



ФАКУЛТЕТ ЗА 21. ВЕК



University Business Academy in Novi Sad
Faculty of Applied Management, Economics and Finance, Belgrade
Republic of Serbia

OFFICIAL INVITATION

Faculty of applied management, economics and finance *invites*

Gabrijela Popović, PhD

to participate in the International Scientific Conference "Innovation as an initiator of the development" that will be held on December 6th, 2018 in Belgrade at the Faculty of Applied Management, Economics and Finance, Jevrejska 24.

In order to present important and recent research results on various fields and topics, we will have the pleasure to welcome numerous scientists and experts from all over the Europe.

Thank you in advance for your contribution.

We are looking forward to welcoming you to the conference.

Dean of the Faculty of Applied Management, Economics and Finance



Prof. Tomislav Brzaković, PhD

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ФАКУЛТЕТ ЗА
ПРИМЕЊЕНИ
МЕНАЏМЕНТ
ЕКОНОМИЈУ
И ФИНАНСИЈЕ



МЕФ

МЕФКОН

МЕЂУНАРОДНА НАУЧНО-СТРУЧНА КОНФЕРЕНЦИЈА
International Scientific Conference

ИНОВАЦИЈЕ КАО ПОКРЕТАЧ РАЗВОЈА INNOVATION AS AN INITIATOR OF THE DEVELOPMENT

ЗБОРНИК РАДОВА СА МЕЂУНАРОДНОГ СКУПА / INTERNATIONAL CONFERENCE PROCEEDINGS

6. децембар 2018. Београд
6th December, 2018, Belgrade

Универзитет Привредна академија у Новом Саду

University Business Academy in Novi Sad

Факултет за примењени менаџмент, економију и финансије Београд

Faculty of Applied Management, Economy and Finance Belgrade

Међународна научно-стручна конференција

International Scientific & Professional Conference

МЕФкон 2018 / MEFkon 2018

ИНОВАЦИЈЕ КАО ПОКРЕТАЧ РАЗВОЈА

„Иновативна делатност – напредак и будућност“

INNOVATION AS AN INITIATOR OF THE DEVELOPMENT

“Innovative Activities – Progress and Future”

ЗБОРНИК РАДОВА СА МЕЂУНАРОДНОГ СКУПА

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ПРЕДГОВОР

У савременом друштву, појам иновација и иновирања постао је веома значајан, у тој мери, да је у већини мисија и визија савремених компанија коришћење ове речи постало обавеза. Међутим, посматрано и шире, суштина свих развојних промена, углавном, огледа се у иновативности. Иновације су свуда око нас. То што су иновације толико присутне у целокупном подручју људске активности, намеће потребу да иновативност постане уводна тачка приликом анализе комплексности нове економије, друштва и културе у настајању, укључујући и индивидуу. Овај процес даље имплицира неминовно разматрање повратне спреге иновација и развоја. Управо отуда проистиче покретачки мотив да се Факултет за примењени менаџмент, економију и финансије из Београда заједно са суорганизаторима бави ове године на Четвртој међународној научно-стручној конференцији темом „Иновације као покретач развоја“.

Организовање овог међународног научног скупа има за циљ да покаже да иновација није само део пословне стратегије предузећа, већ да покреће економску добробит и утиче на прогрес целе једне земље.

Примерено теми и циљу научног скупа установљене су две сесије: I сесија: Иновације – темељ развоја (Тематски зборник) и II сесија: Иновативна делатност – напредак и будућност (Зборник радова са међународног скупа). Избор теме скупа и свеприсутност иновација, као и понуђени већи број тематских области утицао је да су у овој публикацији радови многих угледних универзитетских професора, истакнутих истраживача, експерата и научних радника, како из Србије, тако и из иностранства.

Зборник радова са међународног скупа, као резултат конференције, публикован је на CD-у и биће доступан широј научној јавности. Радови у овој публикацији значајно доприносе утврђивању нераскидиве везе између иновација и развоја. Истовремено смо показали да подручје иновација дефинитивно више није везано само за техничко – технолошки прогрес. У складу са тим, радови могу бити корисни како научној, тако и стручној јавности и свим заинтересованим за утицај иновација на развој.

