by the experts. In this case, several experts raised issues regarding the Information Quality, Itinerary Design and Usability and Itinerary Effectiveness and Appeal codes, creating the Itinerary design and quality as the first theme. In the same manner, Comparisons, Improvement or Feedbacks, and Targeting affiliated with Evaluation and comparison as the second theme. Further, Challenges and Advancement affiliated with Future direction and progress as the third and final theme (Table 2).

**Table 2** Theme tree

Theme	Code	Subcode
Itinerary design and quality	Information Quality	Completeness
		Relevance
		Objectivity
		Trustworthiness
		Cultural Sensitivity
	Itinerary Design and Usability	Clarity
		Organization
		User-friendly
		Timeliness
	Itinerary Effectiveness and Appeal	Alignment
		Uniqueness
		Balance (organization)
Effectiveness		
Applicability		
Evaluation and comparison	Comparisons	/
	Improvement (feedback)	
	Targeting	
Future direction and progress	Challenges	/
	Advancement	

Source: Authors.

For the purpose of data analysis, the expert evaluations were grouped into three themes, namely: Itinerary design and quality, Evaluation and comparison and Future direction and progress.

In terms of Itinerary design and quality theme, the majority of the experts concluded that presented AITIs aligned with current travel trends and consumer preferences and that the itineraries were either very good or aligned with contemporary trends and consumer preferences. Only one expert thought they were poorly represented. Only two experts believed that there were innovative or unique activities or destinations included in the itinerary. The majority of experts, however, did not find any innovative or unique elements in the itinerary, but they did believe that they corresponded to general demand. All the experts, with the exception of one, thought that the schedule was well-balanced in terms of cost, time, and activities. The one expert who expressed reservations stated that travel costs were not well balanced, taking into account cost increases in the post-COVID era. Most experts agreed that

the itineraries would be appealing to a broad range of travelers when asked if they would or if they were better suited to a particular kind of traveler. Finally, when asked about potential challenges or obstacles that travelers may encounter when using AITIs in real-world situations, the experts mentioned a variety of issues such as insufficient information, poor handling, information validity, up-to-date availability, and issues with specific user needs. According to one expert, the AI itineraries were useful for sightseeing tours but less precise when it came to transportation and hotel accommodations.

In terms of Evaluation and comparison theme, when comparing the AITIs to one made by a human travel agent, experts generally agreed that the AI itinerary had advantages and was comparable in terms of content, though some noted that the cost projections and transportation segment of the itineraries could be more accurate. Based on the responses given by the experts, most of them found the itineraries to be very good or satisfactory in terms of meeting the needs and interests of specific traveler demands, though some suggested that it could be more specific or include more information on micro locations and shopping locations. The experts suggested that the AITIs could be improved through utilization, generating faster connection speeds, and more accurate data. Additionally, some experts suggested that AITIs could be improved by including information about the need for reservations, museum and attraction opening hours, and information about the need for a guide in certain places. Overall, the experts appeared to agree that AITIs have the potential to enhance the travel experience for customers by offering current information that human agents might not have, by offering a good initial proposal that can be improved, and by lessening the workload of agents during peak travel times. They did, however, make the argument that human agents cannot entirely be replaced by AI and that some circumstances still call for human intervention.

In terms of Future direction and progress theme, the expert field interviews provided some interesting insights into challenges, drawbacks, ethical issues, and future progress. Three experts discussed the difficulties that could arise when using AI-generated itineraries and pointed out that external factors like world conflicts, crises, and crowds and lines could pose obstacles. Another expert suggested that the program might be constrained by costs and travel time, and that the AITI's aptitude would be tested by handling more challenging requests. Experts cited a lack of experiential feedback, information unavailability, and information validity as potential drawbacks of relying too heavily on AI in travel itinerary planning. Experts also stressed the importance of not ignoring alternative modes of transportation, obtaining only a generic itinerary, and the accuracy of entered data. According to one expert, travel itinerary cost predictions could also be a potential disadvantage. Experts emphasized the importance of protecting user information, respecting ethical norms, principles, and

traveler rights, as well as ensuring data security and GDPR compliance. Finally, experts predicted that AITIs would see increased usage and representation in the global travel industry in the future. Two experts also suggested that there would be a greater emphasis on raising awareness of the importance of coordination between traditional agents and AI in tourism. The ratio of AI output to live agent correction, according to one expert's prediction, will be 99%:1% in ten years, indicating a significant advance in the quality of AITIs.

## DISCUSSION

The integration of AITIs into the tourism industry represents a crucial advancement with significant implications for both operational efficiency and sustainability (Rozalia Gabor et al., 2024). The expert interviews reveal that AITIs align with contemporary travel trends and consumer preferences, as demonstrated by their general satisfaction with the itineraries' quality and usability.

Experts consider AITIs a useful and innovative tool for travel planning (Pillai & Sivathanu, 2020; Lalicic & Weismayer, 2021). The identification of key factors such as Information Quality, Itinerary Design and Usability, and Itinerary Effectiveness and Appeal highlights areas of strength and opportunities for further development.

While AITIs generally met expectations, experts emphasized the need for greater uniqueness and innovation in the itineraries. These findings suggest that user satisfaction is strongly tied to both the quality of the itinerary and the accuracy of the information provided (Ashfaq et al., 2020; Prentice et al., 2020a; Prentice et al., 2020b). This aligns directly with SDG 9 (Industry, Innovation, and Infrastructure), which advocates for innovation in all sectors, including tourism. By focusing on creating more distinctive and culturally sensitive itineraries, AITIs can enhance the travel experience and support SDG 11 (Sustainable Cities and Communities).

Additionally, experts highlighted the importance of completeness, relevance, and trustworthiness, critical attributes for ensuring reliability in AITIs. According to the findings, AITIs have the potential to save time and reduce the workload of travel agents (Garg, 2021), which is particularly valuable as modern tourists prioritize efficiency and prefer prompt, data-driven solutions (Rudež, 2023). The emphasis on these attributes resonates with SDG 12 (Responsible Consumption and Production), encouraging the provision of accurate and responsible travel information that supports sustainable decision-making by travelers.

The evaluation and comparison theme revealed by the experts emphasizes the subtle balance between AI-generated itineraries and those crafted by human agents. While AITI has the potential to reduce travel agents' workload, it also necessitates training and adaptation to new technology (Ivanov, 2019). While AITIs were recognized for their efficiency and ability

to handle large volumes of data quickly, there were concerns about their precision in cost estimations and transportation arrangements. This finding highlights the importance of continuous improvement in AI technologies to enhance their practical application in real-world scenarios.

The experts' feedback also pointed to the potential for AITIs to reduce the workload of human agents, particularly during peak travel times, by providing a solid foundation that can be further refined by human expertise. The future role of travel agents may be determined by how widely AITI is adopted and integrated into the travel industry. This aligns with SDG 8 (Decent Work and Economic Growth), suggesting that AITIs can complement human labor, rather than replace it, thereby enhancing the overall productivity and sustainability of the tourism industry.

The expert insights on the challenges and future direction of AITIs highlight several critical areas for development, particularly in addressing external factors such as geopolitical events and the need for more sophisticated data handling capabilities. Experts discussed the difficulties that could arise when using AI-generated itineraries and pointed out that external factors like world conflicts, crises, and crowds and lines could pose obstacles. These challenges are indicative of the broader obstacles that AI must overcome to fully integrate into the tourism sector.

Moreover, the concerns raised about ethical issues, data security, and the potential drawbacks of over-reliance on AI reflect the importance of aligning AITI development with SDG 16 (Peace, Justice, and Strong Institutions), which emphasizes the need for ethical standards and robust legal frameworks. Experts emphasized the importance of protecting user information, respecting ethical norms, principles, and traveler rights, as well as ensuring data security and GDPR compliance. Ensuring that AITIs adhere to GDPR compliance and respect user privacy is crucial for maintaining trust and safeguarding traveler rights.

Experts also predicted a growing role for AITIs in the global travel industry, with the potential for a 99% AI-generated to 1% human-corrected output ratio within a decade. This projection underscores the necessity for ongoing innovation and skill development within the industry, as outlined in SDG 4 (Quality Education), to prepare travel agents for an AI-augmented future.

Suggesting that AITIs will significantly shape the future of travel planning, policymakers can use these insights to create an enabling environment (Puška & Štilić, 2022). To fully realize the potential of AITIs, a multi-stakeholder approach is essential. This approach should firstly include enhanced training programs, as the tourism industry must invest in comprehensive training programs that focus on digital literacy (Peterka & Stroukal, 2024) and AI proficiency, ensuring that travel agents can effectively collaborate with AI tools to deliver

superior service. Secondly, innovation in itinerary design, as continuous innovation in AITI development, is crucial, particularly in enhancing the uniqueness and cultural sensitivity of itineraries to meet diverse traveler needs and preferences. Finally, sustainable policy advocacy, as engaging with policymakers, is crucial for developing ethical frameworks that govern AI usage in tourism, ensuring compliance with data security standards, and promoting responsible AI deployment.

## CONCLUSION

The integration of AITIs into the tourism industry holds significant potential to enhance the efficiency and personalization of travel planning. This research has provided an in-depth analysis of expert opinions on AITIs, revealing both their advantages and limitations. AITIs are seen as valuable tools for streamlining the travel planning process and tailoring itineraries to individual preferences, aligning with contemporary consumer demands for efficiency and personalization. However, the quality of information and the trustworthiness of AITIs are critical factors influencing user satisfaction. High-quality and reliable information are essential for the overall effectiveness and appeal of AI-generated itineraries.

Despite their potential, AITIs face challenges related to accuracy, data security, and ethical considerations. Addressing these issues is crucial for the successful integration of AITIs into mainstream travel planning. The future role of AITIs in the tourism industry will involve balancing AI technology with human expertise. While AITIs can manage extensive data and provide efficient solutions, human agents will continue to be vital for offering refined insights and addressing complex travel needs. The evolution of AITIs will depend on continued advancements in AI technology, the development of ethical frameworks, and the adaptation of travel agents to new tools.

To ensure that AITIs achieve their full potential, strategic recommendations include investing in training and development. Strengthening the digital and AI skills of travel agents is essential for maximizing the benefits of AITIs while ensuring that human expertise remains a key component of the tourism industry. Additionally, the development of AITIs should prioritize innovation and sustainability, focusing on creating itineraries that are unique, culturally sensitive, and aligned with global sustainability goals. Policymakers also need to establish robust ethical and regulatory frameworks to govern the use of AI in tourism. This includes addressing data security, privacy concerns, and the ethical implications of AI deployment. Policymakers can use the insights from this research to create an enabling environment for the growth and development of AI in the tourism industry, including through the provision of funding, infrastructure, and other resources to support the development and adoption of AITIs.

Future research should focus on the practical applications and impacts of AITIs, examining their real-world effectiveness and user experiences. Additionally, investigating ethical implications such as data privacy and algorithmic bias will be crucial for ensuring that AITIs contribute positively to the travel industry and enhance the overall travel experience. As AITIs present considerable promise for transforming the travel planning landscape, by addressing current challenges, investing in technology and training, and fostering a supportive regulatory environment, the tourism industry can exploit the full potential of AI to improve travel experiences and drive innovation in the sector.

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## APPENDIX

### A1: Example on request for generating AITIs

Good day, please generate 5 different in-detail, day by day, travel itineraries based on the following Q&As Please add suggestions for accommodation and restaurants. State the approximate price for the proposed itineraries, including transportation, accommodation, food/drink costs, as well as attractions fees.

Q1: What would be the departing city?

A1: Belgrade, Serbia

Q2: Can you describe your desired travel location or region?

A2: Europe

Q3: What is the purpose of your travel (e.g. leisure, business, etc.)?

A3: leisure

Q4: How many days would you like to spend on your trip?

A4: 3 to 5

Q5: How would you like to travel to your preferred destination (e.g. airplane, train, car)?

A5: airplane or car

Q6: Are there specific sights or attractions that you would like to visit during your trip?

A6: must sees and cultural sights, Instagram popular places would be ok too

Q7: Are there any specific experiences (e.g. food, culture, adventure) that you would like to have during your trip?

A7: no

Q8: Are there any specific preferences or requirements that you have for your itinerary?

A8: low-budget travel

Thank you!

### A2: Response from ChatGPT (OpenAI, 2023)

Of course! Here are 5 different travel itineraries for your trip to Europe departing from Belgrade, Serbia for 3 to 5 days, taking into consideration your desire for leisure and to visit must-see cultural sights and popular Instagram places, with a low-budget preference. Prices are estimated and subject to change based on current exchange rates and seasonality, and can vary depending on the exchange rate and individual spending habits. I hope these itineraries provide you with a good starting point for planning your trip to Europe. Enjoy your travels!

### A3: AITI 1, Belgrade to Budapest, 3 Days (OpenAI, 2023)

Approximate cost for this itinerary, including transportation, accommodation, food/drink costs, and attractions fees, is approximately 150-200 EUR.

#### Day 1: Belgrade to Budapest

Depart Belgrade in the morning by train or car and head to Budapest, Hungary. Arrive in Budapest and check into a budget hotel such as Hotel Visegrad or Hotel Parlament, which start at approximately 25-35 EUR per night. Explore the city by visiting the famous thermal baths like Széchenyi Bath or Gellért Bath, which has an entrance fee of around 25 EUR. Visit Fisherman's Bastion for an iconic view of the city and the Parliament building, which are both free to visit. Have dinner at a local restaurant like Kisharang Étterem, which offers traditional Hungarian cuisine at an affordable price.

#### Day 2: Budapest Sightseeing

Start the day with a visit to the famous Buda Castle, which has an entrance fee of around 25 EUR. Visit the Great Market Hall, a bustling indoor market that offers a variety of local food and products. Walk along the Danube river and stop by the iconic Chain Bridge, which connects Buda and Pest. In the evening, take a relaxing stroll in City Park and visit the Vajdahunyad Castle, which is lit up beautifully at night. Have dinner at one of Budapest's famous ruin bars like Szimpla Kert, which offers a unique atmosphere and affordable drinks.

#### Day 3: Budapest to Belgrade

In the morning, visit St. Stephen's Basilica and the Heroes' Square, which are both free to visit. Return to Belgrade by train or car in the early afternoon.

#### A4: AITI 2, Belgrade to Vienna, 4 Days (OpenAI, 2023)

Approximate cost for this itinerary, including transportation, accommodation, food/drink costs, and attractions fees, is approximately 150-200 EUR.

##### **Day 1: Belgrade to Vienna**

Depart Belgrade in the morning by train or car and head to Vienna, Austria. Arrive in Vienna and check into a budget hotel such as A&O Wien Stadthalle or Hotel Harmonie Wien, which start at approximately 25-35 EUR per night. Spend the afternoon visiting the famous Schönbrunn Palace and its beautiful gardens, which has an entrance fee of around 25 EUR. Have dinner at a local restaurant like Gasthaus Schenk, which offers traditional Austrian cuisine at an affordable price.

##### **Day 2: Vienna Sightseeing**

Start the day by visiting the iconic St. Stephen's Cathedral, which is free to visit.

Walk along the famous Ringstrasse and visit the Vienna State Opera, which has guided tours available for a fee. In the afternoon, visit the Kunsthistorisches Museum, which has an entrance fee of around 15 EUR.

Have dinner at a local restaurant like Figlmüller, which is famous for its traditional Wiener Schnitzel.

##### **Day 3: Vienna Sightseeing**

Visit the famous Prater amusement park and take a ride on the giant Ferris wheel, which has an entrance fee of around 10 EUR. In the afternoon, visit the Hofburg Palace, which has an entrance fee of around 20 EUR. Have dinner at a local restaurant like Plachutta, which offers traditional Austrian cuisine.

##### **Day 4: Vienna to Belgrade**

In the morning, visit the Museum Quarter and the famous Museum of Modern Art (MUMOK), which has an entrance fee of around 15 EUR. Return to Belgrade by train or car in the early afternoon.

#### A5: AITI 3, Belgrade to Istanbul, 4 Days (OpenAI, 2023)

Approximate cost for this itinerary, including transportation, accommodation, food/drink costs, and attractions fees, is approximately 200-250 EUR.

##### **Day 1: Belgrade to Istanbul**

Depart Belgrade in the morning by plane and arrive in Istanbul, Turkey.

Arrive in Istanbul and check into a budget hotel such as Taksim Hotel Istanbul or Taksim Premium Hotel, which start at approximately 30-40 EUR per night. Spend the afternoon exploring the city center and visiting the famous Taksim Square and Istiklal Street, which are both free to visit. Have dinner at a local restaurant like Adana Ocakbasi, which is famous for its traditional Turkish cuisine and drinks.

##### **Day 2: Istanbul Sightseeing**

Start the day by visiting the famous Hagia Sophia, which has an entrance fee of around 20 EUR.

Walk through the historic Sultanahmet district and visit the famous Blue Mosque, which is free to visit.

In the afternoon, visit the famous Topkapi Palace, which has an entrance fee of around 20 EUR.

Have dinner at a local restaurant like Van Kahvalti Evi, which offers traditional Turkish cuisine and drinks.

##### **Day 3: Istanbul Sightseeing**

Spend the day visiting the famous Grand Bazaar, which is free to visit. Have dinner at a local restaurant like Imroz, which offers traditional Turkish cuisine at an affordable price.

##### **Day 4: Istanbul to Belgrade**

Spend the morning visiting the famous Bosphorus Strait and its beautiful sunset views, which is free to visit. Return to Belgrade by plane in the early afternoon.

A6: AITI 4, Belgrade to Paris, 5 Days (OpenAI, 2023)

Approximate cost for this itinerary, including transportation, accommodation, food/drink costs, and attractions fees, is approximately 250-300 EUR.

**Day 1: Belgrade to Paris**

Depart Belgrade in the morning by plane and arrive in Paris, France. Arrive in Paris and check into a budget hotel such as Hotel Le Bellechasse or Hotel du Cadran, which start at approximately 40-50 EUR per night. Spend the afternoon exploring the city center and visiting the famous Notre-Dame Cathedral, which is free to visit. Have dinner at a local restaurant like L'Auberge du Pont de Collonges, which is famous for its traditional French cuisine and drinks.

**Day 2: Paris Sightseeing**

Start the day by visiting the famous Eiffel Tower, which has an entrance fee of around 15 EUR. Walk through the historic Champs-Élysées and visit the famous Arc de Triomphe, which is free to visit. In the afternoon, visit the famous Louvre Museum, which has an entrance fee of around 15 EUR. Have dinner at a local restaurant like Le Comptoir du Relais, which offers traditional French cuisine and drinks.

**Day 3: Paris Sightseeing**

Spend the day visiting the famous Palace of Versailles, which has an entrance fee of around 20 EUR. Have dinner at a local restaurant like L'Atelier de Joel Robuchon, which offers traditional French cuisine at an affordable price.

**Day 4: Paris Sightseeing**

Spend the day visiting the famous Sacré-Cœur Basilica and its beautiful views of the city, which is free to visit. Have dinner at a local restaurant like Le Jules Verne, which offers traditional French cuisine and drinks.

**Day 5: Paris to Belgrade**

Spend the morning visiting the famous Latin Quarter and its charming streets, which is free to visit. Return to Belgrade by plane in the early afternoon.

A7: AITI 5, Belgrade to Lisbon, 5 Days, (OpenAI, 2023)

Approximate cost for this itinerary, including transportation, accommodation, food/drink costs, and attractions fees, is approximately 200-250 EUR.

**Day 1: Belgrade to Lisbon**

Depart Belgrade in the morning by plane and arrive in Lisbon, Portugal. Arrive in Lisbon and check into a budget hotel such as Hostel do Chiado or Lisbon Destination Hostel, which start at approximately 25-35 EUR per night. Spend the afternoon exploring the city center and visiting the famous Praça do Comércio, which is free to visit. Have dinner at a local restaurant like Cervejaria Ramiro, which is famous for its traditional Portuguese cuisine and drinks.

**Day 2: Lisbon Sightseeing**

Start the day by visiting the famous Belem Tower, which has an entrance fee of around 10 EUR. Walk through the historic Alfama district and visit the famous São Jorge Castle, which has an entrance fee of around 10 EUR. In the afternoon, visit the famous Jerónimos Monastery, which has an entrance fee of around 10 EUR. Have dinner at a local restaurant like A Cevicheria, which offers traditional Portuguese cuisine and drinks.

**Day 3: Lisbon Sightseeing**

Spend the day visiting the famous Baixa district and its charming streets, which is free to visit. Have dinner at a local restaurant like A Pipa, which offers traditional Portuguese cuisine at an affordable price.

**Day 4: Lisbon Sightseeing**

Spend the day visiting the famous Bairro Alto district and its nightlife, which is free to visit. Have dinner at a local restaurant like Rua da Bica, which offers traditional Portuguese cuisine and drinks.

**Day 5: Lisbon to Belgrade**

Spend the morning visiting the famous Rossio Square and its beautiful fountains, which is free to visit. Return to Belgrade by plane in the early afternoon.

## **LET THE VOICES OF RESIDENTS' BE HEARD. FACTORS DETERMINING SUPPORT FOR TOURISM DEVELOPMENT IN WESTERN SERBIA.**

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### **Abstract**

Local residents are the most important component of a tourist destination, and in order to develop tourism sustainably, it is important to understand their perspectives. The purpose of the research is to find out the way the residents (n=845) perceive towards the development of tourism in Western Serbia. Three factors that represent the viewpoints of residents on the development of tourism have been found by using the main component exploratory factor analysis (EFA). These include perception of tourism benefits, support for tourism development, and attachment to the community. Additionally, the purpose of the research is to find out if residents' perspectives are different depending on their sociodemographic characteristics. The paper's findings demonstrate that residents in Western Serbia have a favorable outlook on the development of tourism and that there are some differences in their viewpoints on certain socioeconomic characteristics.

Keywords: attitudes of the local residents, tourism development, Western Serbia, tourism benefits, tourism development, attachment to the community

### **INTRODUCTION**

The local residents are the most vital and significant component of the tourist destination, and in order to maximize their contribution to its success, it is imperative to comprehend their perspectives about the development of tourism (Campón-Cerro et al., 2017). The literature has shown that the best way to achieve sustainable tourism development is through the engagement of local residents (Abdollahzadeh & Sharifzadeh, 2014). Thus, in order to have a better understanding of the factors that contribute to a tourist destination's long-term,

sustainable success, it is essential to comprehend the implications of tourism development from the perspective of local residents (Woo et al., 2015).

Several studies (Alshboul, 2016; Carpenter & Miller, 2011; Simmons, 1994) highlighting the advantages of educating local residents about sustainability have indicated community engagement as an essential component. Furthermore, according to many studies (Cañizares et al., 2014; Demirović et al., 2020; Eshliki & Kaboudi, 2012; Harun et al., 2018; Lo et al., 2014), the local community has emerged as a significant player in the tourist sector. This means that a successful tourism product requires active community involvement and participation (Kim et al., 2014). As the public sector of business is gradually being replaced by the private sector, the community's role in the development of tourism over the past few decades is becoming more prominent, and the relationship between the local community and the private sector is growing more effective (Marais, 2011).

Although local residents may respond to the impacts of tourism in different ways, there is still limited understanding of this topic. Considering local residents are an integral component of every tourist destination, it is important to have a deeper knowledge of how they feel about the development of tourism in order to leverage their opinions for the destination's success (Campón-Cerro et al., 2017). While Carmichael (2000) addresses the ways in which residents' views, both good and negative, influence their behavior and the actions that follow, other research on residents' attitudes about tourism neglects the behavioral aspect (Vargas-Sanchez et al., 2011). It has been indicated by several scholars (Ezeuduji & Reed, 2011; Haralambopoulos & Pizam, 1996; King et al., 1993; Smith & Krannich, 1998) that local communities in need of economic development accept tourism.

However, it's probable that certain communities, particularly rural ones, would respond negatively to the increased tourism growth (Lepp, 2008). While avoiding the response component, a few studies (Jackson & Inbakaran, 2006; Nunkoo & Gursoy, 2012) have looked into locals' support for tourism and how to forecast their behavior (Peters et al., 2018). It underscores how crucial it is to ascertain the relationship between the effects of tourism, the residents of the area, and the conduct that may be adopted as a course of action (Peters et al., 2018).

As one of the four major tourist clusters in Serbia, the Western Serbia region is recognized for its tourism importance in the tourist Development Strategy of the Republic of Serbia (Strategija razvoja turizma Republike Srbije od 2006. do 2015. godine, 2006). Furthermore, three of Serbia's eighteen priority and important tourism destinations are located on the area of Western Serbia, the topic of this research (Strategija razvoja turizma Republike Srbije od

2016. do 2025. godine, 2016). According to the previously described strategy, which identified 18 priority tourist sites based on factors including accessibility, accomplished visitor traffic, and the infrastructure and superstructure already established, these locations are crucial for the completion of tourism products.

On the territory of Western Serbia, which is the subject of this paper, there are tourist priority destinations: Podrinje/Loznica/Banja Koviljača, Divčibare/Valjevo and the tourist region of Western Serbia. Administratively, these tourist destinations are located in the Mačva, Kolubara and Zlatibor districts.

Western Serbia is a prime illustration of a mainly rural region that makes use of its potential and anticipates it in the growth of rural tourism. This assertion is supported by the fact that an important percentage of Western Serbia's households satisfies the strict requirements and guidelines set forth by regulations for the provision of catering services in rural tourism, making this kind of tourism one of the region's top priorities (Perić, Dramićanin & Gašić, 2020; Program razvoja turizma turističke regije Zapadna Srbije od 2020. do 2025. godine, 2021).

Future economic development in the Republic of Serbia can be greatly influenced by rural areas like Western Serbia that have experienced substantial growth in tourism (Gašić & Ivanović, 2018). According to Dimitrijević and colleagues (2022) the majority of Serbia's rural tourism takes place in rural regions in Western Serbia and Šumadija, which are recognized for having a high capacity for tourists. The quantity of visitors arriving and staying overnight also reflects the significance of Western Serbia in the continued development of Serbian tourism. Specifically, 40.8% of all visitors visited Western Serbia and Šumadija in 2021, and 43.7% of them stayed overnight (Republički zavod za statistiku, 2022). As it is important to deal with the attitudes of the local residents in all stages of tourism development, this research will be an incentive for the future development of tourism in Western Serbia. Thus, this paper's primary objective is to investigate how the residents perceive tourism development. This will be examined through research and identifying factors that reflect the local population's views on the development of tourism in their communities. The second objective is to analyze if there is a statistically significant difference between the identified development factors and the respondents' sociodemographic characteristics.

