7<sup>TH</sup> INTERNATIONAL SCIENTIFIC-BUSINESS CONFERENCE LEADERSHIP, INNOVATION, MANAGEMENT AND ECONOMICS: INTEGRATED POLITICS OF RESEARCH

# **LIMEN 2021**

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# **CONFERENCE PROCEEDINGS**



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### Contents

Index of Authors IX
IndexXI
PrefaceXIII
LIMEN 2021 Participants' AffiliationXV
Comparative Analysis of the Development
of the Small and Medium Enterprises Sector
in the Republic of Serbia and the European Union
Sunčica Stanković
Basic Components and Indicators in Assessing Country Risk (Selected CEFTA Countries)
Vera Karadjova
Aleksandar Trajkov
Initial Conditions and Monetary Freedom
in Former Communist Countries: An Instrumental Variable Approach
Delia-Raluca Şancariuc
Dragoş Cosmin-Lucian Preda
Trends of the International Oil and Gas Market within the Waves of Internationalization and Globalization
Anis Benabed
Globalization Effects in the Republic of Croatia
Maja Vizjak
Marin Romić
Industrial Policy as a Precondition for Dynamic
and Sustainable Development of Serbia
Milena Lutovac Đaković
Implications of Technology Development on the Labor Market
Danijela Sokolic
Changes in the Economic Performance
and Labour Market Situation in Slovakia
during the COVID-19 Pandemic
Eva Kojšová
Monika Gullerová
Macroeconomic Consequences Caused by the COVID-19 Pandemic
- Case Study of the Automotive Industry
Nikola Radić
Vlado Radić
Successful Businesses during a Pandemic. How to Thrive
Dana-Teodora Mierluț
Horia-Octavian Mintaș Adriana Giurgiu
-
The Influence of Macroeconomic Factors of the Business Environment on the Development of the Number of SMEs
of the Business Environment on the Development of the Number of SMEs
of the Business Environment on the Development of the Number of SMEs
of the Business Environment on the Development of the Number of SMEs
of the Business Environment on the Development of the Number of SMEs
of the Business Environment on the Development of the Number of SMEs
of the Business Environment on the Development of the Number of SMEs

The Importance of Financial Management for the Success
of the Organization in a Challenging Business Environment
Tanja Janaćković
Marko Janaćković
FinTech: Should We Accelerate Their Development?
Rovena Troplini
Ikbale Tota
Merjemë Zyko
Evaluating Financial Performance
of IT Companies in the Consolidated Group
Radoslav Tusan
Management and Access Control in Enterprise Resource Planning
in an Organizational Context
José Vestia
Leonilde Reis
Strategic Relevance of an Information Systems Master Plan
in an Organizational Context
Inês Barros
Ana Almeida
Leonilde Reis
Impact of Industry 4.0 on Environmental Management Accounting
Bojana Novićević Čečević
Ljilja Antić
Jovana Milenović
Empirical Research on the Impact of Intellectual Capital
as a Determinant of the Growth of Market Value of Companies
Ana Milijić
Andrija Popović
Nevenka Vojvodić-Miljković
Correlation Aspects of Employee Performance Metrics
- Management through Promotion of Non-economic Motivation Factors
Jana Aleksić
Mirjana Landika
The Role of Agile Leaders in Establishing
Effective Internal Communication in Digital Organizations
Jelena Lukić Nikolić
Aleksandar Dejanović
Snežana Lazarević
Workplace Motivation – Case Study Engaging Students during a Pandemic
Monica-Ariana Sim
Anamaria-Mirabela Pop
Employees' and Students' Attitudes
of Business Process Orientation Usefulness in Croatia
Marin Petrić
Marko Hell
Digital Competences: Empowerment of Education at Universities
Silvia Matúšová
Viola Tamášová
Financial Literacy and Risk Aversion of University Students: Study Applied to Lusófona University Students
Cátia Rosário
Ana Lorga da Silva
And Eorge de Sirve
António Augusto Costa