Београд,

Децембар, 2018.

Уредници

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Др Светлана Вукотић

Др Млађан Максимовић

FOREWORD

In contemporary society, the notions of “innovation” and “innovating” have become very significant, that being so to an extent that, in the majority of the missions and visions of contemporary companies, the use of this word has become mandatory. From a broader perspective, too, however, the essence of all developmental changes mainly reflects in innovativeness. Innovations are all around us. The fact that innovations are, to such an extent, present in the overall field of the human activity imposes the need for innovativeness to become the introductory point in carrying out the analysis of the complexity of the newly-emerging economy, society and culture, also including an individual. This process is further implicative of the unavoidable consideration of the innovation-development feedback. Thence exactly arises the driving motive for the Faculty of Applied Management, Economics and Finance in Belgrade to deal with the foregoing, together with the co-organizers, at the Fourth International Scientific-Professional Conference, entitled “Innovation as an initiator of the development”.

This international scientific conference is organized with the aim of demonstrating that innovation is not only a part of an enterprise’s business strategy, but also drives economic wellbeing and influences the progress of one whole country.

Suitably to the theme and the goal of the scientific conference, the two sessions are established: Session 1 – Innovations – basis for development (Thematic Proceedings), and Session 2 – Innovative activities – progress and future (International Conference Proceedings). The choice of the conference theme and the omnipresence of innovations, as well as the offered larger number of the thematic fields, have influenced the inclusion of the papers by many distinguished university professors, eminent researchers, experts and scientific workers both from Serbia and from abroad in this publication.

As a result of the Conference, the *Conference Proceedings* are published on CD and the same will be available to a wider scientific audience. The papers in this publication significantly contribute to the establishment of an inextricable liaison between innovations and development. Simultaneously, we have demonstrated that the field of innovations is definitely no longer only related to technical-technological progress. In accordance with that, the papers may also be beneficial to both the scientific and the professional public and to all those interested in the impact of innovations on development.

Belgrade,

December, 2018

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MULTIPLE CRITERIA ANALYSIS OF THE POSSIBILITIES OF ZAJEČAR CITY TOURISM DEVELOPMENT

Gabrijela Popović¹

Abstract

The main goal of this paper is to emphasize the importance of the application of multiple criteria decision-making methods in the prioritization of the strategies that should be used in order to improve tourism development in the territory of the City of Zaječar. The main sub-factors and development strategies that could contribute to the improvement of the situation in tourism in this part of the Republic of Serbia are defined by applying the SWOT analysis, only to be followed by their prioritization performed by applying the recently proposed PIPRECIA (Pivot Pairwise Relative Criteria Importance Assessment) method. A hybrid model based on the previously mentioned methods could facilitate the decision-making process and enables making more reliable decisions in the field of tourism, as well as other business areas.

Keywords: *PIPRECIA method, SWOT analysis, strategies, tourism development, Zaječar.*

Introduction

The creation of an attractive tourism destination does not only imply the possession of stunning natural resources, but also the provision of different types of services that will attract tourists and make them keep returning in the future. In that sense, the role of destination management is crucial (Gomezelj & Mihalic, 2008) because the availability of natural and cultural resources is insufficient for the achievement of competitive advantage (Cracolici & Nijkamp, 2009). As Angelkova et al. (2012) stated in their paper, the level of the socio-economic development of a destination is reflected through its competitive ability.

The Republic of Serbia is a very interesting destination for tourists, beside the fact that it is a landlocked country. According to the data of the Statistical Office of the Republic of Serbia, tourist arrivals in 2017 increased by 12% relative to 2016, whereas tourists' overnight stays increased by 10.5% in comparison with the year 2016. Foreign tourists participate 48.5% in the total arrivals, and 38% in overall overnight stays in the year 2017 (<http://data.stat.gov.rs/Home/Result/220201?languageCode=sr-Cyrl>). The given data show that the Republic of Serbia is slowly but constantly making progress in the tourism field, which is reflected in the rising number of tourists from year to year.