In light of the goals, two primary research hypotheses were established:

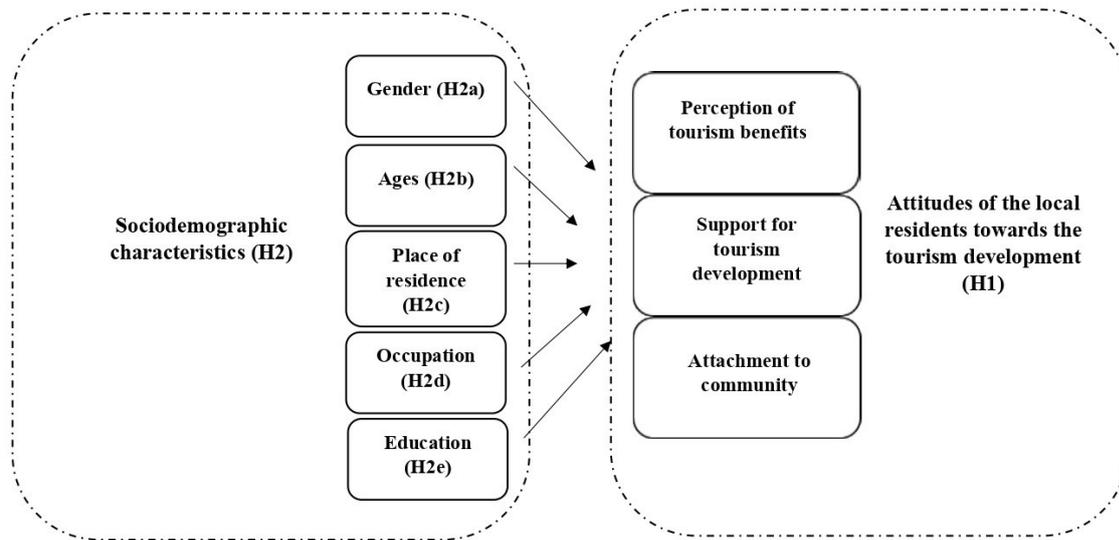
H1: Residents in the Western Serbia region have an overall positive perspective on the growth of tourism in their local area (Perception of benefits from tourism/Support for tourism development/Community commitment).

H2: There is a statistically significant difference between the resident community's views regarding tourist development factors and their socio-demographic characteristics.

Sub-hypotheses were developed within the framework of this hypothesis in order to specifically support or reject each perspective:

There is a statistically significant difference in the residents' perceptions regarding the factors that contribute to tourist development based on the respondents' gender (H2a), ages (H2b), place of residence/district (H2c), occupation (H2d), education (H2e).

**Figure 1** Research framework.



## THEORETICAL BACKGROUND

An effective tourism product must be developed with active engagement and interaction between communities (Roberts & Hall, 2001). Additionally, community-based tourism is a powerful means of promoting resource conservation, local residents quality of life, and sustainability in the tourist industry (Scheyvens, 1999). For instance, residents who aim to increase or sustain agricultural growth while also preserving the rural legacy (environment, culture, and way of life) may find that tourism in rural regions is a viable alternative (Chuang, 2010). According to Shani and Pizam (2012), community involvement is essential to the development of sustainable tourism, and in order to launch tourist development initiatives, the community must first be productive and contribute to development (Yu et al., 2011).

Although the community should play a significant role in tourism management, residents are regrettably frequently left out of the planning, decision-making, and overall development of tourism in tourist destinations (Cater, 1994; Teye et al., 2002). Nevertheless, Karmakar

(2011) observes that as tourism development strategies are being developed, the local community is being included and consulted increasingly frequently in a variety of significant areas, including the economics, social aspects, culture, and environment. For this reason, many academics now consider residents' support for the development of tourism to be of paramount significance (Ezeuduji & Reed, 2011; Lepp, 2008; Leslie & Wilson, 2005; Liu, 2006; Nunkoo & Gursoy, 2012; Styliadis et al., 2014). The success or failure of the destination in terms of the degree of satisfaction among tourists can be determined by the residents, even if they are an integral element of the tourism offering themselves.

Consequently, residents who have negative thoughts about the development of tourism could discourage visitors from having authentic experiences that live up to the expectations of those who are looking for encounters that offer chances for engagement and education (Campón-Cerro et al., 2017). There is a substantial correlation between the level of local community engagement in tourism and its impacts. Accordingly, the level of local community involvement and their response to tourism growth can frequently be influenced by the individual advantages that tourism can provide (Hanafiah et al., 2013). In line with Petrović et al. (2017a), the local residence also experiences that the potential for increased spending and the backing of the local government in fostering tourist growth are major factors in the industry's development. The local community is more supportive of changes in tourism growth if it participates more in local association work, passes local rules, develops plans, and makes other crucial choices at the local level (Petrović et al., 2017b).

In this sense, the community considers tourism favorably and anticipates that it will improve residents' quality of life in the future (Demirović et al., 2020). The same authors claim that residents' perception regarding the growth of tourism are positively correlated with their level of commitment to the community. The community's continuous sustainable development and the growth of tourism occur almost simultaneously (Petrović et al., 2021; Sebele, 2010).

A number of factors, including the accessibility of government representatives, tourism organizations, businesses, and other local stakeholders, as well as the degree of collaboration between the government and the residents of the area, influence how much the local community contributes to tourism (Zamil, 2011). To promote sustainable community-led tourism initiatives that will support long-term economic growth in the area, strategic alliances between the public and commercial sectors are required (Saravanan & Rao, 2012).

## DATA AND METHODS

Data were collected using a structured questionnaire that was developed to measure residents' attitudes toward tourism development in their communities. The questionnaire's construct was formed by previous research (Demirović et al., 2020) that examined the determinants which impact residents' support for the sustainable growth of tourism in rural areas. The questionnaire consisted of three segments, which were related to: residents' perception of tourism development in their communities through the perceived tourism benefits (see Abdollahzadeh & Sharifzadeh, 2014; Gursoy & Rutherford, 2004); the degree of attachment to the community (see Lee, 2013); supporting tourism development (see Nicholas et al., 2009; Woo et al., 2015). The local residents' perception of tourism development was analyzed through the perceived benefits of tourism development: social benefits (five items), environmental benefits (two items), and economic benefits (three items).

Residents of municipalities and cities within the territory of Western Serbia participated in the research, considering the primary objective was to determine the perspectives of local residents on the support of tourist development. The study included 845 respondents in the study population who were residents of the 24 municipalities (Mačva, Kolubara, and Zlatibor districts). Data were collected from July 2021 to July 2022. Since it was important for the attitudes of the local population to be heard, it was crucial to interact with them. Respondents were recruited via sending them private messages with online questionnaire (Google Docs) on social networks (Facebook, Instagram) and email, sharing surveys on those social networks, and utilizing in-person (face-to-face) questions while out in the field. Respondents were informed that the survey questionnaire is anonymous, participation is voluntary, and that the results of the survey will be used only for scientific and research purposes.

The statistical methods used in this research include descriptive statistical analysis to see the socio-demographic profiles of the respondents, principal component exploratory factor analysis (EFA) to determine the factors of residents' attitudes about the development of tourism in their communities, Cronbach's alpha to test the internal consistency of the items that measure each factor. An ANOVA test was conducted to see the differences in respondents' responses regarding their age, place of residence, occupation, and level of education, and a T-test was conducted to compare the data provided by respondents of different genders regarding tourism development factors. The responses were measured by a five-point Likert scale (1 – disagree, 2 – partially disagree, 3 – neutral, 4 – partially agree, and

5 – absolutely agree). The data were processed in the software for social sciences SPSS (Statistical Package for Social Science), version 23.0.

## RESULTS

### Sociodemographic characteristics of the respondents

Sociodemographic characteristics of the respondents (local residents of Western Serbia) are presented in Tab 1.

**Table 1** Sociodemographic characteristics of respondents (N=845)

Characteristics	Absolute frequencies	Percentage (%)		Absolute frequencies	Percentage (%)
Gender			Permanent residence		
Male	395	46.7	Mačva district	113	13.4
Female	450	53.3	Kolubara district	148	17.5
			Zlatibor district	584	69.1
Occupation			Education		
Student	91	10.8	Primary school	16	1.9
Employed	615	72.8	High School	283	33.5
Unemployed	87	10.3	Faculty	421	49.8
Pensioner	52	6.2	Master's/ doctoral studies	125	14.8
Age			Monthly income		
15-24	93	11	< 300e	228	27
25-34	237	28	301-500 e	269	31,8
35-44	238	28.2	501-700 e	204	24.1
45-54	155	18.3	701-900 e	82	9.7
55-64	83	9.8	> 901 e	62	7.3
65-74	30	3.6			
75-84	9	1.1			

Source: Created by the authors based on data analysis in SPSS 23.0.

Based on the descriptive analyses, it can be concluded that the sample is partially equal according to gender. When looking at the data in detail, it can be seen that more women (53.3%) than men (46.7%) were involved in the research. The youngest respondent was 15 years old, and the oldest was 83 years old. The average age of the respondents is 40 years, and the standard deviation is 13.07. The respondents who participated in the research reside in

three districts in Western Serbia. The largest part of respondents reside in Zlatibor District (69.1%), followed by respondents from Kolubara District (17.5%) and Mačva District (13.4%). The largest number of respondents are employed (72.8%), while the smallest number of respondents are pensioners (6.2%). The largest number of respondents earn between 301 and 500 euros and between 501 to 700 euros. Compared to these percentages, the share of those who receive an average of 701 to 900 euros per month is extremely small (9.7%), and the number of those who earn more than 901 euros per month is negligible (7.3%). The majority of respondents (49.8%) have completed high school or university, followed by secondary school (33.5%), while the percentage of respondents with completed primary school is negligible (1.9%). In addition to the aforementioned socio-demographic characteristics, it was established which part of the respondents is involved in the development of tourism in their community. The results showed that only 27.5% of respondents are somehow involved in the development of tourism.

### Exploratory factor analysis

The scale of attitudes of the residents towards the development of tourism showed high statistical significance ( $\alpha = .956$ ). To isolate factors, a principal component exploratory factor analysis (EFA) was performed, with Direct Oblimin rotation and Kaiser normalization. The Kaiser-Meier-Olkin (KMO) sampling adequacy measure was satisfactory at 0.950 and the Bartlett test confirmed the adequacy of the factor analysis ( $X^2=16277.85$ ;  $df=276$ ;  $p<.000$ ). All commonalities were above 0.3, further confirming that each item shared some common variance with other items.

Three components were found using factor analysis to represent locals' perceives toward the development of tourism in their communities. These findings align with the results of the original research that provided the scale (Demirović et al., 2020).

Principal components analysis revealed the presence of three components with characteristic values over one, which describes 66.93% of the total variance. The distribution of individual factor contributions is shown in Tab. 2.

**Table 2** Factor saturations

Factors	Total Contribution	% Variance	Cumulative %	Rotated Sum of Squared Contributions
<b>1</b>	12,085	50,354	50,354	10,245
<b>2</b>	2,142	8,923	59,278	7,259
<b>3</b>	1,837	7,656	66,933	8,513

Source: Created by the authors based on data analysis in SPSS 23.0.

The first factor has 11-factor weights above 0.3, the second factor has six-factor weights, and the third factor has seven-factor weights, as can be observed by examining the three rotated factors. The method used to extract three factors is optimum when each component has three or more factor weights, which is the ideal circumstance (Pallant, 2011). The domain descriptors and matching alpha reliability coefficients are shown in Tab 3. The first factor is described by 11 variables. They primarily refer to the benefits that the community can have from tourism development, which relate to social benefits (five variables), environmental benefits (two variables) as well and economic benefits from tourism development (four variables). The grouping of variables is almost the same as in the original scale (Demirović et al., 2020) with one added variable ("*The community in which I live is rich in decorations and is nicely arranged*") which originally belongs to the Attachment to Community scale. However, the addition of this variable does not change the very essence of the scale, and it has retained its original name Perception of tourism benefits. The second factor is described by six variables. They describe the personal views of the local residents on providing support for the development of tourism, which is reflected in the support of tourism initiatives, active participation in the creation of plans related to tourism etc. This factor fully corresponds to the original factor named Support to tourism development, therefore this name has been retained (Demirović et al., 2020; Nicholas et al., 2009; Woo et al., 2015). The third factor related to Attachment to Community, in earlier literature (Lee, 2013) was identified with 10 variables. From the mentioned variables, in a later study the authors Demirović and colleagues (Demirović et al., 2020) rejected two variables related to "*how the local residents identifies their life with life in the community*" and "*the feeling that the community is a part of them*". In this paper, factor 3 is described with seven variables. Their content refers to the personal attitude of the local residents about the extent to which they are connected to the community and how much belonging they feel towards it. This factor corresponds to the Attachment to the community factor from the original questionnaire, with one less variable that in this paper was assigned to factor 1. Given that the removal of this variable did not significantly affect the meaning of the factor, factor 3 was named as in the original research (Demirović et al., 2020).

An assessment of the reliability and validity of the scale was carried out. The reliability of the measuring instrument was tested using Cronbach's Alpha Reliability Coefficient. This measuring instrument is among the most frequently used indicators of internal agreement of the scale, i.e. the degree of relatedness of the variables that make up the scale (Pallant, 2011). Reliability analysis was conducted to test internal coexistence as a measure of construct reliability. Ideally, Cronbach's alpha coefficient should be greater than 0.7 (DeVellis, 2003), therefore it was confirmed that the reliability measures of all constructs are acceptable for

group analysis because they are all greater than 0.7 (Nunnally, 1978), i.e. the findings are in the range from 0.907 to 0.941. Detailed factor saturations are given in Tab. 3.

**Table 3** Factor analysis of community attitudes towards tourism development

Items	Perception of tourism benefits	Support for tourism development	Attachment to community
<b>(<math>\alpha = 0.956</math>)</b>	<b>0.941</b>	<b>0.907</b>	<b>0.914</b>
Local culture is more preserved and respected thanks to tourism.	.842		
Tourism encourages environmental protection.	.822		
Thanks to tourism, opportunities for participation in local activities (concerts, fairs, exhibitions...) have increased.	.820		
Opportunities for training/education have increased due to tourism.	.814		
Thanks to tourism, more (natural) areas are protected.	.802		
Tourism influences the increase of investments in local infrastructure.	.788		
Tourism influences the increase of investments in tourism infrastructure.	.721		
Tourism has the effect of increasing the sense of belonging to the local community.	.708		
Tourism affects the increase in the standard of living.	.638		
The development of tourism increases the value of local real estate.	.523		
The community I live in is rich in amenities and beautifully landscaped.	.502		
I would like to participate in the promotion of environmental education and conservation initiatives in my community.		.866	
I would like to actively participate in the creation of plans and strategies related to tourism.		.865	
I would be happy to get in touch with tourists from other areas.		.838	
I would support the further development of tourism in my community.		.812	
I support the development of tourism initiatives that are sustainable and good for my community.		.611	
I believe that the further development of tourism will have a positive effect on the quality of life of all residents of the place where I live.		.588	
I am very attached to the place where I live.			.861

**Table 3** (continued)

<b>Items</b>	<b>Perception of tourism benefits</b>	<b>Support for tourism development</b>	<b>Attachment to community</b>
I feel a strong sense of belonging to the place where I live.			.845
I love that I live in this community.			.844
Life in my community reflects my way of life.			.786
Living in my community makes many things easier and possible for me.			.737
I believe that life in my community is better than in other communities.			.653
People I know favor our community and its tourism potential over other communities.			.482

Source: Created by the authors based on data analysis in SPSS 23.0.

Given that an Oblimin rotation was performed, which allows for association between the factors, the extent to which they correlate was examined. It was shown that the most prevalent correlation is between the factor's Perception of benefits from tourism and Commitment to the community, which is 0.576, while the correlation between the factor's Perception of benefits from tourism and Support for tourism development is 0.495. Also, a incredibly powerful correlation occurs between the factors Support for tourism development and Commitment to the community (0.431). These connections can be predicted by the content of the factors themselves.

### **Local residents attitudes towards tourism development factors**

Although the local residents are an essential part of the tourist destination and a part of the tourist product itself that can ensure the success or failure of the destination in terms of the level of tourist satisfaction, their positive attitudes can contribute to the success of the destination (Campón-Cerro et al., 2017), therefore it is necessary to continuously measure their satisfaction with tourism development. The results showed (Tab. 4) that the local residents have a positive attitude towards the development of tourism. This attitude is proven by the relatively high mean scores of all three factors separated by exploratory factor analysis, which refers to attitudes about the development of tourism in their communities. The factor related to support for the development of tourism was rated the highest ( $M=4.07$ ), while the residents rated their perception of benefits from tourism ( $M=3.29$ ) and commitment to the community ( $M=3.25$ ) somewhat lower, but positively.

**Table 4** Descriptive statistics of factors

Factors	Mean	Standard deviation
Perception of tourism benefits	3.29	1,03778
Support for tourism development	4.07	0,92797
Attachment to community	3.25	1,07049

Source: Created by the authors based on data analysis in SPSS 23.0.

### Factors influencing residents attitudes

The t-test was used to investigate whether there is a statistically significant difference in the attitudes of the local residents towards the development of tourism in relation to the gender of the respondents. The results of the t-test are shown in Tab. 5.

**Table 5** Results of the t-test in relation to the gender of the respondents

Factors	T	Sig.(2-tailed)
Perception of tourism benefits	-0.809	0,419
Support for tourism development	<b>-1.982</b>	<b>0,048</b>
Attachment to community	1.909	0,057

Note: t - t-test value; Sig. (2-tailed) for  $r \leq 0.05$ ;

Source: Created by the authors based on data analysis in SPSS 23.0.

From the results shown in the previous table, it can be noted that only in the case of support for the development of tourism, there is a statistically significant difference between the mean values of the attitudes of both genders ( $r=0.048$ ). This result leads to the conclusion that the female part of the respondents rated the attitudes related to the support of tourism development in their community with slightly higher average marks. Regarding the other two factors, there are no statistically significant differences in the respondents' attitudes, which means that the respondents of both genders have relatively similar attitudes toward the development of tourism in their communities.

One-factor analysis of variance of the ANOVA test, with the application of the LSD test (Tab. 6), was applied to identify statistically significant differences in the responses of respondents depending on their age about factors related to the development of tourism in the community.

**Table 6** ANOVA analysis of variance about the age of the respondents

Factors	F-valu	LSD post-hoc test
Perception of tourism benefits	0.869	0,517
<b>Support for tourism development</b>	<b>2.197</b>	<b>6 &lt; 1, 2, 3, 4, 5</b>
Attachment to community	1.839	0,089

Notes: 1) From 15 to 24 years old; 2) From 25 to 34 years old; 3) From 35 to 44 years; 4) From 45 to 54 years; 5) From 55 to 64 years; 6) From 65 to 74 years; 7) From 75 to 84 years

Sig. – level of statistical significance ( $r < 0.05$ ); F – coefficient of variance

Source: Created by the authors based on data analysis in SPSS 23.0.

Based on the previous table, it can be noted that the size of statistical significance less than or equal to 0.05 is recorded only in the case of support for the development of tourism ( $r=0.041$ ), while in the other two factors, no statistically significant difference can be observed between the mean scores of the respondents' attitudes about their age. To gain insight into which age groups there are significant differences, a post-hoc LSD test was applied. The results of this test, at the level of significance of  $r<0.05$ , indicate that the biggest differences in answers were observed between respondents in the age category 65-74 years, about all other mentioned age categories, except for the category of respondents 75-84 years. The results shown in the previous graph point to the conclusion that people belonging to the age category 65-74 show the least willingness to support the development of tourism in their community.

To examine whether there is a statistically significant difference in the attitudes of the local residents towards the development of tourism in their communities, and in relation to their place of residence, a one-factor analysis of variance was also conducted (Tab. 7). About permanent residence, the respondents were divided into three categories: Mačva, Kolubara, and Zlatibor districts.

**Table 7** ANOVA analysis of variance in relation to the respondent's permanent residence

<b>Factors</b>	<b>F</b>	<b>LSD post-hoc test</b>
Perception of tourism benefits	<b>5.5556</b>	1, 3 > 2
Support for tourism development	<b>4.949</b>	1, 3 > 2
Attachment to community	<b>12.544</b>	1, 3 > 2

Notes: 1) Mačva district; 2) Kolubara district; 3) Zlatibor district

Sig. – level of statistical significance ( $r<0.05$ ); F – coefficient of variance

Source: Created by the authors based on data analysis in SPSS 23.0. Using the post-hoc LSD test, an insight was gained into which groups there are significant differences in responses, at a significance level of  $r<0.05$ . Namely, it can be concluded that the respondents from the Kolubara district showed somewhat different and lower average evaluations of the development of tourism in their community, compared to the respondents from the Mačva and Kolubara districts.

The respondents who are without employment and those who are retired show the largest disparities (Tab. 8). In particular, respondents who are either working or students had better average scores in all three categories when it came to their perceptions of how tourism is developing in their communities. This leads to the conclusion that, in comparison to respondents who are unemployed or retired, students and working adults have a greater understanding of the advantages that tourism brings to their town, support tourism's growth more actively, and show a greater sense of community commitment.

**Table 8** ANOVA analysis of variance in relation to the respondent's occupation

<b>Factors</b>	<b>F-value</b>	<b>LSD post-hoc test</b>
<b>Perception of tourism benefits</b>	<b>3.451</b>	1, 2 > 3
<b>Support for tourism development</b>	<b>3.667</b>	1, 2 > 4
<b>Attachment to community</b>	<b>3.099</b>	1, 2, 4 > 3

Notes: 1) Student; 2) Employed; 3) Unemployed; 4) Pensioner

Sig. – level of statistical significance ( $r < 0.05$ ); F – coefficient of variance

Source: Created by the authors based on data analysis in SPSS 23.0.

The results in Tab. 9 show that the magnitude of statistical significance less than or equal to 0.05 is recorded for two of the three factors. Using the post-hoc LSD test, insight was gained into which educational groups there are significant differences in the answers, at the significance level of  $r < 0.05$ . The obtained results show that the respondents who have completed high school express a lower degree of agreement with the attitudes related to the support of tourism development than the respondents who have completed higher school, faculty, or master's/doctoral studies. On the other hand, looking at attitudes related to commitment to the community, a different situation is observed. Namely, the respondents who have completed elementary school show a greater attachment to the community than all other mentioned categories of respondents' education.

**Table 9** Analysis of variance ANOVA in relation to education of the respondents

<b>Factors</b>	<b>F-value</b>	<b>LSD post-hoc test</b>
Perception of tourism benefits	0.646	/
<b>Support for tourism development</b>	<b>3.090</b>	2 < 3, 4
<b>Attachment to community</b>	<b>3.063</b>	1 > 2, 3, 4

Notes: 1) Elementary school; 2) High school; 3) Higher school/faculty; 4) Master's/doctoral studies

Sig. – level of statistical significance ( $r < 0.05$ ); F – coefficient of variance

Source: Created by the authors based on data analysis in SPSS 23.0.

## DISCUSSION AND CONCLUSION

The main assumption of this study was that local residents possessed a generally positive attitude toward the development of tourism in their communities, which the findings supported given the significance and effect that residents may have on the tourism sector. The comparatively high mean scores of all three categories retrieved by exploratory factor analysis serve as evidence for this mindset, thus confirming hypothesis H1. The three factors indicate

the perspectives of residents on the benefits they believe tourism offers to the area, their propensity to encourage tourists, and their level of community attachment. The social, economic, and environmental benefits that residents may experience as a result of tourist growth are all considered to be part of the perceived benefits of tourism. The goal of support for tourist development was to investigate how often residents participated in a variety of activities to further boost the development of tourism. Ultimately, community attachment represents the relationship between residents and their communities, which can be reflected in positive, negative, or mixed feelings that lead to greater or lesser community attachment. The results obtained in this research are from previous research that dealt with the attitudes of the local residents towards the development of tourism. Consequently, some authors in their research state that the development of tourism in rural areas is well-received by the local community (Jaafar et al., 2015). Brankov and colleagues claims that the local residents generally recognize tourism as a driver of development and have a positive attitude towards this activity (Brankov et al., 2015).

Only 27.5% of the respondents stated that they are somehow involved in the development of tourism in their communities, which does not represent a positive result. Considering it may be interpreted in a broader perspective and it raises the issue of whether the results could be changed if more of them were related to tourism, this result may serve as a start point for further research. Namely, previous research has clearly shown that residents employed in activities that have direct or indirect links with tourism better perceive tourism development and have a positive attitude towards this social phenomenon (Draper et al., 2011; Styliadis & Terzidou, 2014; Vargas- Sánchez et al., 2015). Regardless significance whether they are engaged in tourism or not, it was crucial in this research to hear the opinions of all the local residents.

Although a lot of research can be found in the literature on the topic of the attitudes of the local residents, few studies have dealt with the influence of the sociodemographic characteristics of the residents on the general attitudes toward the development of tourism. Socioeconomic factors such as age, gender, income, level of education (McGehee & Andereck, 2004), and financial dependence on tourism (Kim et al., 2013) represent important factors related to the attitudes and support of the local residents for tourism development (Demirović et al., 2020). In this research, it was found that in the variables of gender and age no statistically significant differences can be observed in the views of respondents on the development of tourism, thus the hypotheses H2s and Hb were rejected. This indicates that the attitudes of the local residents of both genders, of different ages do not differ. An exception can be noted only in two cases with the factor related to support for tourism

development. Namely, the female part of the respondents gave slightly higher average scores for the attitudes related to supporting the development of tourism in their community, while respondents belonging to the age category between 65 and 74 showed the least willingness to support the development of tourism. The results agree with earlier findings where it was confirmed that no significant differences between the sexes were observed (Brankov et al., 2015), but also with the data that in some studies women provide greater support for the development of tourism (Muresan et al., 2016). Also, it has been proven that age does not influence the attitudes of the local residents toward the development of tourism (Muresan et al., 2016). On the other hand, the results showed that there are significant statistical differences in the attitudes of respondents about the place of residence in one of the three districts where the research was conducted, as well as about the occupation and level of education of the respondents. Therefore, the hypotheses H2c, H2d, H2e are confirmed. Namely, the local residents of the Kolubara district show a lower degree of tourism development compared to the local residents from the Mačva and Zlatibor districts. The local residents is not aware of the benefits of tourism development and does not have a high perception of tourism development in their district. Furthermore, looking at the occupation of the local residents, the biggest differences were observed between respondents who are unemployed and those who are retired. Namely, respondents who are students or employed have a positive attitude towards the development of tourism in their communities to a greater extent. This leads to the conclusion that students and employed respondents have a better perception of the benefits that their community has from tourism, provide more support for tourism development, and are more committed to the community than non-employed or retired respondents. Also, the difference can be seen in the results that show that the respondents who have completed high school express a lower degree of agreement with the attitudes related to the support of tourism development than the respondents who have completed higher school, faculty, or master's/doctoral studies. In contrast, though looking at attitudes related to commitment to the community, a different situation is observed. Namely, the respondents who have completed elementary school show a greater attachment to the community than all other mentioned categories of respondents' education. In the broader context of things, hypothesis H2 is confirmed, although three sub-hypotheses are confirmed and only two are rejected. It concludes that the sociodemographic characteristics of the residents influence how they perceive towards the development of tourism in several significant ways.

A certain limitation may be the sample, that is, the attitudes of the residents that should be continuously monitored, given that they change over time (Gursoy et al., 2010). Based on this,

it can be emphasized the need to repeat the research in the same settlements in the following period, but among the wider residents, as well as among the elderly residents, to determine potential differences in the attitudes of the local residents. In addition, future research can include variables related to the negative impacts of tourism, to create a clearer picture of the development of tourism. Likewise, this research did not differentiate between residents who receive direct economic benefits from tourism, and those who do not. Therefore, future research should include independent variables that indicate the field of their work, for example: "*I work in tourism*", "*my job is related to tourism*", or "*my job is not related to tourism*". In this way, an even clearer picture of the attitudes of the local residents would be obtained.

It should be noted that until now no research has been conducted in the literature that covered such a broad research territory, so the contribution of this paper is outstanding. The research covers three administrative districts that include 24 municipalities and cities on the territory of Western Serbia. It is essential to utilize the existing measurement tool to inquire into the opinions of residents in the other three disticlusters that the Tourism Strategy of the Republic of Serbia has outlined in order to support the growth of tourism in Serbia. It would provide insight into the views of the local populations and allow for the comparison of the results, which would allow for the formation of future tourism development initiatives. As a consequence, researchers will be able to compare the outcomes for every cluster, giving us insight into the opinions of the community and helping to shape future tourist development strategies.

The outcomes of this study, especially for those in rural areas, have important management implications for educators, community leaders, and policy makers. Many questions may be raised based on this study's findings, which may pave the way for the local community to be more actively involved in tourist decision-making. Even though the local community is one of the main players and stakeholders in any destination, policy makers for tourism development may make more accurate decisions on how to enhance tourism in the area based on their opinions. Therefore, policymakers have the ability to both support the sustainable development of tourism in rural regions and cultivate a sense of community and collaboration among those living there.

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# **SIMPLIFICATION AND OPTIMISATION OF THE PROCEDURE OF APPLYING FOR THE REGISTERED SOCIAL ENTERPRISE STATUS BY PROCESS MODELLING**

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## **Abstract**

The objective of the article is to create a model for optimising the time and administrative complexity of meeting the conditions of the application process for the status of a registered social enterprise defined by the legislative provisions of Law Act No. 112/2018 Coll. on Social Economy and Social Enterprises in Slovakia and to simplify its user and application level in practice. To attain this objective, we employed the method of process modelling. The basic principles of Business Process Modelling were used in the process modelling. The output of the modelling is the creation of a graphic Model of the Process of Application for the Registered Social Enterprise Status, which analyses the individual conditions for obtaining the status of a registered social enterprise provided by law. The Model will serve as a clear and simplified guide for applying for and obtaining the Registered Social Enterprise Status to assist applicants who wish to become social enterprises or registered social enterprises. The Model provides a clear understanding of the steps in the process of applying for Registered Social Enterprise Status. It contributes to the efficiency of process management in the activities of the state and public administration and the private sector, to the simplification of processes and to the saving of resources and time in drafting the application. The Model will serve mainly potential social entrepreneurs, but it will also be suitable for methodological centres which include Regional Social Economy Centres in individual regions of Slovakia, but also for a wide audience of people interested in this issue. It will thus be an important tool for simplifying processes that are intended to contribute to addressing regional development and the negative aspects of regional unemployment. It can also serve for the legislators who can improve the steps of the process itself in the future through the schematisation of the optimised process. The originality and added value of this paper lies in the Model itself, which serves as a visual representation of the process of applying for Registered Social Enterprise Status, through which the understanding of the steps of the challenging process of legislative definition is simplified. It brings optimisation of the process itself and its management in the setting of resources, time, and cooperation with the required actors in both public and private sectors. The article is an original output of the project VVGS-2023-2757 Towards Socio-economic Innovations and Principles of Social and Solidarity-based Economy through Leadership

**Keywords:** modelling, social enterprise, Registered Social Enterprise Status, Model of the process of application for Registered Social Enterprise Status

## **INTRODUCTION**

The concept of the social economy and social entrepreneurship has marked a boom in the previous decade, bringing about a breakthrough in the way the benefits of social entrepreneurship are viewed in the European Union countries and the United States (Defourny and Nyssens, 2010). In Slovakia, the growth of social entrepreneurship can be observed in the

previous ten years. In 2018, Law Act No. 112/2018 Coll. on Social Economy and Social Enterprises was adopted, which modified the legislative framework not only of the basic terminology of the social economy, the meaning, importance, and functioning of social enterprises, but also the definition of specific conditions for the establishment of a social enterprise. The legislation that has been adopted is extensive, regulating 3 types of social enterprises, the basic terminology, the process of obtaining the Registered Social Enterprise Status, and the forms of financing social enterprises.

In the context of legislation, the article points to the challenging process of applying for the Registered Social Enterprise Status, which consists of many steps that may seem to be a significant barrier for the average person interested in social entrepreneurship in their efforts to establish a social enterprise, despite the fact that potential entrepreneurs do not lack enthusiasm, motivation, and a good business plan. The Act on Social Economy and Social Enterprises defines the exercise of state administration in the field of social economy to two actors, namely: the Ministry of Labour, Social Affairs, and Family of the Slovak Republic on the basis of the empowering provision of Article 15(1)(i) of Law Act No. 575/2001 Coll. on the organisation of government activity and the organisation of central state administration and the Central Office of Labour, Social Affairs, and Family, which develops and implements national projects in the field of social economy (Article 25(4) of Law Act No. 112/2018 Coll.). The Ministry of Labour, Social Affairs, and Family of the Slovak Republic administers the Register of Social Enterprises, which includes enterprises that obtain the Registered Social Enterprise Status after meeting the conditions of the application process for a registered social enterprise as defined by the relevant Law Act on the social economy, and this Status is approved by the Ministry of Labour, Social Affairs, and Family of the Slovak Republic.

In this article, we will therefore focus on the process of applying for the Registered Social Enterprise Status to create a model for optimising the time and administrative complexity of meeting the conditions of the application process for the Registered Social Enterprise Status and thus contribute to the simplification of the user and application level in practice. In this paper, we draw on the theory of Business Process Management, which focuses on process improvement in institutions.

## **THEORETICAL BACKGROUND**

The role and knowledge of the social economy in economic and social policies has grown especially in the countries of the European Union, which is a major supporter and promoter of

the social economy and invests considerable resources in its development through the European Social Fund (Cojocaru and Sfetcu, 2013).

The concept of the social economy, along with that of non-profit organisations, is a mainstream paradigm that refers to "the space between the public economy and the private for-profit economy" (Avila and Campos, 2018). The search for a universally accepted definition of social entrepreneurship has been a central issue of the previous two decades (Defourny and Nyssens, 2017). Finally, there has been consensus within science and policy on its definition, it is well institutionalised and quantified and has strong scientific and social cognition (Avila and Campos, 2018).

Today, it is possible to identify several criteria that have been the most debated within social entrepreneurship, namely: the specific role of the individual social entrepreneur, the place of social innovation, the search for market income, and the issue of governance (Defourny and Nyssens, 2017). The social economy, which emphasised employment and social security guaranteed by the welfare state in the 1990s, has now become a model that emphasises the self-sufficient role of social enterprises and the individual responsibility of citizens (Csoba, 2020).

Growing disenchantment with for-profit business models has turned attention to social entrepreneurship and social innovation to facilitate social issues (Phillips, Lee, Ghobadian, O'Regan and James, 2015). Social entrepreneurship is specific because it represents a connection between the private and public sectors, it is guided by business principles such as risk taking, innovation, and creating something new, but it also brings benefits to society. In addition, the concept of social entrepreneurship is aimed at people on the margins of society who have fewer opportunities in society (Ribic and Ribic, 2016). Traditionally, these organisations perform a redistributive function in which social objectives take precedence over profit motives. They aim to tip the balance in favour of a greater redistribution of resources towards the least advantaged (Agafonow, 2014). The analysis of the world experience in the development of social entrepreneurship shows that in the developed countries of Europe, the high activity of this sector is attained due to the legislative consolidation of its role in the economy of the countries, support from local authorities, proper regulation of the development of social entrepreneurship, and grant activities (Halunko, Ivanyshchuk and Popovych, 2018).

Policy makers, such as those in the European Commission, have adopted the objective of creating an enabling environment for the development of social enterprises. Policy interest in social entrepreneurship stems from doubts about how many benefits can be attained in pursuit

of social objectives, from non-profit motivations, and from scepticism about the effectiveness of bureaucratic and centralised policy interventions (Estrin, Mickiewicz and Stephan, 2016). When we talk about social innovation and social entrepreneurship, we are not just talking about charities or non-profit organisations, because social value also includes financial gains while focusing on opportunities to address social issues (Grilo and Moreira, 2022). In contrast to state intervention, social entrepreneurship creates highly decentralised modes of action aimed at addressing social issues at the local or grassroots level (Estrin, Mickiewicz and Stephan, 2016). The not-for-profit sector is also involved in the regulation of economic life, for example, associations or social cooperatives are partners of public authorities in assisting the return to employment of the unemployed with low skills who are at risk of permanent exclusion from the labour market (Borzaga and Defourny, 2001). However, Cojocar and Sfetcu (2013) point out that the social economy should not only include the disadvantaged, but it should also touch the whole community. The social economy should respond to common problems specific to the community and not necessarily linked to socially excluded groups, marginalised populations, or minorities.

The development of social entrepreneurship implies the active involvement of as many stakeholders as possible, e.g. civil society organisations, the scientific and educational community, businesses and crafts, associations and cooperatives, state and public administrations, local and regional government units, institutes, family farms, interested individuals, and international organisations. By selecting relevant stakeholders, efforts are made to empower the community, make democratic decisions, take responsibility for the environment/community, measure social impact and attain business, social and environmental objectives (Tišma, Maleković, Jelinčić, Škrtić and Keser, 2022). According to the ICSEM ("International Comparative Social Enterprise Models") project research carried out in 2013-2019, 3 social enterprise models have been identified: the social cooperative model, the "business association" model, and the "social entrepreneurship" model, which are strongly supported by empirical analysis in almost all the countries studied (Defourny and Nyssens, 2022).

The European Union maintains an independent approach to policymaking on the social economy within the framework of national policies. This creates an individual and differentiated approach within each Member State where the social economy and social entrepreneurship have established themselves. In 2021, the European Commission adopted a new Action Plan for the Social Economy. The aim of the plan is to increase social investment, support social economy actors and social enterprises to set up, expand, innovate, and create

jobs (European Commission, 2021). Within European countries, the social economy and entrepreneurship is linked to public administrations, which create the legislative framework, provide business support for social enterprises, coordinate the legal conditions for obtaining social enterprise status, and provide financial support for social enterprises.

The public sector focus of social entrepreneurship requires good public policies, allocation of public funds, and effective management of social entrepreneurship by public authorities. Public policies should support the development of social enterprises with defined indicators for their growth, income growth, and employment data (Tišma, Maleković, Jelinčić, Škrtić, and Keser, 2022). Mainstream social sector institutions are often perceived as inefficient, ineffective, and unresponsive. Therefore, social entrepreneurs are needed due to the development of new models for the new century (Dees, 1998). The way legal norms contribute to the effectiveness of social enterprises in practice has also been explored by Singh and Kumar. There are several difficulties caused by the interaction between social entrepreneurship and legal norms. These include general legal frameworks, unclear terminology, competing demands, and inadequate resources (Singh and Kumar, 2023).

According to Borzaga and Defourny (2001), research confirms that organisations that have both an entrepreneurial dynamic and a social purpose are proliferating in many countries. These enterprises not only improve the social welfare services of states, but also provide an additional and often innovative dimension that brings together public and private resources and voluntary and paid workers. For these reasons, social enterprises deserve serious attention from policy makers, practitioners, and academics interested in a more pluralistic economy and a new social society.

As we mentioned, each country is free in the setting of the law according to their domestic conditions and needs and this can be quite different also in setting up social entrepreneurship. Based on this, there hasn't been done any theoretical research of setting up social enterprises in all countries according adopted legal norms for social entrepreneurship in applying them. This would require a separate approach, which can be the following research focus of comparison of individual state legislative acts on social entrepreneurship and their applicability into the practice.

### **Social entrepreneurship in the context of the new legislative process in Slovakia**

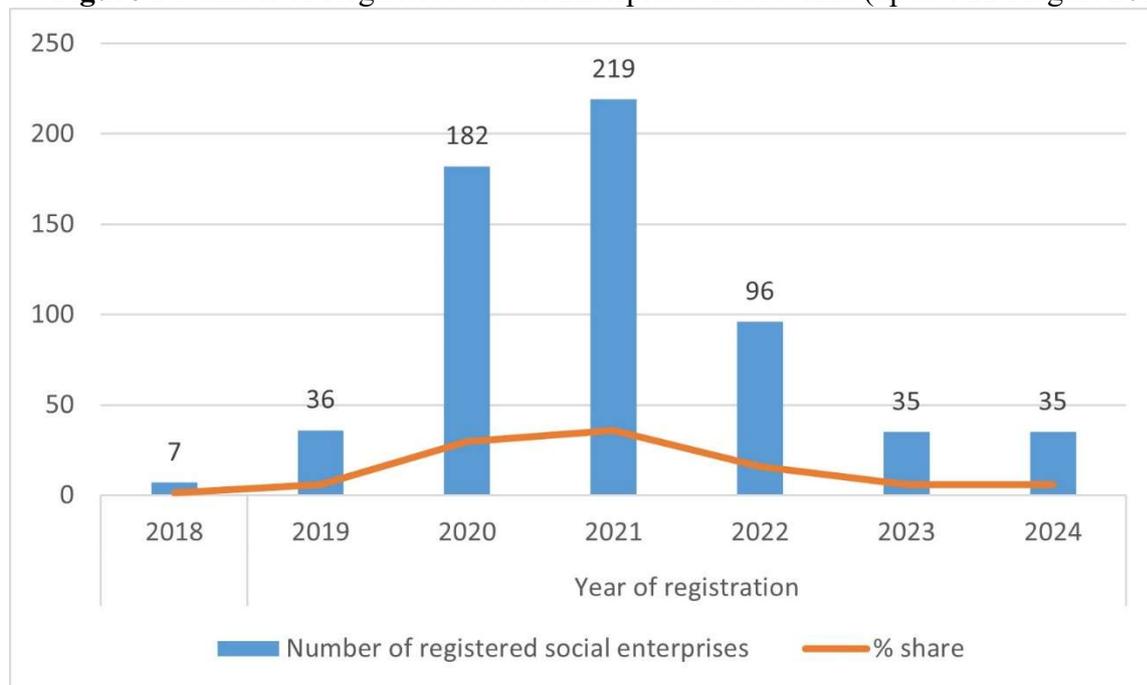
There are 583 registered social enterprises operating in the Register of Social Enterprises in Slovakia as of 22 August 2024. Of the total number of registered social enterprises, whose number as of 2018 was 685 enterprises, 102 enterprises have had their certificates withdrawn

and no longer have the Statute of Registered Social Enterprise. The acquisition of the Registered Social Enterprise Status serves not only to identify the nature of the enterprise itself, but more importantly, the possibility to receive financial support from the state. Due to the possibility of abuse of this aid in the business environment, the conditions of the process of obtaining the status of a registered social enterprise have been established, which are imposed by Law Act No. 112/2018 Coll. on the Social Economy and Social Enterprises.

The Ministry of Labour, Social Affairs, and Family of the Slovak Republic introduced this demanding method of establishing a social enterprise through the national project Institute of Social Economy, which is implemented by the Implementing Agency of the Ministry of Labour, Social Affairs, and Family of the Slovak Republic under the Human Resources Operational Programme. The objective of the project, which was operative from 2018 to 2023, is to create and pilot test the functioning of a system of support for the development of the social economy in the Slovak Republic based on Law Act No. 112/2018 Coll. on the Social Economy and Social Enterprises.

For this purpose, Regional Social Economy Centres have been established in each region of Slovakia (8 centres in each regional city), which serve as methodological and support centres for potential social entrepreneurs. However, the process of obtaining the Status itself can be discouraging and incomprehensible in terms of legislation.

**Figure 1** Number of Registered Social Enterprises in Slovakia (update 22 August 2024)



Source: own elaboration according data from Register of Social Enterprises

The biggest increase in new social enterprises since 2018 is seen in 2020 and 2021, which was the period of the Covid-19 pandemic. Although this seems paradoxical precisely because of the restrictions set on the movement and functioning of the business environment in society, the increase in social enterprises is also natural during this period, as it was during several pandemic waves that many entrepreneurs sought help from the state - and social enterprises bring the possibility of public assistance. In recent years their growth has been slower, one reason for this may be the difficult conditions during the operation of the enterprise, but it may also be the difficulty of setting up social enterprises and meeting the conditions for obtaining the Registered Social Enterprise Status.

### **Business Process Management**

The history of Business Process Management began in the 1980s. Its gradual use is related to the rise of information and communication technologies (Vom Brocke and Sini, 2013). Business Process Management encompasses methods, techniques, and tools to support the design, enactment, management, and analysis of business processes (Van der Alst, 2004; Weske, 2007). Business Process Management has evolved in 4 stages. The first stage focuses on quality and continuous process improvement. The second stage is represented by the focus on Business Process Reengineering. The third stage, crucial for our paper, is built on the perception of Business Process Management as a holistic management discipline. It is in this stage that process modelling is actively used. The last, fourth stage, is about excellence in process management from an organisational structure perspective - Business Process Excellence (Smith and Fingar, 2007; Hammer and Champy, 1993).

Process modelling is used to visualise processes as a process management tool (Jeston, 2014). Modelling is the replacement of a real system with a model, whereby the model is created with the help of established graphical modelling techniques. These represent processes through a variety of symbols and links, which then allows further processing and use of the model. It is a network of interrelated activities and associated information. The purpose is to create an abstraction of the process that enables an understanding of all its activities, the relationships between these activities and the roles represented by the capabilities of the people and equipment involved in the process (Becker et al., 2000).

Process modelling is currently underway in Slovakia, focusing on processes that are applied throughout the Slovak Republic. This is a national project called Optimisation of Processes in Public Administration. The project is implemented by the Ministry of the Interior of the Slovak Republic. The project is implemented from the European Social Fund within the

Operational Programme Efficient Public Administration. The objective of the project is to create an efficient, pro-client oriented public administration through process optimisation. The implementation of the project has an impact on citizens and legal entities as clients of the public administration, and at the same time on public administration employees themselves as implementers of processes. The benefits of the project include increased transparency of public administration and improved public perception of public administration (Ministry of the Interior of the Slovak Republic). The objective of the article is to focus on a process that does not fall under the above-mentioned project, but its modelling would contribute to a higher efficiency of the process.

### **DATA AND METHODS**

For evaluating the process of establishing a registered social enterprise and the graphical representation of the process of applying for the Registered Social Enterprise Status, it was necessary to focus on the rather detailed and complicated conditions set out in Law Act No. 112/2018 Coll. on Social Economy and Social Enterprises in Section 6 - Conditions for Granting the Registered Social Enterprise Status. In developing the modelled procedure, primary data were used, which were obtained through qualitative research methods. For qualitative research we used the method of inquiry through interviews with managers of social enterprises, as well as interviews and consultations with representatives of the state administration – Regional Social Economy Centres, which are supposed to facilitate the establishment of social enterprises. Within research we used convenience sampling, as we interviewed participants with whom we are in longer cooperation. As for example, Regional Social Economy Centres, we interviewed manager responsible for the process of mentoring of achieving the Registered Social Enterprise Status, as well as its recommendation to the Ministry of Labour, Social Affairs, and Family of the Slovak Republic. The inquiries were unstructured, we didn't use any structural form of questionnaire, but we focused on exploring the process of setting up a social enterprise, the most common problems in setting up, the process of obtaining the Registered Social Enterprise Status from both sides – applicants and mentors from the Regional Social Economy Centres. We interviewed three other social entrepreneurs for getting information on the process of applying the Registered Social Enterprise Status. It should be said that at this stage we abstracted from the analysis of the process of establishing a social enterprise and focused only on the process of applying for the Registered Social Enterprise Status, although we note that this process is a part of the

establishment of a social enterprise. There are registered social enterprises in Slovakia, but there are also social enterprises that have not been registered and do not have an official Registered Social Enterprise Status. Therefore, the Model that has been created is particularly helpful for those potential candidates who wish to obtain the Registered Social Enterprise Status and thus gain access to state aid for entrepreneurship under Law Act No. 112/2018 Coll. on the Social Economy and Social Enterprises.

The data collected on the process of applying for the Registered Social Enterprise Status together with the statutory conditions were used in the development of the Social Enterprise Status Application Process Model. The basic principles of Business Process Management and Business Process Modelling are followed while modelling the process, that was the main method of this research article. Methods such as Enterprise model, process analysis, SIPOC (Supplier, Input, Process, Output, Customer), flowcharts, etc. are used to represent the processes. In this paper path flowchart is used for its user benefits. It is the use of a simple modelling language that does not contain many symbols. The modelling uses the basic flowchart symbols described in ISO 5807:1985 Information Processing - Documentation Symbols and Conventions for Data, program and system flowcharts, program network charts and system resource charts. The primary objective is to provide a model that is easy to understand for all its users (from applicants, employees and managers of the institutions involved, external stakeholders to legislators or political representatives). The following symbols are applied in the development of the Model: Swimlanes - Pool and Lanes (within a pool), Terminal (indicates the beginning and end of a flowchart), Process, Flowline, Document, Decision, Annotation / Comment (represents additional information regarding a step in a process). Another advantage of the type of model used is in its clarity, since the process is modelled vertically (or horizontally) in lanes. These document the interactions with other processes and the cooperation of the process participants. A process participant, i.e. an internal (organisational unit within an organisation) or external entity, is shown as a separate fairway. Microsoft MS Visio tool was used to construct the Model.

The flow chart shows the sequence of steps required to obtain Registered Social Enterprise Status pursuant to the Law Act. It is a detailed model of the process of setting up a social enterprise and provides a view of the process of applying for Registered Social Enterprise Status as a logical sequence of steps. It follows the application process with all the details required for the completion of the application. It highlights the different actors that enter the process of obtaining the Registered Social Enterprise Status and with whom the applicant for this Status comes into contact when arranging the necessary documents.

At the same time, the Model differentiates processes into internal and external processes. Internal processes represent those tasks that the applicant for the Registered Social Enterprise Status needs to provide on its own. The external processes represent the relationships, actions and contacts with external entities that enter the process of applying for the Status and the fulfilment of the conditions set by the law. The Model also regulates all these actions, relationships and processes by colour. The blue colour represents the internal processes, the acts that the applicant carries out on their own. The orange colour represents processes that are directed by the Ministry of Labour, Social Affairs, and Family of the Slovak Republic, which is the guarantor of the social economy and the leading institution that approves the application for the Registered Social Enterprise Status. The yellow colour indicates the processes related to external entities that issue individual documents or certificates that the applicant needs to submit in the application for the Registered Social Enterprise Status. Consultations with the advisory body are marked in purple and the processes of verification and approval of the application for the Registered Social Enterprise Status by the competent guaranteeing body are marked in green. The Model shows in detail both the sequence of steps, the flow of activities, the cooperation with institutions, but also allows the user to enter descriptive notes into the process.

## RESULTS

The objective of creating and modelling the process of applying for the Registered Social Enterprise Status was to create a model that will help in understanding the conditions set by the legislation for applying for the Status. The Model will serve as a clear and simplified guide for obtaining Registered Social Enterprise Status. The purpose of modelling this process of applying for Registered Social Enterprise Status is to assist applicants who are primarily interested in social enterprise and wish to become social enterprises or registered social enterprises.

In addition, the Model allows a clear identification of the relationships between the applicant and other actors involved in the process, specifying their competences and roles throughout the process.

It is the applicant who is the initiator, i.e. the future potential social entrepreneur. The applicant must meet the conditions set out in Law Act No 112/2018 Coll. on the Social Economy and Social Enterprises. These are described in detail in Section 6 of the Law Act.

The whole process of conditions guided by the law sounds challenging and sometimes difficult to understand for the practical implementation of the applicants themselves.

Other key actors in the field of social entrepreneurship in Slovakia include the Ministry of Labour, Social Affairs, and Family of the Slovak Republic, which is the guarantor of the social economy and the leading institution that approves the application for the Registered Social Enterprise Status, and the Regional Social Economy Centres, which operate in the regional cities of the Slovak Republic. As mentioned above, they act as methodological and consultative centres and support the establishment and operation of social enterprises. They provide significant consultative assistance to applicants, especially in drawing up applications and obtaining the Registered Social Enterprise Status. The applicant for the granting of the Registered Social Enterprise Status does not have to use their consultancy services, but as the process of conditions is set by law in a complicated way, it is necessary to consult and check the necessary steps and submission of the required documents for the correctness of the application and the whole process.