In the total overnight stays achieved in the year 2016, the Region of Šumadija and Western Serbia had the biggest share of 58.9%, whereas the Regions of Southern and Eastern Serbia account for a share of only 15%. In the same year, Zaječar was visited by 11,524 tourists, out of whom 43% were foreigners, and the total number of overnight stays

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was 20,539, in which foreign tourists accounted for nearly 36%. Gamzigradska Banja Spa, located in the vicinity of Zaječar, was only visited by 1,750 tourists (4% of foreign ones) the total number of whose overnight stays amounted to 20,844 (foreign tourists only had a 1.56% share in the total number) (Gavrilović, 2017). Bearing in mind the fact that this part of Serbia has a great potential, the present situation is devastating.

With the aim of improving the current situation in the field of tourism in the City of Zaječar, it is necessary to define the positive and negative sides of the tourist offer in this part of Serbia. After that, a set of strategies should be formulated, pointed at improving the existing and forming new tourism products and services which will have a positive influence on the attractiveness of the mentioned destination. The local government must detect and perceive the advantages and disadvantages of the destination because only in that way will tourism resources and planned strategies be in compliance with each other.

As previously said, the key issues that should be resolved in order to improve the current situation in the tourism of Zaječar City are as follows: (a) define the internal and external factors that influence the tourism activity in this area; (b) formulate adequate development strategies based on the recognized key internal and external influential factors; and (c) prioritize the defined strategies in order to detect which of them has an implementation priority in the present conditions. For that purpose, a combination of the SWOT and PIPRECIA analyses is proposed in this paper.

By applying this hybrid model, the main advantages of the SWOT analysis are used, and by applying the PIPRECIA method, its key deficiencies are overcome. Also, PIPRECIA is a relatively new method, rich with the possibilities not completely used up yet. The main goal of this paper is to prioritize the development strategies for tourism in the City of Zaječar, and also to emphasize the crucial benefits of the proposed hybrid model. Apart from the Introduction and the Conclusion, the paper also contains the following parts: in the second part of the paper, a literature review is presented; the third part contains an explanation of the PIPRECIA method; the application of the proposed hybrid model is shown in the fourth part, and the last part includes a discussion about the obtained results.

Literature Review

Possibilities of making a city an attractive tourism destination are a very interesting subject-matter attracting scientists' and researchers' attention. Hurriyiti et al. (2015) studied the probability of the creation of such an experience that would attract tourists to revisit a certain city again in the future. Van der Ark and Richards (2006) considered cultural tourism in 19 European capital cities, whereas Russo (2002) explored the tourism development of the heritage cities and the existence of the "vicious circle". The key elements that have an important influence on the tourism attractiveness of a city, which are very often neglected by city planners, are presented in the paper by Russo and van der Borg (2002). In order to revitalize cities, many municipalities turn to cultural events and the implementation of such cultural strategies pointed at the redevelopment of the current tourist offer (Govindan et al., 2015). The Russian Federation is faced with similar issues connected with tourism development and destination competitiveness, just like the Republic of Serbia (Andrades & Dimanche, 2017).

The formulation of appropriate strategies oriented towards tourism development is a very important task to be done by destination managers. The first step in this process is the

recognition of crucial influential factors. The identification of the internal (strengths and weaknesses) and external (opportunities and threats) factors is the main task of the well-known and broadly applied SWOT analysis. There is no common list of the main factors that could be appropriate for every company and industry sector; that set of factors is specific and depends on the current situation in the considered field (Houben et al., 1999). The SWOT analysis is a very convenient tool for the estimation of the current and future situations in a certain business area (Wickramasinghe & Takano, 2009) and is used in different fields (Mainali et al., 2011; Zhang & Chen, 2013). Also, the SWOT analysis is applied in the field of tourism as well, which is confirmed in the papers written by the following authors (Reihanian et al., 2012; Kantawateera et al., 2013; Ghorbani et al., 2015).