The Model of the application process for Registered Social Enterprise Status also points to the need for the applicant to contact other external entities that act in the process as secondary (external) entities from which the applicant mostly needs confirmation of the subject matter in question, e.g. an extract from registers, etc. These entities act as verifiers in the process, providing confirmations for the submission of the requested fact and the documentation of the requested information, or confirmation of the applicant's credibility.

In the following subchapter, we specify the individual actors of the Model of the process of applying for the Registered Social Enterprise Status.

### **Actors in the process of obtaining the Registered Social Enterprise Status**

The process of applying for Registered Social Enterprise Status involves several actors whose actions, competences and responsibilities need to be understood. The position of each actor is described in more detail separately.

#### **Applicant for Registered Social Enterprise Status**

An applicant for Registered Social Enterprise Status may be one of the following in terms of their relationship to the business activity:

- a traditional entrepreneur (natural entity/legal entity NE/LE) who is already doing business in Slovakia and is doing business in the classic legal form of business that he/she chose at the beginning of the business,

- a start-up entrepreneur (natural entity - NE) who has not yet been in business and wants to set up a social enterprise,
- an entrepreneur, (natural entity/legal entity NE/LE), who runs a social enterprise but does not yet have the status of a registered social enterprise,
- a non-profit entity (LE) that has so far carried out non-profit activities and has been part of the non-profit sector and that wants to transform its non-profit activity into a social business,
- a municipality/city/higher territorial unit (LE) that wants to create an entrepreneurial entity in its territory with a focus on achieving a positive social impact in the locality.

### **Ministry of Labour, Social Affairs, and Family of the Slovak Republic**

It acts as the main guarantor of social economy and social entrepreneurship in Slovakia. It has competence in approving applications for the Registered Social Enterprise Status. It maintains the Register of Social Enterprises.

The Ministry also communicates with other authorities and may request the necessary certificates from them: the Health Insurance Agency, the Social Insurance Agency, the Tax Authority, the Customs Authority, the Office of Labour, Social Affairs, and Family. The Ministry of Labour, Social Affairs, and Family of the Slovak Republic together with the Office of Labour, Social Affairs, and Family are qualified by law as entities in the sense of exercising state administration in the field of social economy.

### **Regional Social Economy Centres**

The Regional Social Economy Centres act as a guarantor of methodological assistance for applicants for the Status of Registered Social Enterprises. As the whole process is complicated from the point of view of the law, it is ultimately easier to cooperate with the regional centres. The regional centres aid in terms of clarifying the necessary documents that the applicant must submit, assisting in the drafting of the basic document and the activity project. They guide the applicant in the logical set-up of the economic activity, also in terms of sustainability and realism of the economic activity. They also act as a completer of the application for the Registered Social Enterprise Status itself.

### **External entities**

External entities include entities with which the applicant comes into contact, as they act in the sense of attestation or confirmation of facts that are necessary from the viewpoint of the

performance of business activities to prove the credibility of the applicant. These attestations are important as they concern public support.

These include the following entities: the General Prosecutor's Office of the Slovak Republic, the Slovak Post Office, the Registered Courts, the Health Insurance Agency, the Social Insurance Agency, the Tax Authority, the Customs Authority, the Office of Labour, Social Affairs, and Family, and the Social Economy Sector Organisation. Although it is a common practice that the Ministry of Labour, Social Affairs, and Family of the Slovak Republic itself requests confirmation from some external entities, it is possible that some applicants, according to the legally defined procedure and the documented forms on the website of the Ministry of Labour, Social Affairs, and Family of the Slovak Republic, proceed independently in the process of obtaining the Registered Social Enterprise Status.

**Figure 2** Actors of the process of applying for the Registered Social Enterprise Status



Source: own elaboration

### **Description of the process model for applying for Registered Social Enterprise Status**

Law Act No. 112/2018 Coll. on Social Economy and Social Enterprises defines in Section 6 the conditions for granting the Registered Social Enterprise Status. Section 7 of this Law Act describes the Procedure for granting the Registered Social Enterprise Status.

First, Section 6(1)(a) of the Law Act states that the status of a registered social enterprise may be granted to an applicant who meets the conditions of Section 5(1) of the Law Act and is therefore a social economy entity in any type of social enterprise. In defining a social economy entity, the Law Act follows the definition of an enterprise pursuant to the Commercial Code, which it regulates in Sections 5(1)(a) to (e), where it defines that it is an entity that "carries out an economic activity on a continuous basis, independently, in its own name and on its own responsibility" (Law Act No. 112/2018 Coll.). It adds that its main objective is to attain a measurable positive social impact, to which the goods and services it produces, supplies, provides or distributes, or the way they are produced or provided, contribute. In terms of profit, if it makes a profit from its activities, it shall use more than 50% of its after-tax profit to attain its main objective. It shall distribute the remainder of the profit in accordance with the Commercial Code if it is a company. Interested persons are also part of the business activity (Law Act 112/2018 Coll.). A social enterprise that has been granted the Registered Social Enterprise Status is a registered social enterprise.

This Status may be issued to an applicant who has previously operated a business in the conventional manner without being a registered social enterprise. Such an entrepreneur may be considering changing his/her existing profit-oriented business into a business with a positive social impact. It is possible that its activities have already exerted a positive social impact, which distinguishes a social enterprise from a traditional business. A newly established business entity that declares that it meets all the conditions for social entrepreneurship set out in Law Act No. 112/2018 Coll., as well as a non-profit entity once the conditions have been met, can also obtain the Status. Pursuant to Section 4(1) of the Law Act, the amendment allows the following entities to establish a social enterprise: a civic association, a foundation, a non-investment fund, a non-profit organisation, a special-purpose establishment of a church, a commercial company, a cooperative, or a natural person - an entrepreneur.

Drafting an application for Registered Social Enterprise Status is the time-consuming part. In the documentation preparation phase, it requires an analysis of the environment and a logical focus of the economic activity that will attain a positive social impact of the business. This phase is addressed in detail in the Detailed Model of the Process of Establishing a Social

Enterprise, focusing on Phase 1 of establishing a social enterprise, also authored by Pčolinská and Koreňová, and taking into account in particular the issues and first steps of establishing a social enterprise that need to be taken to establish a social enterprise with a view to its market and sustainability (Pčolinská, 2021).

As mentioned above, Section 6 of Law Act No. 112/2018 (1) (a) to (l) regulates the Conditions for Obtaining the Status of Registered Social Enterprise. Although the law act defines 3 types of registered social enterprises: integration social enterprise, housing social enterprise, and general social enterprise, the conditions for obtaining the Status are the same for all three types of social enterprises pursuant to the law. The operation of these enterprises is regulated by the law in separate sections, the conditions of which must also be met (Section 12 and Section 13).

To obtain the Registered Social Enterprise Status, the applicant needs to prepare and submit to the competent authority (the Ministry of Labour, Social Affairs, and Family of the Slovak Republic) *(b) a basic document* which, pursuant to the Interpretation of the Law Act on Social Economy and Social Enterprises, includes:

*(1) Description of the main objective of the applicant, which attains a measurable positive social impact* - in this section, the applicant shall submit a description of the main objective of the business which is related to the identification of one or two socially beneficial services defined by the law in Section 2 (e.g. provision of health care, social assistance and humanitarian care, education, protection of cultural or spiritual values, etc.).

*(2) The way of measuring positive social impact* - the measurement of positive social impact depends on the type of registered social enterprise (integrative social enterprise, social housing enterprise, and general social enterprise). The method of measurement shall be determined for each socially beneficial service provided by the social enterprise. It may use quantitative (percentages, numbers, fractions) or qualitative data (e.g. to improve the quality of life of a particular group of people it employs).

*(3) The subject of the economic activity* - if the applicant is an applicant who has already been in business, the activity is usually already defined, although sometimes it may be a larger number of activities that the entity records but does not carry out permanently. It is therefore advisable to define the economic activity as precisely as possible, considering the positive social impact attained by the activity.

*(4) A description of how the goods or services produced, supplied, provided, or distributed by the applicant, or the way in which they are produced or provided, contribute to attaining a positive social impact - it is important to set out a precise description of which activity contributes in what way to a positive social impact.*

*(5) The determination of the percentage of the after-tax profit that the applicant undertakes to use to attain the main objective and the determination of the procedures and rules for the distribution of the remaining part of the profit that do not undermine the main objective - in this part, the applicant shall determine the part of the after-tax profit that it undertakes to use to attain the main objective. This should be at least 50% of the after-tax profit. It will also indicate how the remaining part of the profit will be distributed.*

*(6) A commitment to stakeholder involvement through an advisory committee or through the application of democratic governance - the applicant shall specify how it will involve stakeholders in the management of the company. This can be done through an advisory body, which is the Advisory Committee, or through democratic governance of the entity, i.e. applying Democratic Governance (Department of Social Economy of the Ministry of Labour and Social Affairs of the Slovak Republic, 2020).*

Pursuant to the Law Act on Social Economy and Social Enterprises in Art. 13, in the case of a civil association, cooperative, and joint-stock company, it is the articles of association; in the case of a non-profit organisation and a non-investment fund, it is the statutes; in the case of a foundation, it is the foundation deed; in the case of a public company, limited partnership, and limited liability company, it is the memorandum or articles of association; in the case of a simple company limited by shares, it is the memorandum, articles of association or founding charter; in the case of a natural person - entrepreneur and a special purpose establishment of a church, an affidavit; and in the case of an applicant having its registered office or place of business in the territory of another Member State of the European Union, a State that is a contracting party to the Agreement on the European Economic Area or the Swiss Confederation, the constitutive document or the affidavit.

The Status of a Registered Social Enterprise can be granted to the applicant if he/she fulfils other conditions/steps and submits documents on the following:

*(c) Registered office - this step requires proof that the applicant, in the case of a legal entity, has its registered office or, in the case of a natural person, a place of business in the territory*

of the Slovak Republic or another Member State or State that is a contracting party to the Agreement on the European Economic Area or the Swiss Confederation,

*(d) Trustworthiness* - trustworthiness is perceived as honesty and conscientiousness in the performance of duties in business. It can also be presented by a Social Economy Sector Organisation upon request,

*(e) A project for the activities of the registered social enterprise* - submitted by the applicant in relation to the activity which attains a measurable positive social impact, including, in the case of new enterprises, a calculation of the anticipated income and expenditure for at least three economic years,

*(f) Good repute* - good repute is proven by an extract from the Criminal Records Bureau. In the case of a legal entity, the statutory body or a member of the statutory body must also be of good repute,

*(g) Definition of the number of integrated employees* - if the applicant applies for the status of an integrating enterprise having at least two employees in an employment relationship agreed for at least half of the established weekly working time, it shall be stated that they are not part of the management bodies of the applicant entity (not being partners, statutory officers, members of the board of directors) and a list of disadvantaged and vulnerable persons shall also be provided,

*(h) Settlement with insurance companies* - it is about proving that the applicant does not have registered arrears of social insurance premiums, and the health insurance agency does not register overdue claims against him/her pursuant to special regulations in the Slovak Republic or in the state of residence or place of business,

*(i) Settlement with the tax and customs authorities* - it is about proving that the applicant has no registered arrears to the tax and customs authorities under special regulations in the Slovak Republic, or in the state of the registered office or place of business,

*(j) No violation of the prohibition of illegal employment* - the applicant has not been fined for violation of the prohibition of illegal employment in the Slovak Republic in the three years prior to the application for Status,

*(k) The applicant is not in bankruptcy, restructuring, or liquidation* - the applicant proves that he/she is not bankrupt, has not been declared bankrupt, has not had the bankruptcy proceedings against him/her terminated for lack of assets, or has not had the bankruptcy annulled for lack of assets, is not in restructuring, and is not being in liquidation,

*(l) The applicant has not had its status revoked in a period of three years* - the applicant shall prove that it has not had its Status revoked in a period of three years prior to applying for the Status or has not been subject to a final decision not to be granted the Registered Social Enterprise Status in a period of six months prior to applying for the Status.

These conditions that need to be met when applying for the Registered Social Enterprise Status can be referred to as the process of steps that need to be implemented to successfully obtain the Registered Social Enterprise Status. Within these individual conditions set out in the law, we can see that the applicant needs to draw up its own documents, which will make it clear what kind of social enterprise it will be, what activities the entity will carry out, and how it will meet the objective of the enterprise - the definition of positive social impact and how this impact will be measured. On the other hand, the conditions also include the documentation and opinions to be provided by the applicant entity in relation to third parties acting as bodies attesting to the credibility, fairness, and transparency of the applicant entity's conduct, track record, and current interest in the Registered Social Enterprise Status.

The conditions therefore represent the sequential steps that an applicant needs to complete to apply for Registered Social Enterprise Status. It is this part of the Law Act that may sound complicated for individual applicants, so to properly understand and complete these steps, it is necessary to clarify the applicant's relationships/commitments to all the entities with which he/she comes into contact at this stage of the application process. A graphical representation of the process will help to clarify the process. This makes it easy for the applicant, as well as for the interested party, to understand what conditions need to be met, what tasks need to be carried out, and which institutions need to be contacted and cooperated with.

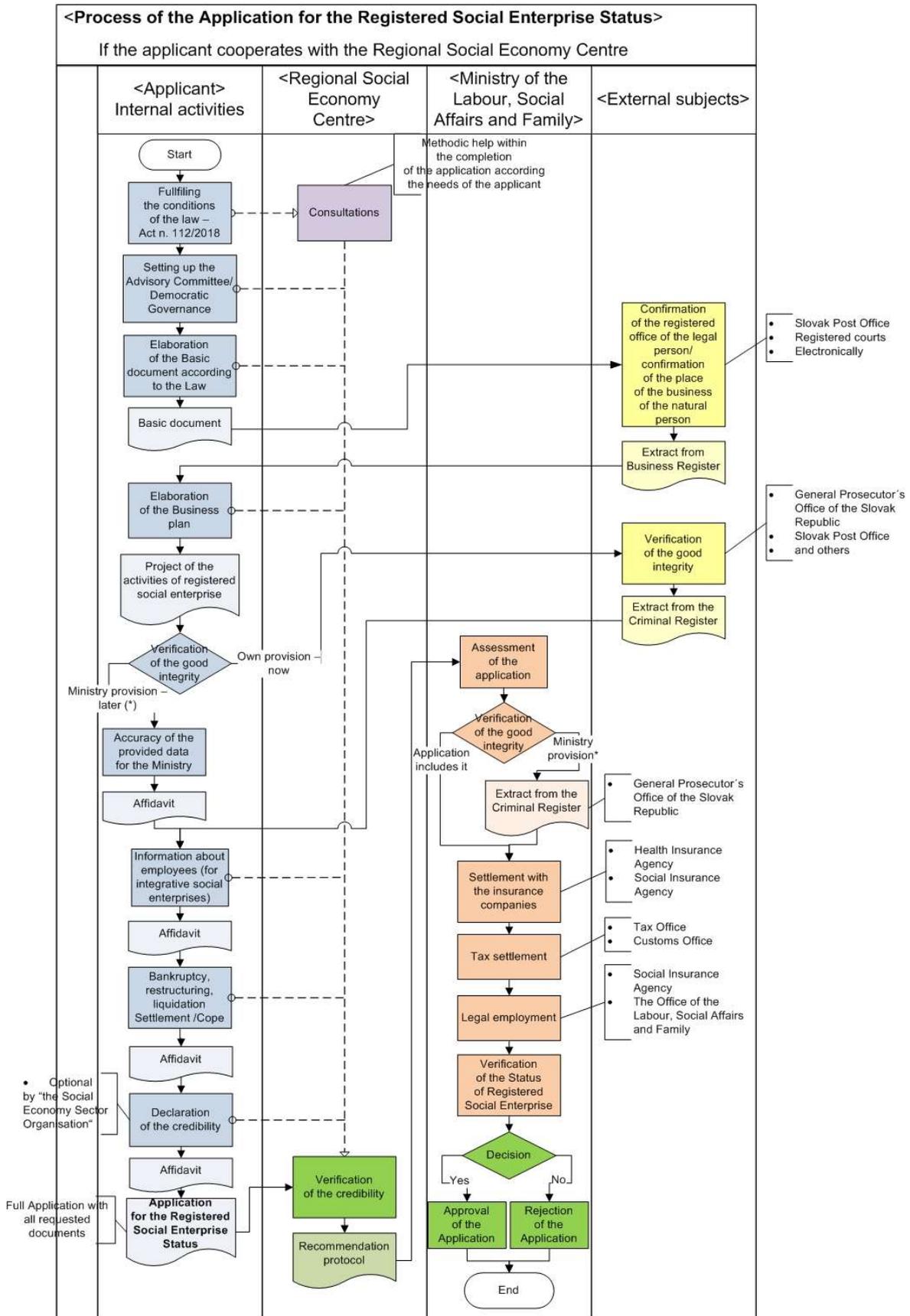
The process was developed through process modelling. A graphical model, a pathway flowchart, was created which serves both as a guiding sequence of steps/plan of steps to be completed, serves to specify the activity of the various actors entering the process and allows the applicant to make their own descriptions and comments in this graphical form of the Model. The graphical steps can thus be graphically/written commented, corrected, or marked as completed/implemented during the actual execution of the process.

The holistic approach, considering the content and institutional preparation and timing of the application for Registered Social Enterprise Status, results in the Registered Social Enterprise Application Process Model.

The Model contains four lanes (Swimlanes) representing the participants in the process. A process begins and ends with the Terminal symbol and consists of steps that have the form of Process, Document or Decision symbols. The symbols are connected to each other by arrows leading the flow of the process (Flowlines). The dashed arrow shows the relation to the Regional Social Economy Centre, as it is an optional flow (the applicant may or may not use its assistance). The last element of the Model is the Annotations / Comments, which add information to some steps of the process. As mentioned in the Methodology article, the Model distinguishes processes into internal and external processes. Internal processes include those actions that need to be provided by the applicant for Registered Social Enterprise Status on its own. External processes represent the relationships, actions and contact with external entities that enter the process of applying for the Statute and the meeting of the conditions set by the law. The Model regulates these relationships and processes by colour differentiation. Internal processes are represented in blue. The orange colour represents the processes that are directed by the Ministry of Labour, Social Affairs, and Family of the Slovak Republic, which is the guarantor of the social economy and the leading institution that approves the application for the Registered Social Enterprise Status. Processes related to external entities are marked in yellow. External entities issue individual documents or certificates that the applicant needs to submit in the application for the Registered Social Enterprise Status. Consultations with the Regional Social Economy Centre are marked in purple and the processes of verification and approval of the application for the Registered Social Enterprise Status are marked in green by the body that issues the decision on the granting of the Status, i.e. the Ministry of Labour, Social Affairs, and Family of the Slovak Republic.

The Model is intended to increase the efficiency of the procedure of the application for the Registered Social Enterprise Status, to contribute to the facilitation, simplification and clarity of the individual legally regulated actions that need to be carried out. It also contributes to the clarity of the individual contacts of the applicant and its cooperation with other authorities that enter this process. This Model considers the process in which the applicant for the Registered Social Enterprise Status makes use of the support and methodological services of the Regional Social Economy Centre, which can be found in every regional city in Slovakia (8 centres in each regional city).

**Figure 3** Model of the Process of Application for the Registered Social Enterprise Status



Source: own elaboration

## DISCUSSION

Legislation and legal standards often lead to bureaucratisation, creating difficult and detailed chain actions that make it difficult to meet the conditions or the wording of the law.

In this article we focused on the process of obtaining the Registered Social Enterprise Status taking into account the conditions of the process of obtaining the Status set out in the Law Act No. 112/2018 Coll. on Social Economy and Social Enterprises in Slovakia.

We aimed on improving the process set out in the Law Act No. 112/2018 Coll. on Social Economy and Social Enterprises in Slovakia, so the Model itself and the conclusions resulting from the modelling method are a significant contribution to the conditions for establishing social enterprises, explicitly in Slovakia. Although the structure of the Model, continuity of process steps, cooperation with public administration bodies can of course be an inspiration for other countries with regard to their conditions and legislative definitions.

It should be added that this Model is the first original complex output of modelling the process of obtaining the Registered Social Enterprise Status resulting from the legislative procedure in Slovakia. This approach is also innovative, as we have not yet encountered such legislation-based models in other countries as part of theoretical approaches - we add, that the legislation of each country within social economy has its own specifics according to national needs and this research should be provided more in detail and would require a different approach.

The definition of the conditions for obtaining the Registered Social Enterprise Status in Law Act No. 112/2018 Coll. on Social Economy and Social Enterprises in Slovakia is a similar case of detailed legal actions, complexity and can be a potential misunderstanding to applicants who want to gain the Registered Social Enterprise Status. By setting the obligations for meeting the conditions for obtaining the Registered Social Enterprise Status, the law has not only created space for the entry of more actors into this process, but also the process itself is significantly complicated. To put the legislation and the established system of setting up social enterprises into practice, it was even necessary to establish state-established, the so-called methodological centres in each region of Slovakia - Regional Social Economy Centres. Their task is to assist, instruct, and support entrepreneurs / applicants who are not familiar with the law and legislation in setting up these enterprises, or the process of obtaining the Status would take a long time on their own. As the establishment of social enterprises is one of the important public policy instruments in terms of tackling unemployment problems, it is in the interest of both public and state authorities to support their establishment, especially in

localities that suffer most from high unemployment and can thus contribute to sustainable regional and local development.

Therefore, to ensure the efficiency of processes in public and state administration and to make management processes more effective, we have created a model to simplify the process of applying for Registered Social Enterprise Status.

In this paper, the Model has been created that considers the situation where the applicant is using the consultancy services of the Regional Social Economy Centre. The Regional Social Economy Centre is not only a methodological centre, but also an actor in completing the steps of the process of applying for the Registered Social Enterprise Status.

The Model brings several advantages:

- *Simplification of the process* - The Model is a graphical representation of the breakdown of all the steps imposed by the law in a textual form. It is a graphical representation of the process, the sequence of steps and the relationships among actors, without requiring an understanding of the complex legislation.
- *Sequence of steps* - The Model is arranged in a logical sequence so that it is possible to follow these steps and meet the wording of the law in a simple way.
- *Possibility of monitoring the completion of process tasks and steps* - The Model allows the graphical representation of the input of the applicant who verifies the completion of the process steps.
- *Ability to use the chart as a written / graphical document for your own notification space* where applicants can actively mark the completion of steps, potential complications, contingencies, and options for resolving them. In this way, the applicant can clearly see the procedural actions already carried out and those that still need to be completed, as well as completing the necessary information.
- *Efficiency of the process in time efficiency and increased expediency* - The Model allows faster orientation in the tasks set and steps to be completed and eliminates the lengthy and complicated procedure for the implementation of the process of applying for the Registered Social Enterprise Status.

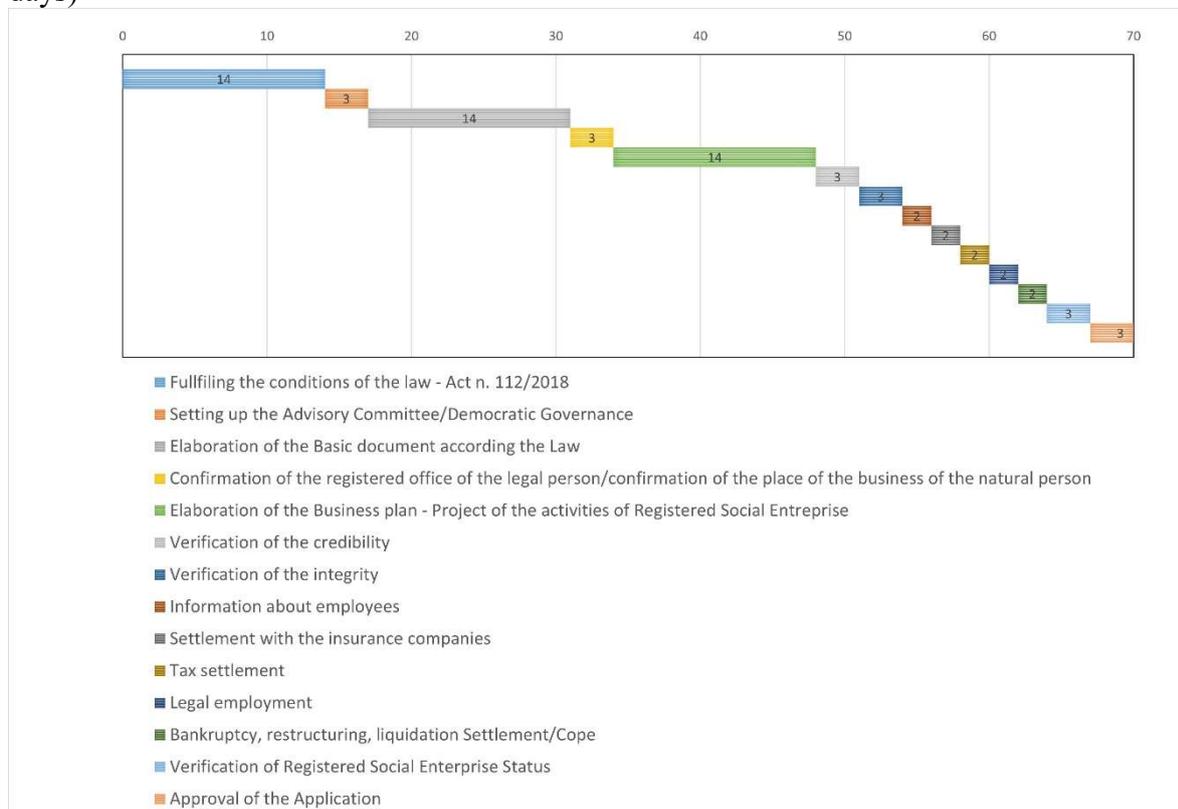
In terms of the last benefit of the Model, i.e. the efficiency in time management of the process of applying for the Registered Social Enterprise Status under the legislation of Law Act No. 112/2018 Coll. on Social Economy and Social Enterprises, we have created an approximate timetable of the individual procedural conditions that need to be met in the

preparation of the application for the Status on the basis of interviews with the representatives of the Regional Social Economy Centres. In doing so, we used a Gantt chart that shows the duration of the individual steps of the process of applying for the Registered Social Enterprise Status. Considering the minimum number of days required to both prepare and obtain the documents for the application, the overall process from the start of meeting the conditions for eligibility to apply for Status, through the individual steps of the process, to the approval of the application, takes a minimum of 70 days, which is more than 2 months. In terms of the duration of the individual steps of the process, the following procedural steps are the longest:

- Compliance with the conditions of Section 5 (1) of Law Act No. 112/2018 Coll. on Social Economy and Social Enterprises; according to the type of social enterprise also the conditions under Section 12 and Section 13 - duration of 14 days.
- Elaboration of the basic document - duration of 14 days.
- Elaboration of the project of the registered social enterprise - duration of 14 days.

Other activities, usually requiring confirmations from external bodies, take approximately 2 to 3 days. These are mostly to arrange certificates, provide declarations, obtain extracts from registers, etc.

**Figure 4** Length of the Application process for the Registered Social Enterprise Status (in days)



Source: own elaboration

When creating models that serve to optimise processes also at the level of state and public administration, it is possible to think in the context of the behaviour of the applicant for the Registered Social Enterprise Status in several directions. Since in the development of the Model in this article we have considered the cooperation of the applicant with the Regional Social Economy Centre, other levels of models are in consideration: if the applicant does not use the consultancy services of the Regional Social Economy Centre, or if the applicant is a non-resident of Slovakia. It is assumed that the process of meeting the conditions under the Law Act will look quite different in terms of completing the application and communicating with other entities.

## CONCLUSION

Processes and operations in public administration organisations should aim for economy, purpose, and effectiveness. The need for social enterprises in Slovakia is still high, especially due to the persistently higher unemployment rate in selected regions and the stagnation of development in these regions, especially in the least developed districts of Slovakia. The process of establishing a social enterprise and especially the process of obtaining the Registered Social Enterprise Status is difficult and difficult to understand legislatively, therefore the Model has been created which maps the individual steps of the process of applying for the Registered Social Enterprise Status. The basis for this Model of the process of applying for the Registered Social Enterprise Status was in the conditions set out in Law Act No. 112/2018 Coll. on the Social Economy and Social Enterprises, Section 6.

The process model itself was created through process modelling. The paper includes a path flowchart for its easy readability. The simplicity of the symbols does not require a deeper knowledge of the methodology by the reader/user.

Based on personal interviews with representatives of the methodological Regional Social Economy Centres, an approximate timetable was determined, for which the graphical method of the Gantt chart was used, which determines approximately how long the individual steps of the process and the whole process of applying for the Registered Social Enterprise Status take.

As the process itself is challenging to implement, especially for enterprises that have no experience in entrepreneurship, the Model is intended to facilitate the view of the whole process and lead to a quick understanding of the different steps, activities, and entities that a potential applicant for the Registered Social Enterprise Status will encounter during the application process.

In this article, we stated that the Model is created in a version for the situation when an entity that cooperates with the Regional Social Economy Centre applies for the Status. In this case, the Regional Social Economy Centre, which operates in every regional city in Slovakia, can facilitate some of the steps by providing consultancy services throughout the process of applying for the Registered Social Enterprise Status.

We conclude by considering to what extent the process of applying for Statute is set up correctly in the legislation, and whether the process of the many steps is discouraging. While we note that in obtaining Registered Social Enterprise Status, the conditions are set in the current way mainly for the sake of transparency and verification of the sustainability and credibility of the business plan on the part of the applicant, the verification is necessary mainly to avoid misuse of the public support for which a registered social enterprise can apply for in the integrative type of social enterprise.

In the case of the application for the Registered Social Enterprise Status, the Regional Social Economy Centres also substitute many business-advisory centres, which help in the entrepreneurial beginnings, especially in the preparation of the Basic Document and the Business Plan. These form the backbone of the social enterprise itself and are part of the application for Registered Social Enterprise Status to ensure that social enterprises are sustainable and contribute to regional development. Therefore, their preparation is the most time-consuming. Thus, the article provides a detailed description and illustration of the steps through the Registered Social Enterprise Status Application Process Model.

The Model of the process of applying for the Registered Social Enterprise Status brings simplification, better understanding of the process, and the importance of the steps or entities that are part of the process, leads to efficiency of the activity, to knowledge of the timetable which allows for more efficient use of the time fund of the entrepreneur and coordination of individual activities. The Model, together with the legislation and the interpretation of the law itself, forms a basic knowledge and methodological platform for understanding the principles of social entrepreneurship, the establishment of social enterprises themselves, and obtaining the Registered Social Enterprise Status in Slovakia.

The Model is not just for potential social entrepreneurs. It also enables the methodological Regional Social Economy Centres to better understand the steps of the process, it is an aid to the governmental bodies that are part of the process, or it can serve other entities that are entering the process to understand the process itself. Within the framework of theory, the Model of the Process of Application for the Registered Social Enterprise Status is an effective and plastic representation of the different activities, the relationships between the actors and the meaning of the different activities. As the social economy mainly provides local solutions,

we believe that this Model will contribute to a better application of the social economy in practice in the establishment of social enterprises and the overall contribution to regional development in Slovakia. It can also serve as the example of modelling process of gaining the Registered Social Enterprise Status for the processes of establishing social enterprises in other countries. Besides this, modelling of the presented legal process in Slovakia can lead to the other research work with aim on the analysis and comparison of legal process steps in other countries.

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- Law Act No. 112/2018 Coll. on Social Economy and Social Enterprises

## **CHALLENGES FOR THE MARKETING COMMUNICATION IN ADMINISTRATIVELY DEFINED TOURIST DESTINATIONS**

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### **Abstract**

The aim of the article is to assess the validity of unified marketing communication in destinations based on the administrative division of the territory, or to identify the needs of target audience segmentation. A quantitative approach based on a questionnaire survey was chosen to meet this objective. The research was carried out in eight tourist areas of the South Bohemia Region, i.e. in the area of the regional DMO. The analysis was conducted using several methods of statistical analysis including principal component analysis (PCA and CATPCA). The research showed differences in the visitor segments within the region and particular tourist areas. This showed a need of differentiation in the marketing communication regarding the form of communication, the emphasis on the products offered and the choice of communication channels.

Keywords: marketing communication, promotion, destination marketing, tourist motivation, satisfaction

### **INTRODUCTION**

Marketing communication plays a pivotal role in the success of tourist destinations. It involves the strategic use of various communication channels to promote a destination, engage potential visitors, and enhance the overall tourism experience. Effective marketing communication helps to increase the visibility of a tourist destination. It plays an important role in the formation of destination images (Govers, Go, & Kumar, 2007).

The main task of marketing managers is, of course, to understand and satisfy the needs and wishes of travelers in order to supply tourists with attractive, competitive and economically sustainable tourism products and services (Haid, Albrecht, & Finkler, 2021; Hanna, Font, Scarles, Weeden, & Harrison, 2018). Marketing communication is crucial in shaping the image of a tourist destination, as it connects the destination's offerings with the desires and expectations of potential visitors (de Lima, Mainardes, & Rodrigues, 2020; Gorlevskaya, 2016; Ye, & Tussyadiah, 2011). Whether the destination is a nation, a sub-national or a local area, marketing and promotional activities are geared towards the production of a distinctive

and competitive place identity (Dredge & Jenkins, 2003). Logically, a well-rounded marketing communication strategy for tourist destinations includes various components: advertising, public relations, social media, digital marketing, and experiential marketing. Advertising, both traditional (print, television) and digital, ensures broad visibility, while social media allows destinations to engage interactively with potential visitors, offering a real-time glimpse into experiences. Effective communication strategies do more than advertize; they build a narrative that resonates emotionally with the audience, helping destinations to distinguish themselves in a competitive market (Pike, 2012). For example, storytelling, branding, and influencer partnerships are instrumental in creating a unique identity that can appeal to different market segments, from adventure seekers to luxury travellers (Lund, Cohen, & Scarles, 2018). Actually, promotion of a destination represents, the only area of the destination marketing the destination marketer has control over (Pike & Page, 2014). The defined tourist destinations can be spatially heterogeneous and may potentially attract different tourists to different part of the destination (Encalada-Abarca, Ferreira, & Rocha; Almeida, Golpe, & Justo, 2021; Park, Xu, Jiang, Chen, & Huang 2020). Many destination management organizations or destination marketing organizations are covering a destination defined by administrative boundaries (Saydullaeva, & Jamolovich, 2024; Studzieniecki, Jakubowski, & Meyer, 2020; Manente, 2008).

The aim of the paper is to assess the validity of unified marketing communication in destinations based on the administrative division of the territory, or to identify the needs of target audience segmentation. Our research question is: “Is it appropriate to define the marketing communication of tourist destination under a common destination management or does the situation require modified or differentiated marketing communication for particular tourist areas?”

## **THEORETICAL BACKGROUND**

Tourism promotion plays an important role in enhancing the competitive edge of one tourist destination over another (Ahmed, 1996). Marketers have to allocate their limited budget for promotion, so that it generates the greatest amount of travel to the promoted destination (Leisen, 2001). A successful tourism promotion is dependent on a broad range of external influences (Govers, Go, & Kumar, 2007). Florido-Benítez (2022) suggested a new definition for a tourism promotion representing an efficient management of a destination’s resources and strategic plans by destination marketing organizations (DMOs) to adapt the tourism supply to market trends and will empower tourists to visit such destinations.

Promoting tourist destinations and particular tourist attractions represents a topic of many researches, articles and studies. Liberato, Vieira, Ferreira and Neto (2020) concluded in their systematic review that the main marketing strategies used to promote tourist attractions are as follows: organization and participation of regional and international fairs, participation in regional tourism events, conferences and festivals, use of social media, use of slogans in advertising material and websites, promotion, brochures with city slogans, sports and photo competitions, billboards, mass media (film and TV), promotional videos, photo CDs provided to visitors, signage in historical centers, and city slogans. However, the most used strategy, according to the studies, is digital media, especially social networks, where supply and demand can interact, creating a relationship and strengthening CRM (Customer Relationship Management). Promoting a tourist destination requires uncovering travel patterns and destination choices, identifying the profile of visitors and analyzing attitudes and preferences of visitors (Bustamante, Sebastia, & Onaindia, 2019). There are various factors determining the visitor's needs, expectations and, finally, satisfaction with their visits. Nowacki (2013:112) identified two groups of such factors. The first one comprises visitors' characteristics (subject-related factors) such as motives and motivations, interest in the subject of the attraction, benefits, age, education and duration of the visit. The second one (object-related factors) includes the character and ways of the exhibition, information sources available and services and infrastructure provided. There are also different motivational types of tourists (Navrátil et al., 2016).

Defining a tourism destination and structuring the territory for destination management purposes has undergone some development. Leiper (1979) speaks about a tourist destination region that can be defined as a location which attracts tourists to stay temporarily, and, in particular, those features which inherently contribute to that attraction. Fialová and Čtveráková (2016) focused on the development of defining a tourism destination defined three zoning (regionalization of tourism):

- 1) geographical (from the 1950s to 1970s) – it divides the territory according to major geographical or geomorphological units (mountains, seas, lakes, cities, spas)
- 2) normative = spatial planning (from the 1960s to 1990s) – it divides the territory according to its functional usage and its importance for tourism, assigning usage and load limits to individual areas (regions), categorizing the areas according to their importance for tourism
- 3) marketing – the most up-to-date and currently the most widespread approach. It essentially represents the most effective promotion of tourism at a national or regional level and the production of competitive tourism products by local and regional actors in a particular region or area.

A tourist destination is a heterogenous territorial unit from the point of various factors (Real, 2022; Ma, & Yang, 2019) where cohesion is ensured by the internal links of the territory (Vaniček, 2018).

Lew and McKercher (2006) analyzed spatial intradestination movement patterns of tourists. Paulino, Prats and Whalley (2020) criticize the traditional administratively based tourism destinations in this context as the tourism zones differ from the administrative regions (Blasco, Guia, & Prats, 2014). Zhu (2021) believes that while zoning plans are widely applied in urban development, they are somewhat ignored in tourism destinations. A local destination area is always distinguished by some characteristics from its larger destination region (Lew & McKercher, 2006). Almeida, Golpe and Justo (2021) concluded, based on the studies of several authors, that tourist demand is heterogeneous across regions due to various factors. Yang and Fik (2014) identified spatial spill-over effects and cross-city competition effects in regional tourism growth. They suggested that local tourist destinations should take full advantage of positive spatial spill-over effects in tourism growth and internalize these benefits by implementing collaborative marketing efforts with nearby destinations.

Local destination management organizations (LDMOs) were created to provide structural strategies for destination development so that destinations could grow and keep up with tourists' needs (Gato et al., 2022). Bosnić, Tubić and Stanišić (2014) point out that promoting and creating a brand and image for the destination are considered to be a typical role and responsibility of national and regional DMOs but not of the local ones. Gato et al. (2022) add that the authors of the available studies analyzed rather larger destinations than local destinations and that local DMOs, which are present in local destinations that do not possess the same number and amount of resources.

Recognizing the heterogeneity of regional destination areas, the purpose of creating LDMOs and the generally accepted fact that fundamental to all marketing communications is an understanding of the target market, as summarized by McCabe and Foster (2011:399), we should assume that:

- 1) within a regional destination, there may be individual sub-areas with significantly different prerequisites for tourism, with a specific character of tourist attractions and specific nature, scope and quality of services.
- 2) different areas may suit different groups of tourists
- 3) a joint marketing communication of the regional DMO may lead to the fact that only some relevant groups of tourists will be reached, or the wrong group of tourists will be attracted, or some sub-areas will not satisfy the incoming tourists at all.

These assumptions lead us to doubts about a unified and overall promotion and promotional message are being appropriate in heterogeneous destinations (from the point of view of the character of their tourist attractions and the tourism services) and in the administratively defined tourist destinations. Local DMOs may be able to better understand specifics of the particular tourist areas and to better address the right tourist audience.

Following hypotheses were formulated to help us answering our research question:

H1. The main tourists' motivations and reasons for visit are different in case of particular tourist areas.

H2. The tourists' planned activities during their stay differ according to particular tourist areas visited

H3. Tourists' satisfaction with particular factors of the overall offer of attractions and services differ according to the visited tourist area.

H4. The profile of tourists visiting particular tourist areas within a commonly managed destination differs.

## DATA AND METHODS

The above formulated hypotheses were tested using primary data obtained by questionnaire survey among visitors of the selected tourist destination within the Czech Republic.

### Study Area

Study Area is considered one of the significant tourism destinations in the Czech Republic. This is specifically the South Bohemian region, which includes a number of tourist areas and attractions of world importance. In the Middle Ages, a large part of the region acquired a significant common landscape and architectural character. It offers a wide range of recreational opportunities. Located in the western part of the Czech Republic, it is a border region and borders mainly with Austria and a short part of the border also with Germany. From the perspective of destination management, the Study Area is managed by the regional destination organization, and local destination management organizations also operate in individual areas.

The Study Area consists of eight tourist areas that differ in terms of infrastructure and offered services, but are similar in their approach to destination management, which may create minor issues regarding regional tourism management.

*Prácheňsko* is an area with problematic tourism infrastructure. In terms of individual transport, there is a transit road with significant traffic load, the potential of which is not utilized in the area. Public transport from the major source city of Prague is possible by train;

the connection is direct, but due to outdated infrastructure, it is problematic and practically underutilized. Train connections from the cities of České Budějovice and Plzeň, on the other hand, are of good quality and frequent. Long-distance buses do not serve the region; local lines, which are not adapted to tourism needs, must be used instead. The region also lacks significant cycling tourism routes. There is a shortage of quality and capacity accommodation. Dining establishments are focused on residents and do not reflect the needs of tourists. Significant cultural monuments are rather rare. However, there are several valuable natural locations (ponds with significant populations of birds and endemic plants), and the area is appreciated for its low level of urbanization and the presence of seasonal second homes.

*Písecko-Blatensko* is a neighboring region of Prácheňsko, with significantly different tourism offerings. The center is the town of Písek, which serves as a natural transportation, commercial, economic, and tourism center of the region. The area is accessible via the same road as the neighboring Prácheňsko, but it better utilizes its potential. The region is excellently accessible by train from the entire South Bohemia region, as well as neighboring regions. The region offers a wide range of accommodation types in all categories, from top-class hotels to smaller guesthouses, private accommodations, and campsites. There is also an extensive offer of dining options of all categories. The region features numerous cultural and historical attractions, including the oldest stone bridge in the Czech Republic, and offers various event activities, gastronomic festivals, cultural events, and attractions for families with children, which are the main target segment of the entire destination.

The *Šumava region* has significant potential for providing tourism products. This destination includes part of the Šumava National Park, which is one of the most significant attractions in the Czech Republic. Road accessibility is poorer due to its location near the Czech border and the historical remoteness of the region. Due to the mountainous terrain, train accessibility is limited to local lines, and bus connections to source destinations are mainly typical for Prague. Hotel accommodation capacities in local tourism centers are supplemented by private accommodations, and shared accommodations are common, with a growing trend of building apartment houses. The infrastructure for dining services is sufficient and offers a wide range of dining options of various types and quality. The region is significant for offering services for hikers, cyclists, and visitors to technical monuments from both the Czech Republic and Germany, with Germans constituting a considerable portion of customers for tourism businesses. The region particularly caters to active tourists, as well as seniors for whom specific products are created aimed at active leisure use.

The *Podkletí region* also has significant potential for active tourism and cycling tourism. Road accessibility in the region is via lower-class roads, and parking capacity is limited. Public bus transport is problematic, with only local lines serving the region. The region

benefits from accessibility by public rail transport, which is currently intensifying. Accommodation capacities are problematic due to the rural character of the destination, and the region relies on the infrastructure of surrounding areas. Dining establishments are focused on residents and primarily offer Czech and partially regional cuisine. The main feature of the destination is Blanský les with Mount Klet' and the meanders of the Vltava River, which is significant for water tourism, although its potential is only limitedly utilized by the destination. The offer of cultural and historical attractions is rather below average. The destination profiles itself as environmentally friendly, emphasizing crafts and regional specifics. Due to its location, it specializes in short-term stays and is an important excursion site for visitors from the Krumlov and České Budějovice - Hlubocko regions.

The *Krumlov region* is mainly represented by the town of Český Krumlov, which is among the most visited attractions in the Czech Republic. Accessibility to the region by individual transport is standard; however, it is a considerable distance from the center of the Czech Republic, thus making it more accessible for foreign clientele within organized activities and optional tours from Prague or Austria. Public bus transport is available from the rest of the region, as well as direct connections from Prague provided by public transport carriers and commercial carriers, as well as from Austrian territories. Rail transport utilizes local lines but also offers direct connections from Prague. The region offers quantitatively and qualitatively above-average accommodation and dining infrastructure targeted at both foreign and domestic clientele. The price level here is significantly higher than in the rest of the region (outside the Českobudějovicko-Hlubocko region). The region is known primarily for its cultural and historical attractions listed as UNESCO World Heritage sites, a range of cultural activities (concerts, historical festivals), and water tourism. Due to the wide range of activities, there is a broad segment of visitors to the region, but there are also signs of tourist saturation in some areas.

*Lipensko* is a border region with Austria. As a border region, it does not have ideal road or rail transport accessibility. The region has a sufficient number of parking spaces and other tourist infrastructure. Lipno is one of the most significant recreational water bodies and a vital element of the tourist infrastructure (bike paths, ski slopes, water area). The accommodation and dining infrastructure is extensive, ranging from significant large hotels to guesthouses and apartment houses. Due to the continually expanding tourist infrastructure, it is often considered an area showing signs of overtourism. In some parts, there is also displacement from the original purpose of the entire recreational area. The problem of seasonality in the area has been addressed by expanding facilities for sports and recreational activities, building infrastructure for winter sports, establishing wellness hotels, and lookout points. As a result,

the area is characterized not only by Czech clientele but also by foreign sports-oriented clientele.

The *Českobudějovicko-Hlubocko* region is located in the central part of the studied area, with good transport accessibility, connecting to international roads, an under-construction highway, and numerous parking options. Currently, the operation of an international public airport is beginning to develop, and a significant part of the rapid rail connection with Prague has recently been completed. From České Budějovice, there is train connectivity to Plzeň, Brno, Prague, Jihlava, and also to the Austrian city of Linz. Due to the good rail connection, there are fewer long-distance bus lines. The city of České Budějovice offers the largest urban transport system in the entire Study Area. České Budějovice and Hluboká nad Vltavou are significant historical attractions, and due to the exhibition center where significant exhibitions are held, it also has the potential for larger MICE tourism events. The *Českobudějovicko-Hlubocko* region has the greatest potential in terms of accommodation and dining facilities; however, due to significant conference events, capacities are often low. The region is perceived as a natural center of life in South Bohemia due to the presence of many companies, institutions, offices, and numerous educational institutions, including three universities. It primarily focuses on conference tourism and urban and suburban tourism for families with children. Among all the studied areas, it is the most focused on conference and business clientele.

The *Třeboňsko* region is relatively easily accessible from the new highway, which, however, does not pass directly through the region. In terms of individual transport, the region lacks parking capacity, especially in the natural center, the town of Třeboň. Public bus transport has a primarily local character. Train transport for tourists is provided on the Prague – České Velenice line, which runs through the entire region and ensures good local and long-distance transport. The accommodation infrastructure is mainly based on private accommodations and campsites, although larger hotels and apartment houses can also be found directly in the town of Třeboň. The dining infrastructure in the region is sufficient but primarily focused on seasonal clientele with a standard offer. Třeboň is a historic town with Renaissance architecture, cultural-historical attractions, and significant spas. The rest of the region is flat and, due to its rural character and smaller towns, is ideal for cycling and hiking. Several significant watercourses flow through the region, which are important destinations for water tourism. The region is also significant for its ponds. Due to its flat landscape and older infrastructure, the region is primarily intended for summer stays for families with children (cycling and water activities), while the town of Třeboň is a spa town. However, the entire region faces the problem of seasonality, which the local destination management is trying to tackle.

### **Survey tool**

The questionnaire contained four segmentation questions, 30 closed questions (single choice, multiple choice), ten open questions, five identification questions, eight questions with a 1-5 rating scale and two Likert scale questions (grades 1-10). Individual respondents' answers were recorded in the questionnaire using tablets and a Google tool.

### **Data Collection**

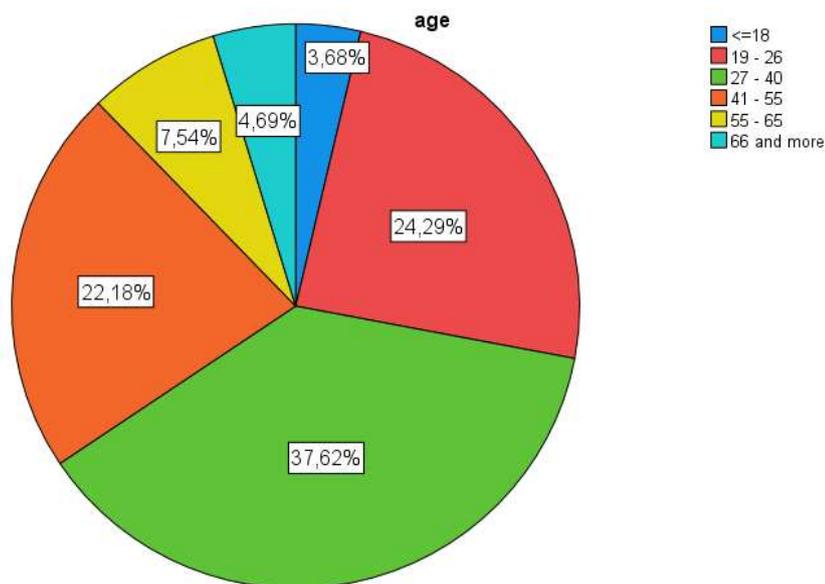
Data were collected through an in-person questionnaire survey. The number of respondents from each tourist area is equally represented. The structure of respondents according to other characteristics is approximately in line with the socio-demographic characteristics of the base population in the Czech Republic (Tourdata, 2023) and with the structure of foreign visitors to the South Bohemia Region (Návštěvnost Jihočeského Kraje Stále Vzrůstá, 2024). Quota sampling followed this observed population structure. The questionnaire survey was carried out during the summer season with the aim to gain 3,200 questionnaires. The interviews were conducted in person in 15 tourist sites within the above-described tourist areas of the South Bohemian Region. Convenience sampling was used for the selection of participants as a random sampling is not feasible in case of such a questionnaire survey. The interviewers conducted the research at the most important tourist attractions in the given tourist area (castles, chateaux, sports attractions), important service providers (major accommodation facilities, or places with high tourist presence (car parks, railway stations, information centers). To reduce the problems of convenience sampling, data were collected during whole the weeks (working days and weekends and holiday days). Every 10th visitor was approached and asked if he or she would be willing to participate. If the asked visitor refused, the next visitor was approached. A total of 3049 respondents were interviewed. The refusal rate was 26,8 %. The face-to-face form of interviewing was chosen because of the high validity of the answers obtained in this way and the complexity of the questionnaire, where the interviewer could explain any ambiguities, and thus a large amount of relevant data was obtained.

Response choices were immediately recorded, and respondents did not return to individual responses, thus ensuring the authenticity of their responses. The data collection tool automatically recorded not only the responses, but also the time of completion of the questionnaire and the GPS coordinates of the device at the time of submission, ensuring that correct completion was checked. The questionnaires were completed at pre-specified locations in the tourist area during pre-determined periods to ensure the relevance of information according to season. Specific days were then determined based on weather forecasts with respect to the study area.