Beside many benefits the SWOT analysis has, there are also some flaws. As Kurttila et al. (2000) stated in their paper, it is very hard to identify which factor has the greatest influence on the decision that is to be made. It is also impossible to quantitatively express the significance of the mentioned factors (Esmaeili et al., 2014). Some authors, such as Hill and Westbrook (1997), concluded that the time had come for a “product recall”, because the outputs of the SWOT analysis were only of a descriptive nature. These problems, however, could be overcome by applying Multiple Criteria Decision-Making (MCDM) methods.

MCDM represents a significant subfield of operational research, as well as the part of management science that has recently begun to rapidly develop. In MCDM, the ranking of available alternatives is performed against a certain number of usually conflicting criteria, which on its part considerably reduces the involvement of subjectivity in the decision-making process. With the aim of resolving complex business issues of different kinds, many MCDM methods have been developed. A good overview of those methods is presented in the papers written by the following authors: Zavadskas et al. (2014), Govindan et al. (2015) and Ilgin et al. (2015). In order to incorporate the uncertainty and vagueness of available data into the decision-making process, appropriate extensions of these methods are proposed.

The most used hybrid model based on the SWOT analysis and MCDM is that which incorporates the application of the AHP method, the so-called A'WOT model. The examples of its application in many different fields are manifold (e.g. Eslamipoor & Sepehriar, 2014; Shahba et al., 2017), and besides, it has been applied in the tourism strategic planning field, as well (Mimović et al., 2012; Nikolić et al., 2015). Besides, other MCDM methods, such as the ANP and TOPSIS, are also used in combination with SWOT techniques for tourism strategies prioritization (Arsić et al., 2017; Ajmera, 2017).

For the purpose of prioritizing the factors and strategies for the improvement of the present situation in tourism in the City of Zaječar, the PIPRECIA method, proposed by Stanujkic et al. (2017), is used. The given method represents the result of the adaptation of the SWARA method (Keršuliene et al., 2010) and its adjustment for its simpler application in the group decision-making environment of. Besides, it is also suitable to use when there is only one decision-maker (hereinafter referred to as the *DM*). From the point of view of the *DM*, the main advantage of this method is that the pre-sorting of evaluation criteria according to the given importance is avoided, which significantly facilitates the application procedure, especially when group decision-making is involved. After now, this method is only mentioned in the paper by Wang et al. (2018) as one of the existing subjective weighting methods, which leads to the conclusion that the possibilities of this method have not been examined yet.

PIPRECIA Method

The PIPRECIA method (Stanujkic et al., 2017) represents a modification of the SWARA method (Keršuliene et al., 2010), often used for the determination of criteria weights (Karabasevic et al., 2017). A similarity with the SWARA method is reflected through the *DM*'s very serious influence on the determination of criteria significance and the final ranking order. Namely, in the significance determination process, the *DM* uses his/her own knowledge, experience and point of view (Hashemkhani Zolfani & Saparauskas, 2013), thus shaping the final decision.

The avoidance of the evaluation criteria pre-sorting is the crucial advantage of the PIPRECIA method relative to the SWARA method. In the opposite situation, when the *DM* performs the pre-sorting of criteria, and subsequently evaluation, the procedure complicates, especially in the case of group decision-making. By improving the existing procedure, however, the PIPRECIA method becomes very suitable to apply to group decision-making because it facilitates and simplifies the decision-making procedure.

The application of the PIPRECIA method could be presented through the following steps.

Step 1. Selecting the criteria included in the evaluation process. The PIPRECIA method does not require any previous sorting of the criteria according to the expected significance, whereas in the SWARA method, this is obligatory.

Step 2. Determining the relative importance s_j , starting from the second criterion, as follows:

$$s_j = \begin{cases} > 1 & \text{when } C_j \succ C_{j-1} \\ 1 & \text{when } C_j = C_{j-1} \\ < 1 & \text{when } C_j \prec C_{j-1} \end{cases}. \quad (1)$$

Step 3. Defining the coefficient k_j by using the following Eq.:

$$k_j = \begin{cases} 1 & j = 1 \\ 2 - s_j & j > 1 \end{cases}. \quad (2)$$

Step 4. Defining the recalculated value q_j :

$$q_j = \begin{cases} 1 & j = 1 \\ \frac{q_{j-1}}{k_j} & j > 1 \end{cases}. \quad (3)$$

Step 5. Defining the relative weights of the considered criteria in the following manner:

$$w_j = \frac{q_j}{\sum_{k=1}^n q_k}, \quad (4)$$

where w_j is the relative weight of the criterion j .

A Case Study

The City of Zaječar is located in Eastern Serbia and is the gravitating city of Zaječar Region. Tourism in this part of the country is at a relatively level of development despite the fact that there are good possibilities of attracting a greater number of tourists. The vicinity of the Republic of Bulgaria, as well as the old, Late-Antiquity Felix Romuliana Archaeological Site, which is inscribed on the UNESCO List of Intangible Cultural Heritage of the year 2007, are, inter alia, particularly advantageous for tourism development. With the aim of improving the present condition in the field of tourism business in the City of Zaječar, it is necessary that appropriate development strategies should be formulated and applied. The application of the SWOT-PIPRECIA model would contribute to a successful prioritization of the defined strategies, as well as to the reliability of the carried out selection, and the same could be presented through the following six-step series.

Step 1. The SWOT analysis, which is the basis for a further procedure, is retrieved from the *Strategy for the Local Economic Development of the City of Zaječar for the period 2015-2020* (<http://www.zajecar.info/files/document/2015/12/StrategijaLER-aGradaZajecar-a2015-2020.pdf>). The strategies aimed at improving the present situation in the tourism of the City of Zaječar are defined by the author and represent her own point of view. These strategies target different SWOT factors, which are as follows: strengths-opportunities – **SO**, strengths-threats – **ST**, weaknesses-opportunities – **WO**, weaknesses-threats – **WT**. The SWOT analysis and the formulated strategies are presented in Table 1.

Table 1: *The SWOT matrix for the City of Zaječar*

	External factors	
	Opportunities – O	Threats – T
	O₁ – The improvement of the situation and the offer of Gamzigradska Banja Spa, and the development of Nikolićevo Spa O₂ – The construction of a hotel on Kraljevica Hill O₃ – The utilization of renewable natural resources O₄ – The vicinity of the border with the European Union O₅ – The development of rural, eco- and sports tourism O₆ – The development of homemade products and private accommodation	T₁ – The privatization of Rgotsko Lake T₂ – Wild waste dumps T₃ – Political instability T₄ – The old population and low natality T₅ – Centralization

Continued

Internal factors	SO Strategy	ST Strategy
Strengths – S S₁ – Gamzigradska Banja Spa S₂ – Felix Romuliana – an old, Late-Antiquity Archaeological Site S₃ – Forest park Kraljevica S₄ – Cultural institutions S₅ – Events S₆ – Rivers and lakes	SO₁ – Attracting the investors that will be investing in the existing tourism capacities, as well as in the development of new ones SO₂ – The intensification of the development of the tourist offer with a special emphasis on the differentiation and branding of this part of the Republic of Serbia as a tourism destination	ST₁ – The preservation of and increasing the quality of the existing tourist offer and the introduction of the necessary measures and mechanisms of the preservation of the interesting tourist locations in the City of Zaječar ST₂ – The development of new tourism products and opening new workplaces, which will have a beneficial influence on the demographic situation
Weaknesses – W W₁ – A bad traffic infrastructure W₂ – Tourism workers' inadequate qualifications W₃ – A lack of hotel capacities W₄ – A lack of tourism agencies W₅ – Illegal building	WO Strategy WO₁ – The improvement of the tourism and traffic infrastructure with the help of the Republic of Serbia and other institutions, as well as with the help of the projects aimed at utilizing the available funds of different types WO₂ – Inciting the establishment of the private firms whose primary business would be tourism	WT Strategy WT₁ – Tourism personnel education WT₂ – Cooperation with private capital owners because of overcoming the obstacles and improving the tourist offer in the territory of the City of Zaječar

Source: (<http://www.zajecar.info/files/document/2015/12/StrategijaLER-aGradaZajecara2015-2020.pdf>)

Step 2. The *DM* verifies the significance of the SWOT factors by applying Eqs (1)-(4).