### Sample Description

3049 respondents were interviewed, of which a quarter (25.2%) were from South Bohemia, 46.9% from other parts of the Czech Republic and 19.4% from abroad. Among the foreign respondents, the majority were from Germany (25.3%), Slovakia (12.4%), Austria (11.8%), Taiwan and Poland (7.2%). In addition, respondents from Spain (5%) can be mentioned. Respondents of other nationalities were less represented. The representation of respondents corresponds to the number of declared foreign visitors to the region in 2023 (Tourdata, 2024). (Among domestic visitors, respondents living in the districts of Brno-city and Brno-rural (23.2%), (Prague, Prague-east and Prague-west (19.6%) and Klatovy (12.5%) were predominant. The age structure of respondents is shown in Fig. 1 and corresponds to the age structure of visitors to the region and individual tourist areas. The highest representation is declared for the group of 27-40 years old. The communication of the larger entity (in this case, the region) should adapt to this finding in terms of the content of the message and the communication tools.

**Figure 1** Age structure of respondents (n=3049)

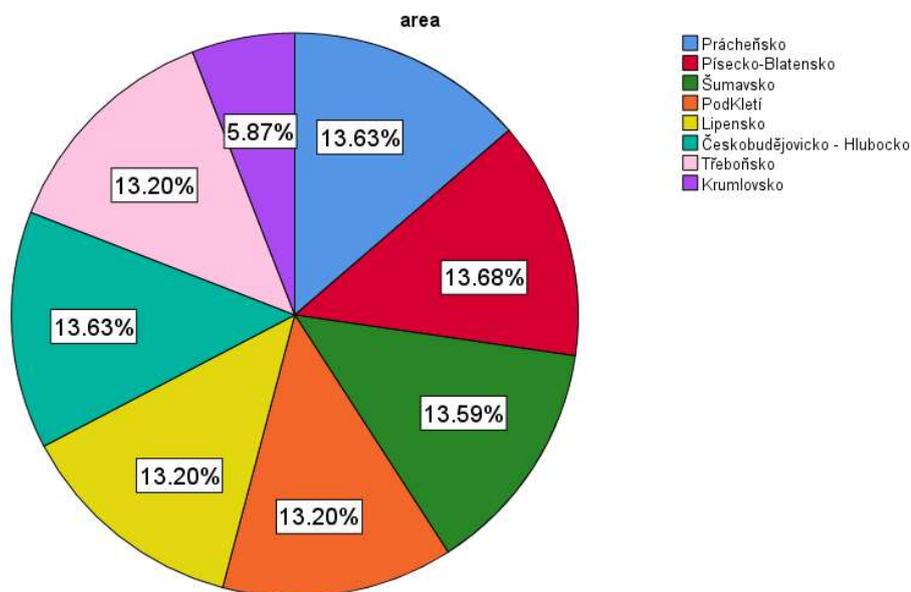


Source: <Own processing>

Among the respondents, the majority were persons with secondary education (64.8%), followed by university graduates (28.1%). Roughly half of the respondents were employees (51.3%), followed by self-employed persons and students (16% each). More than 90% of respondents rated their income as rather above average. This finding also corresponds to the profile of a visitor to the South Bohemia Region (Návštěvnost Jihočeského Kraje Stále Vyrůstá, 2024). The specific tourist area of the respondent's temporary stay is important for the study. The structure of respondents by area is approximately balanced, as shown in Fig. 2.

There is a lower representation only for the tourist area of Krumlovsko, which is due to the visitor profile of Český Krumlov and the problematic accessibility of the relevant research respondents.

**Figure 2** Structure of respondents by tourist areas (n=3049)



Source: <Own processing>

### Data Analyses

The basic test used to determine the interdependence of two categorical traits is the chi-square test of independence (Nolan, Heinzen, 2007; Řezanková, 2007). If the assumption for using the chi-square test in the contingency table is not met, then alternative methods are used (exact tests or calculation of the achieved significance level using the Monte Carlo method - see e.g. Mehta and Patel, 2006; Pecáková, 2014). For a more detailed insight into the dependency structure, the sign test was used in significant cases, which helps to examine in more detail to what extent the sorting results can be expected even in the base set (Rabušic et al., 2019). Using the sign scheme, statistically significant differences between observed and expected frequencies can be detected. Significance levels for such observed differences are given in the text (e.g. ++  $\alpha=0.01$  - observed frequencies are higher than expected and significant at 1% significance level – the risk of error max. 1%; +  $\alpha=0.05$ ; +++  $\alpha=0.001$ ). We have employed this test to assess the structure of reasons for visiting tourist areas of the South Bohemian Region

Principal component analysis (PCA) and factor analysis (FA) are the main methods of data reduction. These methods allow replacing a number of original variables with a smaller number of latent variables, assuming linear relationships among the original variables. As the PCA method is designed to analyze quantitative continuous variables, other methods need to

be used for categorical variables. One of them is CATPCA (CATegorical Principal Component Analysis).

When using the CATPCA method, the use of optimal scaling allows variables to be scaled at different levels. The categorical variables are optimally quantified within the specified dimensionality. It is also possible to model non-linear relationships between variables. The scales of each variable may vary. This method also does not require the assumption of multivariate normality of the data (Šulc & Řezanková, 2015). The choice of the scale of measurement of a given variable is very important because it affects the structure of the correlation matrix. The choice of the appropriate scale is made by the authors. The details of the choice are described, for example, by Linting (2007), and the complete use of the method is described by Meulman and Heiser (1993). We have employed this analysis to analyse differences in the tourists' profile, planned activities, motivations and satisfaction with the offer of the visited destination. Tab. 4 provides an overview of the categorical variables (questionnaire questions) used in this analysis. 21 categorical variables, some of them designed as a set of sub-questions, entered the analysis for a total of original 52 elementary variables.

**Table 1** CATPCA Input variables

Variable (question)
Where are you from?
How many times have you visited this place in the past?
What is the main reason for visiting this place?
Who did you come with?
How many days are you going to spend in this place?
Where are you staying in this place?
What activities are you doing or planning to do during your stay in this place?
Please rate your satisfaction with the services at your place of stay.
Please rate your satisfaction with the transport in your place of stay.
Please rate your satisfaction with the language skills of the local people.
How satisfied are you with the attitude of the locals in terms of helpfulness and friendliness to visitors?
Satisfaction with the offer of the place.
How would you rate the price level of services in the place?
Overall satisfaction with your stay in the place
Would you consider visiting this place again?
Gender of respondent
Age
Educational attainment
Social status
Income category
Tourist area

Source: <Own processing>

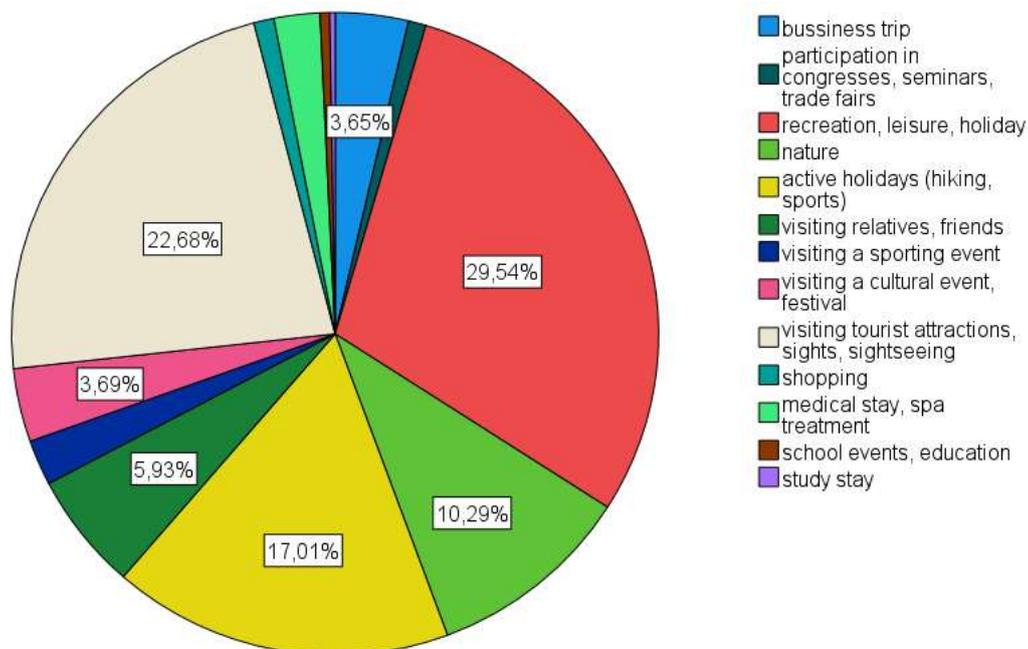
In order to interpret the difference between the motives for visiting a tourist area, the so-called Cramer's coefficient was used, which allows the detection of the structure of respondents' opinions for individual areas of the studied territory and thus obtaining the information about the segment of visitors and their motivation for travel, which significantly influences possible differences in effective marketing communication.

## RESULTS

### Motivations and planned activities - comparison of tourist areas

Possible specifics of individual tourist areas of the South Bohemian Region can be considered as a possible basic building block of marketing communication of tourist areas. The first part of the study is an analysis of the motives of visitors. Fig. 3 shows that the main reasons for visiting the entire South Bohemian Region are recreation, leisure, and holidays (29.5%), followed by visits to tourist attractions and monuments (22.7%) and active holidays (17%). For the marketing communication of the South Bohemian Region, the above-mentioned factors play the most important role and are thus possible motives for communication messages at the regional level.

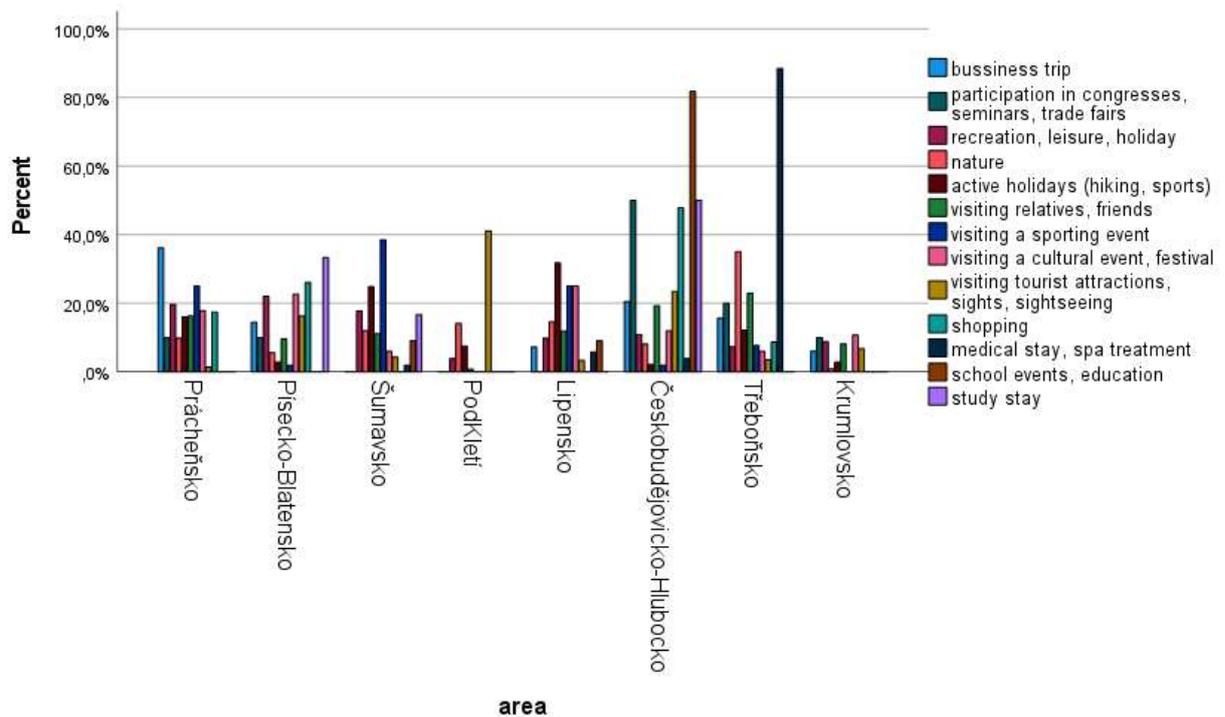
**Figure 3** The main reason for visiting the selected place in the South Bohemian Region (n=3049)



Source: <Own processing>

A closer look reveals that the data mentioned in the previous figure can be broken down by tourist area. From the measurement results, it can be seen that respondents differ in the most frequently cited reasons for visiting according to the tourist area they visit (according to the value of the Cramer's coefficient  $V=0.312$  this is a relationship on the borderline of mean dependence,  $p=0.001$ ,  $\chi^2 \in \langle 0,000; 0,001 \rangle$ ). Detailed results are presented in Fig. 4.

**Figure 4** Main reason for visiting a place by tourist area



Source: <Own processing>

The Cramer's test allows the detection of the structure of respondents' answers in each area using a sign test (Tab. 1) and confirmed our hypothesis H1. Tab 2 shows the different motivations of visitors to each tourist area. The tourist area of Českobudějovicko-Hlubocko, in which the regional town is located, was statistically significantly more often ( $\alpha=0.001$ ) cited by respondents as the reason for their visit participation in a congress, seminar or fair (this area is the only one in the study area with the necessary capacities). This area also invests significantly in infrastructure for this type of tourism. According to the respondents, the next most important reasons (at the same level of importance) are visits to tourist attractions and monuments, shopping and school events or education. On the other hand, the Českobudějovicko-Hlubocko region is perceived by respondents as an area for active holiday spending, which is statistically significantly less ( $\alpha=0.001$ ). The management of the area is

working on this problem and efforts to create adequate infrastructure are beginning to change the participants' view of this problem.

The Prácheňsko region is profiled as an area dominated by business/work trips and visits for recreation and holidays (especially individual recreation facilities), and respondents do not find it attractive in terms of a sufficient supply of tourist attractions and monuments.

The Písecko-Blatensko region is significantly more often perceived by respondents as an area suitable for recreation, leisure and holidays ( $\alpha=0.001$ ), similarly to the Krumlovsko region, which is less significantly perceived as an area suitable for active or outdoor holidays ( $\alpha=0.001$ ).

**Table 2** Structure of reasons for visiting tourist areas of the South Bohemian Region

	Prácheňsko	Písecko-Blatensko	Šumavsko	Podkletí	Lipensko	Českobudějovicko Hlubocko	Třeboňsko	Krumlovsko
Business/work trip	+++	0	--	--	0	0	0	0
Participation in a congress, seminar, trade fair	0	0	0	0	0	+++	0	0
Recreation, leisure, holiday	+++	+++	+++	--	--	-	--	+++
Nature	0	--	0	0	0	--	+++	--
Active holidays (hiking, sports)	0	--	+++	--	+++	--	0	--
Visiting relatives, acquaintances	0	0	0	--	0	+	+++	0
Attendance at a sporting event	+	-	+++	--	+	-	0	0
Visiting a cultural event, festival	0	+	-	--	++	0	-	0
Visiting tourist attractions, monuments	--	+	--	+++	--	+++	--	0
Shopping	0	0	0	0	0	+++	0	0
Medical stay, treatment in a spa	--	--	-	--	0	-	+++	0
School events, education	0	0	0	0	0	+++	0	0
Study stay	0	0	0	0	0	++	0	0

Source: <Own processing>

The fact that the tourist areas of Šumavsko and Lipensko are significantly more frequently mentioned by respondents as an area of active holidays ( $\alpha=0.001$ ) is not too surprising, given the existing tourism infrastructure in these areas and the degree of their commercialization. In both cases, respondents also more frequently cited various types of events (sports, cultural, and festivals) as the reason for visiting the area. The sub-county is statistically significantly more often considered by respondents as an area to visit tourist attractions and monuments. The structure of the signs of this area suggests that it is a territory not yet fully discovered, with some potential for further development of (friendly) tourism. The Třeboňsko region is perceived by the respondents statistically significantly more often ( $\alpha=0.001$ ) as a health (spa) and nature-rich area, and visiting relatives and acquaintances also appeared as an important reason for visiting. It is somewhat surprising that respondents mentioned Třeboňsko region statistically significantly less often ( $\alpha=0.001$ ) as an area suitable for recreation, leisure or holidays. The above-mentioned facts can be used in the management of individual areas, in the formulation of the potential for further development of tourism in them, or regulation of those forms of tourism that appear to be problematic within the area and manifest themselves negatively in the area (touristification, etc.).

The perception of individual tourist areas is also related to the activities that the respondents plan to carry out in them. The distribution of planned activities within the South Bohemia Region is shown in Tab. 3, which shows the relative frequencies of planned activities in each group.

**Table 3** Planned activities of respondents in tourist areas of South Bohemia (%)

Activity/area	Prácheňsko	Písecko-Blatensko	Šumavsko	Podkl etí	Lipensko	Českobudějovicko-Hlubocko	Třeboňsko	Krumlovsko
Visiting historical monuments	19,2	<b>68,4</b>	11,1	<b>79,4</b>	<b>31,1</b>	<b>72,0</b>	9,1	<b>50,4</b>
Cultural events	12,7	<b>12,8</b>	9,5	0,3	13,0	12,1	8,1	<b>39,4</b>
Sports events	11,1	1,0	10,1	0	10,0	3,3	5,7	2,4
Exhibition/fair	1,3	3,7	4,4	1,0	5,7	<b>25,7</b>	10,1	7,1
Relatives/acquaintances	7,5	8,1	5,4	1,0	8,0	11,4	10,5	9,4
Staying in the countryside	<b>24,4</b>	4,4	17,2	16,6	<b>34,8</b>	12,1	11,1	1,6
Cycling	<b>25,4</b>	5,1	<b>28,0</b>	4,7	12,0	14,3	<b>30,1</b>	7,9
Hiking	13,4	4,0	<b>20,6</b>	14,3	13,0	<b>20,2</b>	10,8	5,5
Water hiking	<b>26,7</b>	0	4,7	2,0	21,4	0,3	1,0	3,9

**Table 3** (continued)

Activity/area	Prácheňsko	Písecko-Blatensko	Šumavsko	Podkletí	Lipensko	Českobudějovicko-Hlubocko	Třeboňsko	Krumlovsko
Other activities and attractions	1,6	6,1	<b>33,8</b>	<b>24,9</b>	14,7	16,9	9,5	17,3
Swimming, water sports	16,6	0,3	6,4	0	2,0	7,5	2,7	0
Other sports	4,9	4,0	9,1	1,7	13,4	3,6	10,1	2,4
Boat trip	1,0	4,4	1,4	0,3	4,0	5,5	2,7	3,9
Fishing	0,7	3,7	1,4	1,0	1,0	0,3	<b>14,5</b>	1,6
Social life and entertainment	9,4	5,4	9,8	2,7	<b>35,8</b>	8,8	14,2	<b>22,0</b>
Shopping	2,3	2,7	0	2,3	0,7	11,4	0	0
Business meeting	1,0	4,4	0,3	0	1,0	4,2	5,4	7,1
Tasting local products	0	0	0,3	0	0,7	11,7	1,7	3,1
Wellness	1,3	0,7	2,4	0,7	7,0	0	<b>24,0</b>	7,9

Source: <Own processing>

Note: Relative frequencies in the table are calculated from the total number of responses (multiple choice was allowed).

The frequency structure in Tab. 3 shows the basic differences between the tourist areas of the South Bohemian Region in terms of their profile. It is possible to distinguish between areas with a more diversified structure of the offered forms of CR (Prácheňsko, Šumavsko, Lipensko, Českobudějovicko-Hlubocko, Třeboňsko and Krumlovsko) and areas with a rather one-sided focus (Písecko-Blatensko, Podkletí). There are statistically significant differences in the planned activities between the different areas ( $\chi^2=3175.651$ ;  $p=0.000$ ), which confirm our hypothesis H2. The structure of the respondents' plans in the different areas can be detected more closely using the sign test (Tab. 3). The results confirm, to some extent, the hypotheses derived from the relative frequencies above. Visitors to the tourist areas of Českobudějovicko-Hlubocko, Krumlovsko, Třeboňsko, Lipensko, Blatensko and to a lesser extent Šumavsko report statistically significantly more often (at different levels of significance) a greater number of planned activities. Písecko-Blatensko and Podkletí appear to be the areas with statistically significantly fewer possible activities. These areas can, therefore, be seen as not yet fully discovered with potential for further development of suitable activities.

**Table 4** Planned activities on-site by area

Activity	Prácheňsko	Písecko-Blatensko	Šumavsko	Podkletí	Lipensko	Českobudějovicko - Hlubocko	Třeboňsko	Krumlovsko
Visiting historical monuments	o	+++	--	+++	++	+++	--	+++
Visiting cultural events	+++	+++	+	--	+++	+++	o	+++
Visiting sporting events	+++	-	+++	--	+++	o	++	o
Visiting an exhibition/fair	-	o	o	--	o	+++	+++	+
Visiting relatives/acquaintances	++	++	o	--	++	+++	+++	++
Stay in the countryside	+++	--	+++	+++	+++	+	o	--
Cycling	+++	-	+++	-	+	++	+++	o
Hiking	+++	-	+++	+++	+++	+++	+	o
Boating tourism	+++	---	o	-	+++	--	--	o
Other attractions and attractions	---	o	+++	+++	+++	+++	o	+++
Swimming, water sports	+++	-	+++	--	o	+++	o	-
Other sports	o	o	+++	-	+++	o	+++	o
Boat trip	o	+++	o	-	+++	+++	+	+
Fishing	o	++	o	o	o	-	+++	o
Social life and entertainment	+	o	+	--	+++	o	+++	+++
Shopping	o	+	-	o	o	+++	-	o
Business meeting/negotiation/conference	o	+++	-	-	o	+++	+++	+++
Tasting of local products	-	-	o	-	o	+++	o	+
Wellness activities and health care	-	-	o	-	+++	--	+++	++

Source: <Own processing>

Tourist profile and satisfaction variability within particular tourist areas of the destination South Bohemia. In the search for an answer to the question of whether to communicate individual tourist areas separately or uniformly, the whole South Bohemia region can also help to perform a multivariate statistical analysis of the data, where the analysis included a set of answers to questions related to the respondents' stay in the area and a number of questions to determine satisfaction with this stay, in addition to a set of identifying variables of individual respondents.

We are trying to find out whether the respondents' profiles, plans, expectations and opinions differ by tourist area. To this end, a categorical principal components analysis (CATPCA) identified seven sub-components (Tab. 5). Thus, the original 52 elementary variables were reduced to the aforementioned seven, which explain 45.8% of the total variability of the population.

**Table 5** CATPCA Components

Component	% of variability
1	12,1
2	9,9
3	7,5
4	5,1
5	4,2
6	3,8
7	3,2
Total	45,8

Source: <Own processing>

Tab. 6 contains the component loadings. It shows that the first component is populated by responses to the question: "What activities do you do or plan to do during your stay at this location?" Here, respondents selected the activities they intended to engage in while on vacation. Component 1 was therefore named "activities". Component 2 comprised questions in which respondents rated the offer of the holiday location - it was titled "offer of the location". The third component was labelled "stay" as it is most saturated by the variables reason for visit, with whom the respondent came, length of stay, type of accommodation and satisfaction with the accommodation. "Practical aspects" is then the label for the fourth component, which is mainly saturated by the variables "satisfaction with catering", transport, parking, tourist signs and cycle paths, as well as the respondents' opinion on the attitude of the local people. Component 5 received the working label "services" for the reason that it is mostly saturated by variables describing the quality of services and activities in the place (TIC, electronic services, museums and open-air museums, cultural events, opportunities for active sports - Q27c-g). The sixth component was given the working label "respondent" because it is mostly saturated by individual characteristics of respondents and finally the last, seventh component (saturated by variables Q2, Q5 and Q31) was labelled "frequency of stay".