Table 2: *The importance of the SWOT factors*

Factors	Significance
<i>S</i>	0.2660
<i>W</i>	0.2660
<i>O</i>	0.2217
<i>T</i>	0.2463

As shown in Table 2, the factors *S* – strengths and *W* – weaknesses have the greatest significance that amounts to 0.2660. The next is the factor *T* – threats, with the significance of 0.2463, whereas the factor *O* – opportunities, whose significance is 0.2217, ranks the last.

Step 3. In this step, the local importance of the SWOT sub-factors is defined by applying the previously mentioned Eqs (1)-(4).

Table 3: *The importance of the SWOT sub-factors*

Sub-factors	Local significance	Sub-factors	Local significance	Sub-factors	Local significance	Sub-factors	Local significance
<i>S</i>₁	0.1833	<i>W</i>₁	0.2097	<i>O</i>₁	0.1290	<i>T</i>₁	0.1154
<i>S</i>₂	0.1833	<i>W</i>₂	0.1747	<i>O</i>₂	0.1173	<i>T</i>₂	0.2308
<i>S</i>₃	0.1527	<i>W</i>₃	0.2184	<i>O</i>₃	0.1675	<i>T</i>₃	0.2308
<i>S</i>₄	0.1697	<i>W</i>₄	0.1986	<i>O</i>₄	0.1675	<i>T</i>₄	0.2308
<i>S</i>₅	0.1697	<i>W</i>₅	0.1986	<i>O</i>₅	0.2094	<i>T</i>₅	0.1923
<i>S</i>₆	0.1414			<i>O</i>₆	0.2094		

According to the results accounted for in Table 3, the greatest local significance in the *S* group is that of the sub-factors *S*₁ – *Gamzigradska Banja Spa* and *S*₂ – *Felix Romuliana – anold, Late-Antiquity Archaeological Site*, whose significance amounts to 0.1833, whereas the least significant is the sub-factor *S*₆ – *Rivers and lakes* (0.1414). In the *W*-group, the most significant is the sub-factor *W*₃ – *A lack of hotel capacities* (0.2184), whereas the sub-factor characterized by the smallest significance is the sub-factor *W*₂ – *Tourism workers' inadequate qualifications*. The sub-factors from the *O*-group that have the greatest significance are *O*₅ – *The development of rural, eco- and sports tourism* and *O*₆ – *The development of homemade products and private accommodation facilities* (0.2094), whereas the sub-factor *O*₂ – *The construction of a hotel on Kraljevica Hill* (0.1173) is the least significant. From the *T*-group, the sub-factors *T*₂ – *Wild waste dumps*, *T*₃ – *Political instability* and *T*₄ – *The old population and low nataliyare* are equally significant (0.2308). They are followed by the sub-factor *T*₅ – *Centralization* (0.1923). The least significant sub-factor from this group is *T*₁ – *The privatization of RgotskoLake* (0.1154).

Step 4. The global significance of the SWOT sub-factors is obtained by the mutual multiplication of the obtained local significance of the SWOT factors and the sub-factors from **Steps 2** and **3**, which is accounted for in Table 4.

Table 4: *The global importance of the SWOT sub-factors*

SWOT groups	Significance of SWOT factors	SWOT sub-factors	Local significance of SWOT sub-factors	The global significance of SWOT sub-factors
S	0.2660	S₁	0.1833	0.0487
		S₂	0.1833	0.0487
		S₃	0.1527	0.0406
		S₄	0.1697	0.0451
		S₅	0.1697	0.0451
		S₆	0.1414	0.0376
W	0.2660	W₁	0.2097	0.0558
		W₂	0.1747	0.0465
		W₃	0.2184	0.0581
		W₄	0.1986	0.0528
		W₅	0.1986	0.0528
O	0.2217	O₁	0.1290	0.0343
		O₂	0.1173	0.0312
		O₃	0.1675	0.0446
		O₄	0.1675	0.0446
		O₅	0.2094	0.0557
		O₆	0.2094	0.0557
T	0.2463	T₁	0.1154	0.0307
		T₂	0.2308	0.0614
		T₃	0.2308	0.0512
		T₄	0.2308	0.0512
		T₅	0.1923	0.0426