**Table 6** CATPCA – component loads

	Activities	Satisfaction with the offer within the location	Basic characteristics of the stay	Practical aspects	Satisfaction with services	Respondent	Frequency of stay
Where are you from?	0,005	-0,009	0,155	0,045	-0,097	0,128	<b>0,794</b>
How many times have you visited this place in the past?	0,025	0,084	0,246	0,084	0,095	-0,025	<b>-0,690</b>
What is the main reason for your visit to this place?	-0,026	0,152	<b>-0,624</b>	0,027	0,074	0,004	0,226

**Table 6** (continued)

	Activities	Satisfaction with the offer within the location	Basic characteristics of the stay	Practical aspects	Satisfaction with services	Respondent	Frequency of stay
Who did you come with?	0,038	-0,040	<b>0,333</b>	-0,035	-0,134	-0,273	-0,069
How many days are you planning to spend in this place?	0,054	0,027	<b>0,803</b>	0,063	0,199	0,047	0,068
Where are you staying in this place?	-0,039	-0,038	<b>-0,690</b>	-0,020	-0,300	-0,055	-0,272
Tourist monuments	<b>0,740</b>	0,162	-0,482	0,002	-0,057	-0,015	0,237
Culture	<b>0,576</b>	0,030	0,056	0,044	-0,041	-0,033	-0,014
Sport events	<b>0,533</b>	-0,026	0,033	0,002	0,015	-0,004	-0,024
Fairs	<b>0,552</b>	0,025	-0,013	-0,017	-0,033	0,012	0,063
Visit of relatives and friends	<b>0,544</b>	0,006	0,027	0,013	0,015	0,011	-0,040
Nature	<b>0,622</b>	-0,001	0,022	0,018	0,053	-0,014	-0,038
Cyclotourism	<b>0,609</b>	-0,024	0,070	-0,006	0,075	0,059	-0,025
Touristic	<b>0,597</b>	0,004	-0,059	0,024	-0,011	0,015	-0,011
Recreation by the water	<b>0,546</b>	0,007	0,103	-0,055	0,072	-0,031	-0,053
Lastr	<b>0,600</b>	0,021	-0,042	-0,020	-0,040	0,021	0,018
Swimming	<b>0,535</b>	-0,019	0,022	-0,046	0,049	-0,012	-0,028
Others	<b>0,542</b>	-0,002	0,052	0,006	0,008	-0,021	-0,016
Boat trips	<b>0,512</b>	0,010	-0,012	0,006	-0,018	0,017	0,009
Fishing	<b>0,504</b>	-0,037	0,001	0,022	-0,006	0,014	0,003
Entertainment	<b>0,585</b>	0,025	0,175	0,061	-0,015	-0,072	-0,036
Shopping	<b>0,510</b>	0,008	-0,057	-0,003	-0,002	-0,030	0,005
Work	<b>0,509</b>	-0,029	0,004	0,002	-0,006	0,003	-0,002
Product tasting	<b>0,513</b>	0,021	-0,023	-0,012	-0,028	0,000	0,052
Wellness	<b>0,519</b>	-0,028	0,075	0,022	-0,014	0,002	0,034
Catering	-0,008	0,012	0,058	<b>0,587</b>	0,151	0,009	0,075
Accommodation	0,031	0,085	<b>0,730</b>	0,038	0,324	0,002	0,121
Tic	0,001	0,080	0,271	0,290	<b>0,529</b>	0,001	0,045
Electronic services	0,023	0,178	0,234	0,148	<b>0,455</b>	-0,098	0,126
Museums and open-air museums	0,007	0,191	-0,074	0,111	<b>0,701</b>	0,039	-0,012
Cultural events	0,007	0,096	-0,080	0,111	<b>0,761</b>	-0,020	-0,121
Opportunities for active sports	-0,002	0,069	0,041	0,206	<b>0,675</b>	-0,019	-0,204
Transport in general	0,014	0,092	-0,057	<b>0,669</b>	0,084	0,024	-0,005
Parking	0,001	0,094	-0,108	<b>0,589</b>	0,097	0,064	-0,187
Tourist signs, orienteering system	0,009	0,099	0,038	<b>0,531</b>	0,242	0,040	0,057
Cycle paths	0,000	0,047	0,011	<b>0,513</b>	0,440	0,005	-0,103

**Table 6** (continued)

	Activities	Satisfaction with the offer within the location	Basic characteristics of the stay	Practical aspects	Satisfaction with services	Respondent	Frequency of stay
Language skills of the local population	0,011	0,080	0,280	0,385	0,120	-0,043	<b>0,457</b>
Accessibility of the local population	0,008	0,042	0,163	<b>0,697</b>	-0,001	-0,068	0,063
Many cultural and natural sights, etc. Attractions	0,000	<b>0,876</b>	-0,007	0,022	0,108	-0,004	-0,018
Information on cultural and natural attractions	-0,001	<b>0,895</b>	-0,019	0,055	0,083	-0,013	-0,027
Condition of cultural and natural sites	0,000	<b>0,889</b>	-0,023	0,077	0,115	-0,024	-0,012
Price of tickets	0,000	<b>0,805</b>	-0,030	0,027	0,159	0,004	-0,023
Overall atmosphere	0,003	<b>0,759</b>	-0,005	0,062	0,074	-0,018	-0,023
Price level in the place	0,028	0,011	<b>0,403</b>	0,214	-0,273	-0,044	-0,288
Are you thinking about visiting this place again?	-0,001	-0,102	-0,022	<b>0,337</b>	-0,204	-0,025	0,362
Overall satisfaction with your stay	-0,002	-0,100	0,139	<b>0,688</b>	0,045	-0,005	0,060
Gender	<b>0,325</b>	0,000	-0,018	-0,003	0,001	-0,001	-0,001
Age	-0,012	-0,029	-0,083	0,026	-0,009	<b>0,907</b>	0,038
Education	0,020	-0,012	0,142	-0,031	-0,052	<b>0,676</b>	0,019
Social status	0,016	0,026	0,080	-0,040	0,019	<b>-0,836</b>	-0,034
Income	<b>0,325</b>	0,000	-0,019	-0,004	-0,001	0,010	0,007
Area	0,036	-0,061	<b>0,770</b>	0,192	-0,305	-0,010	-0,005
Object Principal Normalization.							

a. Rotation Method: Varimax with Kaiser Normalization.

Source: <Own processing>

The individual tourist areas of South Bohemia differ statistically significantly from each other not only in the reason for visiting, but also in the activities planned by the respondents. Do they also differ from each other in other characteristics and aspects of the visit that were asked about (satisfaction, personal characteristics, frequency of visit, etc.)? If so, it is certainly worthwhile to communicate each tourist area individually, taking into account its specificities and potential for tourism development. This can be determined by comparing tourist areas for each variable (and in most cases confirmed and discussed above on the cases of the variables "reason for visit" and the set of questions identifying "planned activities in the area") or we can use the components obtained above for reasons of economy.

The Kruskal-Wallis test (including pairwise comparisons) was chosen to compare the areas and the results confirmed significant differences in component values between tourist areas (Tab. 7).

**Table 7** CATPCA – differences in planned activities among the tourist areas

Component	Kruskal-Wallis H	df	p-value
Activities	369,290	7	<0,001
Offer of place	247,831	7	<0,001
Stay	1447,566	7	0,000
Practical aspects	656,595	7	<0,001
Services	707,856	7	<0,001
Respondent	180,123	7	<0,001
Frequency of stay	129,612	7	<0,001

Source: <Own processing>

The differences between the tourist areas in the planned activities have been described above. Due to the fact that the activity component is saturated with a set of planned activity questions, we will not pursue it further here.

If we look in more detail at the differences in respondents' answers to questions relating to the supply of sites and services (Q35) by tourist area (**second component**), the following can be noted:

- Visitors to the Prácheňsko region were statistically significantly more likely to be definitely or at least partially satisfied ( $\alpha=0.001$ ) with the number of cultural and natural sights and other attractions (but they were also more likely to express dissatisfaction, which may be related to the focus of tourist destinations on the segment of families with children, while the offer of destinations for other segments is rather below average), Písecko-Blatsko, Podkletí, Krumlovsko and Českobudějovicko-Hlubocko ( $\alpha=0.01$ ). Visitors to the Třeboňsko region were significantly more likely to have a neutral attitude ( $\alpha=0.001$ ). Visitors to the Šumavsko region were statistically significantly more likely to select the category "don't know/can't judge" ( $\alpha=0.001$ ), as were visitors to the Třeboňsko region ( $\alpha=0.01$ ). In the case of the Třeboňsko region, this is an unexpected value, as the area is considered culturally valuable (Kubíčková, 2020)
- Visitors to Písecko-Blatensko, Českobudějovicko-Hlubocko and Krumlovsko regions were significantly more likely to be definitely satisfied or partially satisfied ( $\alpha=0.001$ ) with the available information about cultural and natural attractions. Visitors to Lipensko, Podkleti and Třeboňsko significantly more often ( $\alpha=0.001$ ) declared a neutral attitude and visitors to Šumavsko were unable to judge ( $\alpha=0.001$ ). Statistically, more often dissatisfied (either partially or definitely) were guests of Prácheňsko ( $\alpha=0.05$ ), which may be related to

the low sophistication of information systems, related to the low number of attractions, but also accommodation and catering options. Regarding the condition of cultural and natural attractions, visitors to Českobudějovicko-Hlubocko and Prácheňsko were definitely or partially satisfied ( $\alpha=0.001$ ) with their condition (but they were also significantly more likely to express a definite dissatisfaction at the same level of significance), as well as Podkletí ( $\alpha=0.01$ ) and Krumlovsko ( $\alpha=0.05$ ). This may be due to the different status of cultural heritage and related services. Partial dissatisfaction ( $\alpha=0.05$ ) was expressed significantly more often by guests from Písecko-Blatensko and Třeboňsko. A neutral attitude was more often expressed by visitors to Lipensko (which may be influenced by the area's focus on other (especially sporting) activities and limited offer of cultural attractions) and Třeboňsko ( $\alpha=0.01$ ), while guests of Šumavsko were significantly more likely to be unable to assess

- Visitors were also asked about their opinion on the price of tickets. Visitors to Prácheňsko, Písecko-Blatensko, Podkletí and Českobudějovicko-Hlubocko were definitely or partially satisfied with the prices ( $\alpha=0.001$ ). On the contrary, partial dissatisfaction was expressed by guests of Lipensko ( $\alpha=0.001$ ); this may be influenced by the type of activities operated in the area. Visitors to the Krumlovsko region were more likely to be both partially and strongly dissatisfied ( $\alpha=0.001$ ); this may be due to the higher price level of the area, according to the TSA Czech Republic). Visitors to Třeboňsko region were more likely to have a neutral attitude ( $\alpha=0.001$ ).

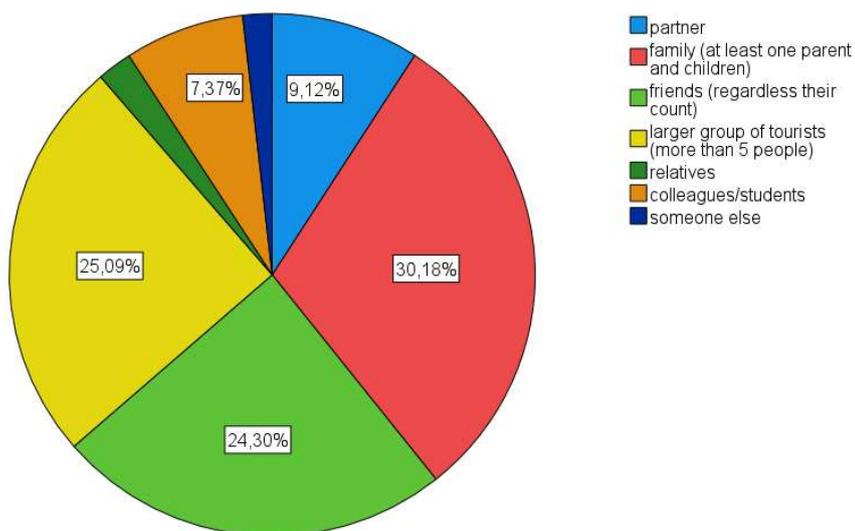
- Visitors to Šumavsko, Českobudějovicko-Hlubocko ( $\alpha=0.001$ ), Písecko-Blatensko ( $\alpha=0.01$ ) and Prácheňsko ( $\alpha=0.05$ ) were significantly more likely to be definitely satisfied with the overall atmosphere of the place, while visitors to Podkletí ( $\alpha=0.001$ ) and Lipensko ( $\alpha=0.01$ ) were partially satisfied. However, visitors to Prácheňsko were also significantly more likely to declare strong dissatisfaction with the overall atmosphere of the place of stay ( $\alpha=0.001$ ), while visitors to Krumlovsko were significantly more likely to declare partial dissatisfaction ( $\alpha=0.001$ ). Guests in Třeboňsko were significantly more likely to either be unable to judge or to express a neutral attitude ( $\alpha=0.001$ ). Our hypothesis H3 is confirmed.

### **Differences in the profile of tourists visiting particular tourist areas**

The above presented analysis brought important and significant results that allowed us to assess the fourth hypothesis. More precisely, the analysis of the third and fourth component confirms our hypothesis H4. As mentioned above, the third component, operationally labelled

"stay" is mostly populated by the variables reason for visit, with whom the respondent came, length of stay, (accommodation) and satisfaction with accommodation. The reason for the visit has already been discussed (see Tab. 2 and the corresponding commentary). The structure of the answers to the question with whom the respondents came is shown for the whole sample in Fig. 5. Statistically significant differences were then found between the different domains ( $\chi^2=555.398$ ;  $p<0.001$ ).

**Figure 5** Structure of visitor groups for the whole selection



Source: <Own processing>

While, for example, visitors to the Prácheňsko region were statistically significantly more likely to come alone or with friends ( $\alpha=0.001$ ), visitors to the Písecko-Blatensko region ( $\alpha=0.05$ ) and the Šumavsko, Třeboňsko ( $\alpha=0.001$ ) or Krumlovsko regions ( $\alpha=0.01$ ) were significantly more likely to come with a partner. Podkletí ( $\alpha=0.001$ ), Šumavsko ( $\alpha=0.01$ ) or Písecko-Blatensko ( $\alpha=0.05$ ) are more often declared as family holiday areas. Lipensko is more often visited by people with friends ( $\alpha=0.001$ ) or relatives ( $\alpha=0.001$ ). Třeboňsko region is also more often visited by people alone or with colleagues/students ( $\alpha=0.001$ ).

Also the differences in the planned length of stay between the individual regions of South Bohemia are interesting ( $\chi^2=939.460$ ;  $p<0.001$ ). Písecko-Blatensko, Podkletí, Českobudějovicko-Hlubocko ( $\alpha=0.001$ ) and partly Šumavsko ( $\alpha=0.05$ ) were declared more often as an area for day trips. Prácheňsko, Lipensko and Krumlovsko were more often with a length of stay of 2 - 3 days ( $\alpha=0.001$ ). Longer stays (4 - 7 days or more than a week) were more often reported by respondents in Prácheňsko and Třeboňsko ( $\alpha=0.001$ ).

If we examine the structure of respondents by age and region, then Písecko-Blatensko and Podkletí were visited more often by people with primary education ( $\alpha=0.01$ ), similarly to

Českobudějovicko-Hlubocko ( $\alpha=0.05$ ). Respondents with secondary education were significantly more frequent in the Písecko-Blatensko and Lipensko regions ( $\alpha=0.05$ ) and respondents with higher education in the Krumlovsko region ( $\alpha=0.001$ ), the Českobudějovicko-Hlubocko region ( $\alpha=0.01$ ) and the Třeboňsko and Šumavsko region ( $\alpha=0.05$ ).

The structure of respondents according to socio-economic status is as follows: among the respondents from Prácheňsko ( $\alpha=0.001$ ) and Písecko-Blatensko ( $\alpha=0.05$ ), students are significantly more frequent; in the case of Písecko-Blatensko and Třeboňsko ( $\alpha=0.05$ ), also pensioners; in the case of Pod Kletí, women on maternity/parental leave and unemployed or housewives ( $\alpha=0.05$ ). Respondents from the Lipensko region are more often represented by self-employed persons ( $\alpha=0.05$ ).

The last component "**frequency of residence**" is mainly saturated by variables Q2 (Where are you from?), Q5 (How many times have you visited this place in the past?) and Q31 (How satisfied are you with the language skills of the local residents?). The results of the chi-square test of independence are presented in Tab. 8.

**Table 8** Frequency of stay by region

Variable	$\chi^2$	df	p-value
Q2: Where are you from?	329,772	35	<0,001
Q5: How many times have you visited this place in the past?	242,512	35	<0,001
Q31: Satisfaction with the language skills of the locals	1022,035	35	<0,001

Source: <Own processing>

Prácheňsko and Podkletí are visited significantly more often by people from South Bohemia ( $\alpha=0.001$ ), Šumavsko and Lipensko ( $\alpha=0.001$ ), Krumlovsko ( $\alpha=0.00$ ) by people from other regions of the Czech Republic and Českobudějovicko-Hlubocko, Třeboňsko ( $\alpha=0.001$ ) and Krumlovsko ( $\alpha=0.05$ ) by foreign tourists.

Visitors to Písecko-Blatensko, Šumavsko, Českobudějovicko-Hlubocko ( $\alpha=0.001$ ) and Podkletí were significantly more likely to report that they were visiting the area for the first time. Visitors to the Lipensko region were significantly more likely to report more than three (irregular) visits, and visitors to the Prácheň region were more likely to report regular visits for many years.

## DISCUSSION AND CONCLUSIONS

Recreation and vacation, i. e. motives related to well-being, were cited as the most common reasons for visiting, which is to be expected (e.g. Csikszentmihalyi & Coffey, 2016; Pearce,

2011; Hsu & Huang SongShan, 2008; Ricci & Holland, 1992). The most frequently mentioned activity is visiting sites, which is also a common occurrence (e.g. Chin et al., 2021; Dahiya & Batra, 2016; Ross & Iso-Ahola, 1991).

Motivations for visiting were further analyzed by tourist area. The research results confirmed the assumption that there is a significant difference in the motivation for travel between the different tourist areas of South Bohemia. This aspect may be reflected in different communication messages. According to Fig. 4, it can be concluded that the reasons for visiting each area are different, and thus it is not possible to communicate the researched area with the same content. For marketing communication, it is important to perceive the differences of the areas and to choose communication topics according to the identified focus of the area. Communication themes related to cultural and natural attractions may be typical for the regions of Písecko-Blatensko, Podkletí, Krumlovsko and Českobudějovicko-Hlubocko, whereas this theme is not suitable for the Prácheňsko and Lipensko regions according to the research results. The area of sports and recreation is the main priority of Lipensko, and this area should be communicated in this way.

The composition of visitors to the different areas of the South Bohemian Region also differs significantly, and therefore it is also important to attach importance to travel motives. Motives of individual recreation may, according to the research, play a role in the Prácheňsko region, whereas motives of recreation of families with children are not typical for this region. This may be due to the problematic and spotty infrastructure, which is not at a very developed level, and the lack of attractions in the field of sports, culture, water areas and the lack of sports facilities. Podkletí, Šumavsko and Písecko-Blatensko can be communicated as areas for families with children. The regions are united by little disturbed nature and 'sustainable' products often linked to nature, crafts, and exploring the culture of the area. Sport is then an important travel motive for visitors to Lipensko and also to Šumavsko.

In order to understand the differences between tourist areas, multivariate statistical analysis with many input variables was chosen. The principal component method reduced the variables to seven components, which again revealed significant differences between the tourist areas. In addition to the dependence on the above activities, satisfaction with the tourist area's offer was also examined as the quality of particular attributes is very often presented to strengthen the attractiveness in the communication messages of destination organizations and service providers themselves. Satisfaction with the offer is also the basis for client reviews and word-of-mouth (WOM) or even E-WOM (Javed, Tučková, & Jibril, A. B., 2020; Wang, Tran, &

Tran, 2017; Abubakar & Mavondo, 2014), which is why offer evaluation became part of this study.

The Prácheňsko tourist area is often mentioned as negatively rated in terms of the number of sights, and provision of information about tourist destinations. On the contrary, a positive evaluation is declared in the area of price friendliness. It is also interesting to note the statistically different evaluation of the atmosphere of the place (approximately the same number of respondents evaluate very positively and the same number of respondents very negatively). This fragmentation can cause complications when developing a communication strategy and institutions and businesses have to segment significantly to ensure that the message is adequate to the needs of the segment. The Českobudějovicko - Hlubocko region scores well in all the criteria evaluated. Therefore, it has a wide range of possibilities in positive campaigns and reminder advertising in relation to product evaluation. The sub-county was rated highly in the area of the condition of monuments, price friendliness and the atmosphere of the region, which can be supporting themes for communication. In the case of the Lipensko tourist region, the evaluation is rather neutral or the respondents could not decide. In this case, we recommend to set the communication more on natural attractions and developing artificial sports and recreational elements. The price level is mentioned as a negative in this case, this topic of communication is not attractive for the area. The well-known Bohemian-Kromlov region is mentioned in positive connotations in the case of the number of monuments, the provision of information and the condition of the monuments. These could be the main themes for communication, on the contrary, the area of price friendliness and, surprisingly, the atmosphere of the region were negatively evaluated. In this case, the phenomenon of overcrowding may be at work, and it is therefore important to create and communicate products that will draw visitors away from congested parts of the region. The Šumavsko region is assessed rather neutrally, but the atmosphere of the place is assessed very positively, which hides the potential for creating communication messages. Písecko-Blatensko is negatively evaluated only in the criterion of the condition of monuments, otherwise the evaluations are positive. For marketing communication, it is advisable to select maintained and repaired monuments or, on the contrary, to show authentic monuments in their original state in the messages, but referring to their original appearance, which can be a motivating factor for a certain segment of visitors. In the case of the Bohemian Canada, the Třeboňsko region and the Novohradsko-Doudlebsko region, there is no statistically demonstrable inclination towards one of the options, or neutral evaluations are often used.

The issue of the visitor group can also be considered as a topic for marketing communication of a tourist region. People-characters often figure in communication materials. In the case of preparing communication materials, it is useful to know for which segment the material is being prepared, and knowing the demographics of the criteria can help. In the case of the Prácheňsko region, it is often individual tourism, whereas Písecko-Blatensko, Šumavsko, Třeboňsko and Krumlovsko are areas where couple visits dominate. The Podkletí region is declared as an area for family recreation and the Lipensko region is an area dominated by visits of families with children and groups of friends. For the development of materials and communication campaigns, it is also interesting to know the composition of participants in terms of length of stay. According to the responses, the areas for day trips are Písecko-Blatensko, the Podkletí region of Českobudějovicko-Hlubocko and partly Šumavsko (although in this case, the participants often state that they came to the mountains for one day and use accommodation in another tourist region of the South Bohemian Region). According to the research results, the areas for short stays of up to three days are Krumlovsko and Lipensko. Significantly longer stays (up to seven days) were found in the Prácheňsko and Třeboňsko tourist regions.

For effective marketing communication, it is also important to target correctly according to the location of potential tourism participants. The tourist area of Prácheňsko and Podkletí is visited by citizens of the South Bohemia Region, Šumavsko, Lipensko and Krumlovsko by participants from other regions of the Czech Republic and Českobudějovicko-Hlubocko, Krumlovsko and Lipensko by foreign visitors. This finding may be interesting for the selection of the medium and its geographical destination.

The research question can be answered thanks to research on a large number of respondents, statistical processing of the collected data and their interpretation and confirmation of the hypotheses: Is it appropriate to define the marketing communication of tourist destination under a common destination management or does the situation require modified or differentiated marketing communication for particular tourist areas?" The research shows that visitors perceive individual areas in a unique way and the attractions and activities in the area often determine the segment of potential visitors. The motivations and plans of tourists to the respective tourist areas are different and so is the profile of tourists. Communications to these visitors should respect their segment determined by many segmentation criteria, often specific to tourism, then.

### **Theoretical implications**

The profile of the respondents including their plans, expectations, etc. differs significantly from one tourist area to another. Significant researched criteria are the frequency of cultural and natural attractions, availability of information about the product offer, the state of cultural heritage, the price of tickets to attractions and the atmosphere of the place. Locally differentiated offerings in destinations are mentioned by Dwyer, Edwards, Mistilis, Roman and Scott (2009), or Marrocu and Paci (2013), among others, and observed in Italy (Cracolici and Nijkamp, 2009) but also manifesting one change in China (Wang, Niu, & Qian, 2018).

Geographically smaller units differ significantly in the studied location in terms of tourism infrastructure requirements, similar to what Constantin and Reveiu (2018) report for the hotel industry in Romania, and it is expedient to present them in a way that, although they can form a single unit, the information presented must differ according to the segment of participants.

The research has shown that studied tourist areas in the territory differ in the typical activities planned by the visitors. The creation of communication messages can be linked to these activities. Messages that correspond to the visitor segment, can be better perceived by the visitor (Dušek, 2010, Fuller, Hanlan, & Wilde, 2005; Leisen, 2001)

In the case of marketing communication of regions or tourist areas, it is necessary not to examine them by common segmentation criteria (e.g. demographic or cultural). Research should look at other criteria typical for tourism participants (purpose of travel, frequency of stay, structure of participant groups), such as satisfaction with products and perception (Navrátil et al., 2011) of the tourist area. A well-executed segmentation is the basis for developing an effective advertising strategy (Lacina, 2013, or Palatková, 2013), DMOs may be missing the mark because of no segmentation or wrong segmentation (Tkaczynski, & Rundle-Thiele, 2019). Agile destination marketing can bring new perspectives and more efficiency to the marketing communication and marketing actions using new approaches and more recent tools (Au-Yeung, Tung, & Tsz Tse, 2024).

For more sophisticated marketing communications, it is not necessary to conduct primary research directly focused on communications, but it is possible to use secondary data from other research and address its implications for selecting the right communication channels and messages, as mentioned by Hanafiah and Zulkifly (2019) and their importance is also confirmed by Findlay (2006) who focuses on census statistics and its impact on development studies.

### **Managerial implications**

The respondents' profile in each tourist area varies significantly (as already mentioned earlier in the text), which should be distinguished by the communicator according to the content of

the communication. This outcome is also supported by Czech Tourism) in its manual for the creation of tourism products (Manuál, 2019), however, the Ministry of Regional Development, as the most important tourism authority in the Czech Republic, has a different long-term strategy (MMR, 2021).

Communication outputs are influenced by a number of criteria that are often overlooked at first glance by area or business marketers, but are crucial to the perception of the message. These criteria can be obtained in practice by observation and or working with client registration systems (systems in accommodation establishments, cameras in public areas, but also data from mobile operators or radar).

Not fully discovered areas show significantly different values in measurement than touristic areas (they address a different segment of clients) and for some tourism participants this can be one of the important criteria when choosing a place to stay. This finding is supported by Berendse and Roessingh (2007), among others, in a relatively remote destination, therefore, it can be concluded that the findings are also valid outside the study destination.

The criterion of previous visit can also significantly influence the communication between tourist areas and entrepreneurs. This is the use of reminder advertising, which is an effective and relatively inexpensive way (e-mailing, monitoring the social networks of the area/product provider). It is certainly necessary to work with new potential clients, but the investment in communication with existing clients is significantly lower and communication more effective. These tools can be considered modern CRM tools, which are considered important communication channels with significant development in recent years (Estêvão, Carneiro, & Teixeira, 2020).

Research has shown significant differences in the perception of tourist areas. For more effective communication, it might be useful not only to work with the aggregated area of South Bohemia but also to give more space to tourist areas and their content in some types of communication.

The research also showed differences in the visitor segment of tourist areas. The communication of these areas should be based on the specifics of the typical visitor of the area and not only the content but also the style of the message and communication should be adapted to them, which may be interesting for copywriting. This issue is also alluded to in studies dealing with marketing communication depending on the type of tourism e.g. Güzel and Ari, (2022) for the Health Tourism area, or Amin and Priansah (2019) for the Cultural Tourism area. The South Bohemian Region strives for a uniform visual style of its materials, which corresponds to current trends and efforts to present the Region in a uniform manner. However, the content of the materials could be more closely linked to the regions so that the

materials find their target group. This does not have to be printed materials, but materials for electronic and other communications.

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## **REFLECTIONS OF VIRTUAL AND AUGMENTED REALITY APPLICATIONS ON CULINARY SCIENCE**

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### **Abstract**

Virtual reality (VR) and augmented reality (AR) technologies, successfully applied in various fields such as the game and advertising sector for a long time, have also been reflected in the gastronomy field in recent years. Today, some food and beverage businesses claim that they can provide their customers with extraordinary experiences by integrating VR and AR technologies into the gastronomy field. These experiences not only lead customers to have different eating experiences but also allow the perceived flavour of the food to be manipulated to increase the preferability of healthy foods, which many consider unpalatable. VR and AR technologies may also be used for training chef candidates or food and beverage business personnel. This review aims to examine the current uses of VR and AR in culinary science in an inclusive way and to emphasize their potential to shape the gastronomy sector in the future. For this purpose, in this study, the existing literature on the reflections and potential use of VR and AR on gastronomy was examined in depth. Based on the results of this examination, it was concluded that although it can be said that the use of VR and AR technologies in gastronomy has the potential to provide various benefits, these technologies need to be further adapted to better suit gastronomy.

Keywords: Gastronomy, Virtual reality, Augmented reality, Flavour perception, Multisensory experience

### **INTRODUCTION**

Today, food and beverage businesses are under pressure to maintain their existence and achieve success due to globalization and increasing competition. As a result of this pressure, the reflections of digitalization in the field of gastronomy have become more visible in recent years. In particular, the widespread use of smartphones and social media encouraged manufacturers to establish effective ties with consumers and to highlight their own businesses. In this context, Virtual Reality (VR) and Augmented Reality (AR) technologies stand out in terms of their ease of application and their potential to meet consumer expectations (Penco et al., 2021).

Due to the continuous advances in core enabling technologies and the conflicting meanings of virtual and reality, the term VR is extremely difficult to define and there is no single definition in the literature (Crofton et al., 2019). However, in general, it can be said that VR is

a simulation that enables objects using three-dimensional (3D) virtual environments and different technological equipment and the person using this equipment to interact with the virtual environment (Pan et al., 2006). This interaction also allows the person to intervene and change objects in the virtual environment. According to Lin & Woldegiorgis (2015), a successful VR experience occurs when the user accepts that virtual environments and images can replace real objects and environments. Nevertheless, VR applications also enable the creation of imaginary environments with different futures than the world leading to the success of VR experiences depending on high levels of immersion and the user's sense of presence in the virtual environment (Bowman & McMahon, 2007).

AR encompasses a set of technologies that basically try to integrate digital with reality (Berryman, 2012), and can be defined as changing aspects of the physical environment that can be achieved by adding digitally prepared materials to the real environment. AR describes a person's reality as "augmented" because digital content adds different perspectives and factors to the situation or environment that the person using this device is directly observing (Varnum, 2019). In addition to combining real and virtual information, a true AR system must operate in real-time and seamlessly harmonize the natural world and virtual objects (Crofton et al., 2019). The fact that the environment or object perceived with AR applications is more usable or "augmented" and the use of these applications with AR programs that require touch or interaction makes continuous innovations possible (Yuen et al., 2011; Zhang et al., 2014; Jang et al., 2022). Projecting images of physical and artificial environments where AR applications are used can be achieved in three basic ways: "Head-worn displays" are systems where images can be observed by placing them on the head and are also used in VR applications. "Handheld displays" consist of small panels containing a video-guided camera. In "projection displays", which are based on the direct projection of the desired virtual information on the physical objects to be augmented, a single projector mounted in the room without the need for special glasses is used (Azuma et al., 2001).

Even though the concepts and applications of VR and AR are often confused, they show various differences due to specific application areas. Although both applications have evolved interface systems to display digital information, there are fundamental differences in the type of computing systems required to experience them. AR is built on physical reality, while VR presents digitally created or simulated environments and objects (Catapan et al., 2023). AR superimposes digital information in a real environment instead of completely replacing it, and considering this aspect, it is possible to distinguish it from VR (Crofton et al., 2019). Due to the various advantages, it provides, Mixed Reality (MR), which has seen increased usage in

recent years and is not always distinctly separated from AR and can be considered synonymous with AR by many researchers, can be said to be a hybrid of AR and VR (Morimoto et al., 2022). Because MR is the result of blending virtual computer graphic objects with a real 3D scene or incorporating physical world elements into a digital environment (Pan et al., 2006; Holz et al., 2011). MR stands out because it alleviates the limitations of VR, such as excluding the physical world environment and the inability of AR to interact with 3D data packets (Sakai et al., 2020).

VR and AR technologies are used effectively in many areas such as the gaming, cinema, marketing, and simulation sciences (Guo et al., 2021; Khosasih & Herumurti, 2021; Kirakosian et al., 2021; Nguyen et al., 2021). One of the most used examples of these applications today is the advertisements of football matches broadcast on television and the rule lines that are not physically visible on the field (Varnum, 2019). However, the fact that these technologies create a world of possibilities for transforming the real world and how people interact with it provides an opportunity for the food industry to gain a competitive advantage by leveraging these digital tools (Crofton et al., 2019). As a matter of fact, examples of this have been encountered in the world of gastronomy in recent years. Based on these examples and the potential of these technologies, it is thought that these technologies can significantly increase the eating experience of consumers (Solmaz & Pekerşen, 2022).

Although there are various reviews in the literature examining the use of VR and AR in tourism (Yung & Khoo-Lattimore, 2017; Wei, 2019; Omran et al., 2024) and food science (Chai et al., 2022; Bhavadharini et al., 2023; Liberty et al., 2024), there are very few review studies examining the use of these technologies in gastronomy (Çöl et al., 2023). It is thought that this study will contribute to the literature by reviewing the use of VR and AR in gastronomy and culinary science, especially in terms of their potential to increase flavour perception. The focus of this study is to examine the current applications of VR and AR technologies in gastronomy and culinary science and to reveal the potential benefits that may arise from the further integration of these technologies into the field of gastronomy.

## **METHODOLOGY**

This review aims to reveal the current reflections of VR and AR technologies on gastronomy and culinary science and their potential future usage areas by examining the literature on VR and AR technologies and the sector applications of these technologies. To achieve this purpose, a literature review was conducted based on the keywords “AR in Gastronomy”, “VR

in Gastronomy” and “MR in Gastronomy”. In this context, prominent journal articles, book chapters, and congress/conference proceedings were examined in depth using databases such as Web of Science, Science Direct, Scopus, EBSCO and Google Scholar. In addition, food and beverage businesses that use VR and AR technologies in practice were also examined. In this regard, the areas of use of VR and AR technologies in gastronomy have been evaluated to cover various aspects such as flavour perception modification, training, and marketing activities.

## **VR AND AR IN GASTRONOMY**

VR and AR applications can be examined in different categories in the field of gastronomy. VR needs an artificial environment, individual headsets, and special devices to show the person a pre-built virtual environment (Arnaldi et al., 2018). Therefore, it can be said that it is more difficult to adapt VR applications to eating activities in the food industry. Additionally, developing VR applications is more difficult as it requires technical expertise. AR and MR are expected to be used more widely in the field of gastronomy than VR applications due to reasons such as being relatively cheap and users being able to access these applications even from their own mobile devices (Cevikbas et al., 2023). It's also worth noting that current VR applications restrict social activity while eating. The wide application options of AR allow this technology to be adapted to many techniques in gastronomy and this has caused AR to be used more in the field of gastronomy recently (Chai et al., 2022). In addition, there is a study (Ali, 2022) conducted to create a measurement scale according to the experience development of AR applications in restaurants and to use them in future applications. Nevertheless, the advantages and disadvantages of VR and AR technologies against each other in terms of suitability for use in gastronomy need to be revealed through different experimental studies.

### **Manipulation of flavour perception with VR and AR**

Today, while people are looking for different experiences, some restaurants are trying to maximize the perceived flavour and differentiate from other classic restaurants (Natrah-Jamaludin & Nik-Hashim, 2024).

The human oral cavity contains nearly 5,000 taste buds that allow the perception of the tastes of foods. However, each person has a different number of taste buds, making it difficult to generalize the tasting activity evaluated (Briand & Salles, 2016). In addition, psychophysical measurements show the difference in taste sensitivity in taste buds, which also varies with people's suprathreshold gustatory stimuli (Spence, 2022). Although some

researchers suggest that the taste perception of foods originates only from the tongue, results have been obtained in recent years that reveal that there are different stimuli that can change taste perception (Spence, 2015). When multisensory taste is examined, taste usually consists of visual, auditory, olfactory, and textural cues. These cues can be replaced with different technological developments to enhance the gastronomic experience (Velasco et al., 2018).

It has been widely shown that visual difference in food affects perceived taste, and not only the appearance of a food ingredient or the food itself but also the environment is another determinant of perceived taste and experience for consumers (Hoegg & Alba, 2007; Okajima & Spence, 2011). Taste perception can also be increased by changing the lighting conditions of the environment where the food is eaten. Although it is generally thought that dim lighting is more successful than bright light in terms of food intake and taste perception, more research is needed on this phenomenon (Bschaden et al., 2020). Based on this, it can be said that the colour and degree of illumination of the VR and AR environment can change the perceived taste (Cornelio et al., 2022).

Emotions are another important variable related to perceived taste. For example, positive emotions can increase the perception of sweet taste and decrease the sour taste intensity. However, negative emotions can cause sourness to become more pronounced. Additionally, positive emotions can increase a person's hedonic ratings, so taste perception can be altered by the manipulation of emotions (Noel & Dando, 2015). A person's posture can also change their sense of taste. When sitting and standing postures were compared, it was found that sitting posture was more appreciated than standing in the person's sense of taste (Biswas et al., 2019). According to Itoh et al. (2022), observing different environments, watching videos, and/or smelling aromas not only affects the person's perception of taste but also can change the stress level. While stress can result in a decrease in sweet taste perception and a heightened perception of sour taste, low stress enhances the perception of saltiness and sweetness while diminishing the intensity of sour taste (Noel & Dando, 2015). However, the response of stressed individuals to taste stimuli, including different ethnic and sociocultural groups, needs to be elucidated with neuroimaging (such as functional magnetic resonance imaging, fMRI) studies. But still, with the help of various simulations developed with VR and AR technologies, it can be said that the taste perception of a person who orders food can be improved by aiming to reduce the stress level by having a fun time during the waiting period until the service. Moreover, by reducing the level of stress, the perception of sweet taste, which is often closely associated with high-calorie foods (Harnischfeger & Dando, 2021), can be enhanced and thus less consumption of these foods can be achieved.

As mentioned above, taste perception is quite complex and depends on different stimuli. These stimuli can be modified for different purposes such as reducing expenditure, improving taste perception, and eating experience, reducing food intake, or managing diet. Currently, the food industry aims to develop or use new applications for different purposes such as improving the perceived experience (Spence & Piqueras-Fiszman, 2013) and reducing ecological concerns (Shin et al., 2017) and costs (Mun & Jang, 2018). In this context, with the use of VR and AR technologies by businesses, the taste perceptions of foods and thus the eating experiences of consumers can surprisingly increase with very low energy consumption. Currently, restaurants like Le Petit Chef are using AR to enhance their dining experience, increasing customer satisfaction, and creating a point of differentiation. This restaurant, for example, uses a 3D video mapping technology that allows one to watch a “little chef” (le petit chef) cook the ordered food while customers wait for their orders to be prepared. While table mapping is not a new idea, Skullmapping’s diverse storytelling ideas and concepts have allowed Le Petit Chef to serve in nearly 42 restaurants. At Le Petit Chef, using different technologies such as holograms, motion capture, 3D video mapping, and AR, the time until the service is transformed into a pleasant interim period (Batat, 2021). MoonFlower Sagaya Ginza, Art by teamLab, is another example where projection mapping is used to enhance customer satisfaction. The effects of projection mapping on flavour perception have been tested in different studies, for example, Ohyori et al. (2022) reported that colour differentiation with projection mapping can affect the taste of shaved ice perceived by consumers. In this study, red was the colour most associated with sweetness. According to the researchers, this is because the red colour is associated with strawberry flavour. It is thought that the reason why shaved ice reflected yellow colour is perceived as less sweet than other shaved ice colours is due to the association of yellow colour with lemon flavour. Probably for similar reasons, the colours yellow and green (associated with muscat flavour) were associated with more acidity than shaved ice, which reflected red and light blue (associated with soda flavour). The researchers also suggest that adding textural expressions to projected images can further alter perceived taste. At present, projection mapping technology used in restaurants can be improved with electrical muscle stimulation proposed by Niijima & Ogawa (2016), which can mimic the act of chewing through a photo-reflector to detect biting, food tissue database, and electrical stimulation segment. In addition, sound is an important indicator of the freshness/staleness and textural properties of some foods. This also can affect the perceived flavour of the food. Therefore, it seems possible to enhance customer

satisfaction with systems based on increasing the chewing sounds of foods (Endo et al., 2016; Endo et al., 2017).

### **Multisensory technologies in gastronomy**

People's perception of food and the multisensory interaction of food is so wide that it can be affected by many factors, from the chemical, biological, and physical properties of the food, to the serving utensils in which the food is served, the packaging of the food and the characteristics of the environment in which the food is consumed (Spence, 2016). When multisensory experience in gastronomy is examined, it is possible to find different initiatives of chefs. However, it can be said that the first multisensory food perception was brought to life by the Italian Futurist Filippo Tommaso Marinetti, who tried to increase the senses of the eaters with textural, olfactory, auditory, and observational interactions (Spence et al., 2013). Marinetti worked with futurist painters (Caviglioni & Alberti) at the Futurist Air Banquet in Bologna, which prompted him to write the Futurist Cookbook in 1932 (Berghaus, 2001). Later, Mattia Caselegno created Aerobanquets RMX, the first MR restaurant intended to serve as part dining, part art experience.

Today, researchers are trying to use many different AR and VR applications for different purposes in gastronomy. Although these applications and studies were created to improve the multisensory aspects of food, diet monitoring, and different eating experiences, it should be considered that future AR applications can also mimic the taste of food. Galvanic taste stimulation is a fundamental technique discovered by Sulzer in the 18th century as an aid in finding gustatory diseases among patients (Krarup, 1958). Nakamura & Miyashita (2011) used cutlery and straw that was modified with an electrical current to observe the perceived taste of the food. It has been seen that five basic taste (salty, sweet, umami, bitter, and sour) sensations can be simulated through electrical pulses and thermal modification (Ranasinghe et al., 2011; Aoyama et al., 2017).

A Virtual Cocktail system named Vocktail, designed by Ranasinghe et al. (2017), takes advantage of taste, odor, and colour to both create a virtual flavour or augmented the existing flavour of a beverage. A couple more years later, the thermally enhanced model was tested to measure the perceived virtual taste liking of plain water through the virtual taste sensation enjoyed by participants (Ranasinghe et al., 2020). Currently, new studies ensure taste recording via five different gels and taste sensors that can be reproduced through calibration. Moreover, prototypes can be adapted to different tastes according to consumer preferences (Miyashita, 2020). While studies and experiments were concerned with the position of the

electrodes and the effect on the mouth, Nakamura et al. (2021) developed a galvanic taste stimulation system that could be placed outside the mouth that could minimize the negative impact on the eating and drinking experience. When the aforementioned studies are examined, it is seen that sugar-free and salt-free foods with high nutritional value can be consumed with a flavour similar to other foods. It is also possible to enhance the perceived taste of the duplicated flavour with other AR applications (such as olfactory, textural, visual, and audio).

Taste perception and hedonic responses are affected by the environment in which food is consumed. It is possible to bring the environment where the food is consumed to a more comfortable level by changing it with different VR environments according to the customer's preference. In a study (Torricco et al., 2021) in which two different chocolate samples were sensorially tested in two VR environments and in a traditional tasting cabinet, it was determined that the created VR environments affected the participants' perception of sweetness and emotional responses. In another study (Stelick et al., 2018), in which panellists were asked to evaluate cheese samples in three different virtual environments, it was observed that the environment in which the food was eaten affected the perceived flavour of the food. According to the researchers, every meal can be eaten in the same place but in different virtual environments created to maximize the dining experience. Crowded conditions in restaurants can affect customer satisfaction and stress customers when it comes to personal privacy. VR applications can also help customers reduce crowd-induced stress (Hwang et al., 2012).

Ultraviolet is a multisensory restaurant developed by Chef Paul Pairet in 2012 with support from the VOL group. The restaurant consists of a VR setup, dry scent projectors (diffusion system of dry odor capsule that control intensity and dissipation of scent), UV lighting, 360-degree wall projections, table mapping projections, speakers, and a multi-channel speaker system to create different virtual environments for each meal. The restaurant's design consists of ten seats that all guests sit together, also a dining room of high technology. The restaurant's aim is to achieve a fully immersive dining experience to optimize the perceived taste for its consumers which Chef Pairet defines as "psychotaste" and can be associated with the gastrophysics concept (Yemsi-Paillissé, 2020). Sublimotion is another example of using technology and multisensory cuisine, Chef Paco Roncero works with different partners to achieve a high-end adventure for the customers. While the restaurant experience takes place in a place called a "capsule", VR headsets are used to immerse the consumers in the world of

dreams, and the project consists of famous film directors, composers, and famous chefs (Bertran et al., 2021).

### **Marketing and training via VR and AR in gastronomy**

Over time and with the development of technology, food advertisements, food blogs, and food preparations have changed significantly. As a result, these developments have affected people's nutrition, health, and food preparation and presentation. According to Kulcsár et al. (2018), VR and AR in gastronomy is one of the important and emerging aspects when viewed from a marketing perspective. Even though the real restaurant's food service can be highly personalized and may be in advance of the VR experience, consumers also tend to try more intellectual services such as different physical environments. The use of VR and AR not only enhances consumers' experiences with physical environments but can also bridge the interaction gap between staff and consumers with the advancement of technology (Kulcsár et al., 2018).

Currently, VR applications are used in the training programs of universities and in the training of employees in companies, especially to improve their theoretical learning (Syamimi et al., 2020). At the same time, virtual environments can be created according to train the employees for their practical experiences. There are various VR and AR applications for restaurants to train their employees efficiently. These applications can help increase employees' knowledge of their duties, such as food safety, food preservation, cost estimation, customer relations, and marketing, while also reducing the time and effort wasted by managers by providing a standard training program (Georgakopoulos, 2010). It is thought that the use of these applications, especially in theoretical training, as mentioned above, will be supportive in increasing work efficiency. However, currently, practical training with VR can be presumed as more difficult than literature-based training due to the cost, labour, and calibration-level of the virtual environment. Nevertheless, the use of VR in some educational programs such as medicine, military, and engineering is quite convenient. Due to the importance of practical training in these areas and the necessity of different scenarios, VR training can provide practical experiences without the need for a real case (Mathur, 2015; Tang et al., 2021). Similarly, practical skills are essential for chefs and gastronomy students (Marinakou & Giousmpasaoglou, 2022). The culinary needs different equipment, materials, and food while training the chef and chef candidates, VR may ensure the training field to gain those practical skills. The experience and practical skills that a chef must gain over time can be gained in a shorter time with VR, which promises greater efficiency in training areas

compared to real-time training (Mendivil-Gonzalez et al., 2020). For example, cutting techniques, which consist of lessons that cover almost half of a semester in traditional education, provide students with the opportunity to practice in very different environments such as home and metro, with simulations that can be prepared in VR environments, causing this period to be both very short and enjoyable. Indeed, Papachristos et al. (2018) created a VR experience consisting of 50 different recipes that allow participants to collect ingredients/equipment and use cooking/cutting techniques for training. Although it can be said that VR should be developed for the physical activities of the participants to be close to the real world, it can be ensured that the participants develop their practical skills through the created environment. Given this situation, studies such as the validation of a food feature perception in VR comparing the real cookie sample with the virtualized version and evaluated similarly by the participants are important developments for future hands-on training with VR (Gouton et al., 2021).

Undoubtedly, in addition to the need for a chef or chef candidate to cook the food directly, they also need to interact directly with the ingredients to gain the ability to predict properties such as the hardness of tomatoes and the ripeness of zucchinis. Therefore, it can be said that VR and AR technologies will only be effective if they are used to support the traditional training of chefs and chef candidates. Furthermore, for VR and AR technologies to be actively used in gastronomy education, besides effective design tailored to cuisine needs, employees or students must have basic computer skills and be willing to use these applications (Georgakopoulos, 2010).

### **Efficiency and support**

Simple enhancements such as QR menus, which became commonplace to address health concerns (and to modify menus easily and efficiently) during the COVID-19 era, are now being developed to improve customers' dining experience in restaurants in certain situations. The idea of using QR-based menus has developed over time due to their easy use, and some applications have been created to provide a one-to-one image of each food on the menus in the restaurant. Thus, there is no language barrier and users can choose the food items they want more freely. Additionally, the application's database can be expanded with various restaurants, allowing users to explore different restaurant menus simultaneously. The Chatbot and Frequently Asked Questions sections can also be utilized for users to obtain other consumers' opinions about the food and restaurants (Molejon & Comendador, 2020; Rane & Usmani, 2021). Moreover, more complex, and time-intensive applications are planned for

different purposes, such as BOTTARI, a special AR application for food and beverage business recommendation systems to its users for more specific and local elections with interests-based opinions from the social media community (Balduini et al., 2012). Huang et al. (2022) claim that basic AR applications in restaurants can enhance customer satisfaction due to their direct relationship with consumers. On the other hand, hololamp menus in some hotels and restaurants are another appealing application for AR. The exact image of the menu items can be demonstrated by means of a holographic 3D design, which can engage consumers because it is portable and easy to access (Shivekar & Padave, 2019). However, it should be emphasized that these developments may be acceptable and beneficial for young people or individuals who are open to or familiar with technological developments, but it is necessary to emphasize that older and conservative individuals may have difficulties accepting and using these innovations.

FoodAR is one of the applications that has been studied to help its users efficiently work and find recipes with the products which already exist in their fridges. The application was introduced to help people to decide what to eat in a short time while also it can help the consumer choose which recipe they should use according to the instructions. This application is planned with a device that has a camera to scan all the products in the fridge or in storage to be able to classify the ingredients and find recipes from the web data by means of the recipe assistant. Then, it is planned to open the recipes from the application and show the instructions as to how to prepare the selected dish (Chitaniuc et al., 2018). The other application which is planned to help its users when cooking is AREasyCooking. This application aims to scan the ingredients that users have and search for well-known recipes from cooks as well as traditional recipes. It also intends for its users to try different recipes rather than cook the same dishes because of the insufficient time and giving the choice of a healthier diet. AREasyCooking application consists of three stages, recognizing ingredients, searching/selecting recipes, and preparing food. This application is modified with different applications to help to identify the ingredients with a camera and with a barcode reader which also helps to modify your storage easily. In the second stage, the application ensures a wide variety of English recipes (almost 1.5 million) that can be categorized according to famous cooks or traditional recipes. And, in the last stage, the user can choose the cook, the recipe while examining in the textual format or with a movie play. In the movie play, the recipe's instructions can be controlled via audio commands or eye control (Iftene et al., 2020). Recently, recipes and cooking lessons such as ChefSteps and Gronda have been developed where AR applications can provide more efficient ways to improve online cooking lessons,

and these types of applications are gaining more and more popularity with each passing day. Although it is said that such applications can be used at home and have potential benefits, they need to be developed for use in professional cuisines such as hotels and catering services, as well as large warehouses.

In addition to their current uses, estimating the properties of food and food components such as calorie values, nutritional compositions, and their potential to cause allergies or intolerances through these technologies may allow individuals to prepare meals in different combinations in line with their needs. There are some compounds in foods that have synergistic or antagonistic effects on each other. For example, if ayran (a traditional Turkish yogurt drink) and meatballs are consumed together, the calcium ions contained in the ayran reduce the bioavailability of the iron ions contained in the meatballs (Lønnerdal, 2010). On the contrary, when orange juice and meatballs are consumed together, the ascorbic acid (vitamin C) in orange juice increases the bioavailability of iron (Piskin et al., 2022). Based on this example, the information that will be included in VR and AR applications that will be developed in the future may cause individuals to prefer much more conscious and nutritious recipes.

## CONCLUSION

The growing interest in gastronomy and increasing worldwide interaction between people through such as social media, and advertisements has increased the global reach and hence rivalry between different food brands/establishments. Furthermore, advancements in technology changed most industries and business areas in different ways. Technological developments are also used for different purposes in the field of gastronomy. Some restaurants have used technological developments to offer different experiences to their customers, some businesses have used them to increase the productivity of their businesses, and some chefs and entrepreneurs have used them to create different gastronomic trends (such as molecular gastronomy and gastrophysics).

Recently, advances in VR and AR technologies have impacted many industries, including food, from a tool used to differentiate business with experience development to a way to make it possible to change neutral food to different flavours with galvanic flavour simulation. Advances in galvanic taste simulation technology could help usher in a new era for gastronomy. While thermal modification and electrical pulses can mimic the five basic tastes, they can potentially be used for different purposes, such as promoting healthier food consumption, easy calibration of perceived taste for each consumer, and reducing costs for

businesses. In addition, these technologies are designed as “recipe assistants” and can provide different recipes of world cuisines suitable for the materials in the kitchen, which allows chefs or non-professional home cooks to prepare dishes that they have not tried before from existing materials. Moreover, this situation can be enjoyable with the use of simulations designed in game format. The use of these technologies in this direction also indirectly contributes to reducing waste in the kitchen by providing waste management.

VR and AR technologies can also be used to support/improve traditional gastronomy education in schools or food and beverage businesses. Although it can be said that VR and AR technologies are more suitable for theoretical gastronomy education, these technologies also have the potential to be used to support practical training. Although the introduction of QR menus was undoubtedly facilitated by the COVID-19 pandemic and related personal hygiene concerns, some organizations took the opportunity to offer different AR apps to outshine their competitors. Menus designed using VR and AR technologies according to the concept of the business can even turn customers’ food preferences into fun ones. However, it would be appropriate to test the functionality of these menus in food and beverage businesses preferred by elderly and conservative guests and to make plans accordingly.

In this review, the latest AR and VR applications and studies are reviewed, and the complexity of the perceived experience behind gastronomy is highlighted. Although it can be said that VR and AR technologies can be adapted to the gastronomy sector in various aspects and have the potential to provide benefits in different ways, the effects of the use of these technologies on consumers need to be examined in long-term studies. The fact that these technologies are costly for businesses and that some applications have the potential to restrict customers’ socialization are important factors that limit the use of these technologies in gastronomy. Some of these technologies are currently more suitable for home use rather than large-scale professional cuisines such as hotels and catering services. Comprehensive studies are required to make these technologies more suitable for large-scale professional cuisines in a way that will increase consumer welfare.

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