The obtained results are to a certain degree similar to that relating to local significance. Namely, the sub-factor **S₁** – *Gamzigradska Banja Spa* and **S₂** – *Felix Romuliana – an old, Late-Antiquity Archaeological Site* have a predominant influence in the **S**-group (0.0487). In the **W**-group, such domination pertains to the sub-factor **W₃** – *A lack of hotel capacities* (0.0581). The sub-factors **O₅** – *The development of rural, eco- and sports tourism* and **O₆** – *The development of homemade products and private accommodation facilities* have the greatest global importance in the **O**-group (0.0557). Finally, the most influential sub-factor from the **T**-group is **T₂** – *Wild waste dumps* (0.0614).

Step 5. The significance of the defined strategies relative to the SWOT sub-factors is determined by applying Eqs (1)-(4) and is presented in Tables 5a and 5b.

Table 5a: *The overall importance of each alternative strategy according to the “strengths” and “weaknesses” sub-factors*

	S_1	S_2	S_3	S_4	S_5	S_6	W_1	W_2	W_3	W_4	W_5
SO_1	0.16	0.13	0.17	0.12	0.12	0.17	0.19	0.16	0.16	0.15	0.12
SO_2	0.13	0.16	0.14	0.20	0.16	0.14	0.13	0.16	0.13	0.14	0.12
ST_1	0.15	0.16	0.18	0.14	0.16	0.18	0.13	0.20	0.15	0.14	0.24
ST_2	0.15	0.16	0.18	0.18	0.18	0.18	0.13	0.20	0.15	0.17	0.16
WO_1	0.21	0.21	0.16	0.20	0.20	0.18	0.26	0.14	0.21	0.17	0.18
WO_2	0.21	0.17	0.16	0.15	0.17	0.15	0.17	0.16	0.21	0.22	0.18
WT_1	0.17	0.19	0.14	0.19	0.24	0.12	0.11	0.31	0.17	0.22	0.12
WT_2	0.19	0.19	0.19	0.16	0.20	0.16	0.14	0.28	0.22	0.22	0.15

Table 5b: *The overall importance of each alternative strategy according to the “opportunities” and “threats” sub-factors*

	O_1	O_2	O_3	O_4	O_5	O_6	T_1	T_2	T_3	T_4	T_5
SO_1	0.15	0.17	0.16	0.20	0.13	0.14	0.15	0.12	0.11	0.13	0.14
SO_2	0.13	0.13	0.12	0.14	0.13	0.14	0.15	0.12	0.11	0.10	0.14
ST_1	0.18	0.14	0.12	0.14	0.16	0.18	0.21	0.20	0.11	0.11	0.14
ST_2	0.18	0.18	0.20	0.14	0.20	0.18	0.16	0.17	0.16	0.19	0.17
WO_1	0.18	0.18	0.20	0.20	0.20	0.18	0.16	0.21	0.26	0.19	0.21
WO_2	0.18	0.20	0.20	0.18	0.20	0.18	0.16	0.18	0.26	0.27	0.21
WT_1	0.15	0.18	0.17	0.18	0.18	0.18	0.13	0.18	0.26	0.25	0.21
WT_2	0.21	0.23	0.21	0.18	0.22	0.18	0.21	0.20	0.26	0.27	0.21

Step 6. By multiplying the results from Table 4 and Tables 5a and 5b, the overall priority of the strategies is determined (Table 6).

Table 6: *The overall priority of the strategies*

Strategy	Priority	Rank
<i>SO₁</i>	0.1786	7
<i>SO₂</i>	0.1651	8
<i>ST₁</i>	0.1896	6
<i>ST₂</i>	0.2008	5
<i>WO₁</i>	0.2332	2
<i>WO₂</i>	0.2258	3
<i>WT₁</i>	0.2196	4
<i>WT₂</i>	0.2333	1

According to the results obtained, the strategy with a priority in application for the purpose of achieving a better situation in the field of tourism in the City of Zaječar is the *WT₂ – Cooperation with private capital owners because of overcoming the obstacles and improving the tourist offer in the territory of the City of Zaječar* Strategy (0.2333).

Discussion

The order of the strategies directed towards the development of tourism in the City of Zaječar achieved by using the combination of the SWOT-PIPRECIA techniques is as follows:

$$WT_2 \rightarrow WO_1 \rightarrow WO_2 \rightarrow WT_1 \rightarrow ST_2 \rightarrow ST_1 \rightarrow SO_1 \rightarrow SO_2$$

The obtained results are indicative of the fact that the strategy which has the highest priority for application in the present conditions is the *WT₂* Strategy, which implies the local government's cooperation with private capital owners (0.2333). A lack of financial resources is the key issue that the local government is faced with. Many projects aimed at developing tourism could not have been implemented due to the mentioned problem, which justifies this strategy's first rank. Almost equal significance is attributed to the *WO₁* Strategy, which entails the improvement of the traffic and tourism infrastructures (0.2332). The poor infrastructure is generally one of the major problems that seriously affect tourism business in this part of Serbia, and its improvement would contribute to an increase in the number of both domestic and foreign tourists.

Also, the task to do is related to inciting the establishment of the private firms whose concern would be focused on tourism (the *WO₂* Strategy – 0.2558). This is followed by the *WT₁* Strategy, which aimed at educating tourism personnel (0.2196). The establishment of private firms and educated personnel represent a step forward in the development of the tourism of the City of Zaječar and an increment in its share on the Serbian tourism market.

The establishment of new firms would lead to the creation of new workplaces which would have a favorable influence on the demographic situation in the City of Zaječar. New ideas for tourist products would be generated and, in that way, the tourist offer would be of a higher quality ($ST_2 = 0.2008$). Surely, the existing tourist offer should not be neglected, and there is a need for the preservation of its quality, as well as the preservation of the quality of the interesting tourist locations ($ST_1 = 0.1896$),

Ultimately, the SO_1 Strategy (0.1786) aimed at branding this part of the Republic of Serbia and the SO_2 Strategy (0.1651), which contains the activities of constantly attracting new investors who will contribute to the further development of tourism, should be implemented. This position of the given strategies is quite understandable because the creation of a beneficial climate for tourism development and overcoming the present obstacles are the base that guarantees prosperity and a better share on the tourism market.

Conclusion

The main goal of this paper is emphasizing the importance of introducing mathematical models in the decision-making process in the field of tourism development. Also, the principal objective was to address the factors crucial for tourism development in the City of Zaječar, make a proposal for development strategies and prioritize them. For that purpose, the application of a hybrid model involving the SWOT analysis and the PIPRECIA method is proposed. With the help of the SWOT analysis, the strategies for tourism development are formulated and prioritized by applying the PIPRECIA method. In that manner, the main shortcomings of the SWOT analysis connected with its inability to provide a quantitative expression of criteria significance, as well as its influence on the final decision, are overcome. The applicability of the proposed model is presented in the case study leading to the reliable results appropriate for a practical use in the present conditions. Following the order of the proposed strategies, every issue will be resolved one after another, and the City of Zaječar will improve its attractiveness for both domestic and foreign tourists.

The main deficiency of the paper is reflected in the negligence of the uncertainty and vagueness of the decision-making environment, and the proof for that is the use of crisp numbers. By introducing fuzzy, grey or neutrosophic numbers, however, this shortcoming could successfully be overcome. Besides, decision-making is only performed by one DM ; by incorporating a greater number of them, the obtained results would be more representative and the degree of their reliability would be higher. For the foregoing reasons, the proposed model has proved to be useful and applicable because it facilitates the decision-making process. Yet, there is still the need for a further examination of the possibilities of applying this method in different business fields.

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