Blended Learning Perceptions in First Time and Experienced Users - The Learning Curve Accumulation Approach
Ana Shkreta
<b>Study of Innovative Technologies and Materials for Online Learning</b>
Are Musicians Entrepreneurs? A Preliminary Analysis
<b>The Concept of Digital Marketing Mix: Implications in Consumer Behaviour</b>
<b>Design in Function of Brand Creation 251</b> Aleksandar Brzaković Stefan Brzaković
<b>Digital and Virtual Fashion as an Opportunity for Sustainable Concept 257</b> Verica Bulović Zlatko Čović
<b>Leasing of Production Control Processes – PLC as a Service in Industry 4.0</b>
On-Demand Services in Transportation and Mobility
<ul> <li>A Structured Literature Review</li></ul>
The Importance of Ethical Language in Business Communication
Perceptions of the Role of the Media in the Understanding of UAS for Civil Use – The Case of the Republic of Serbia
<b>Legal Protection of the EU Database: One Proposal for a Transposition</b>
Directive 2019/633 on Unfair Trading Practices in Business-To-Business Relationships and Its Implementation
Multiple-Criteria Approach for Serbian Tourism Products Assessment
<b>Water – Renewable and Protected Natural Resource</b>

### **Index of Authors**

A

Adriana Giurgiu, 89 Albena Dobreva , 297 Aleksandar Brzaković, 251 Aleksandar Dejanović, 169 Aleksandar Trajkov, 13 Ana Almeida, 143 Ana Lorga da Silva, 205 Anamaria-Mirabela Pop, 177; 279 Ana Milijić, 157 Ana Shkreta, 213 Andrija Popović, 157 Anis Benabed, 37 António Augusto Costa, 205

В

С

D

Bojana Novićević Čečević, 149

Cátia Rosário, 205

Damir Ilić, 287 Dana Jašková, 95 Dana-Teodora Mierluţ, 89 Danijela Sokolic, 61 Darjan Karabašević, 313 Delia-Raluca Şancariuc, 27 Dragoş Cosmin-Lucian Preda, 27

#### E

Edit Süle, 269 Elia Pizzolitto, 231 Eva Koišová, 71

#### AG

Gabrijela Popović, 313 Goran Dašić, 243

Horia-Octavian Mintaş, 89

н

#### \_\_\_\_\_

Ikbale Tota, 119 Inês Barros, 143 Ivana Kostadinović, 1

#### J

I

Jana Aleksić, 163 Jana Masárová, 71 Jana Sochuľáková, 95 Jelena Lukić Nikolić, 169 José Vestia, 137 Jovana Milenović, 149

#### K

Katarína Kráľová, 95 Katarina Štrbac, 287 Krisztina Gálos, 269

#### L

László Buics, 269 Leonilde Reis, 137; 143 Ljilja Antić, 149 Luka Latinović, 263

М

Maja Vizjak, 43 Man Carmen Mihaela, 225; 321 Marin Petrić, 185 Marin Romić, 43 Marko Hell, 185 Marko Janaćković, 111 Merjemë Zyko, 119 Milena Lutovac Đaković, 53 Miodrag Brzaković, 313 Mirjana Landika, 163 Monica-Ariana Sim, 177; 279 Monika Gullerová, 71

#### Ν

Nenad Novaković, 103 Nevenka Vojvodić-Miljković, 157 Nikola Novaković, 103 Nikola Radić, 79 Pavle Brzaković, 313

#### R

Ρ

Radoslav Tusan, 131 Rajko Macura, 103 Rezart Prifti, 213 Rovena Troplini, 119

#### S

Saša Virijević Jovanović, 243 Silvia Matúšová, 195 Slave Camelia, 225; 321 Snežana Lazarević, 169 Srđan Novaković, 313 Srđan Tomić, 263 Stefan Brzaković, 251 Sunčica Stanković, 1

### т

Tanja Janaćković, 111 Tatjana Ilić-Kosanović, 287

#### V

Vasil Georgiev, 303 Vera Karadjova, 13 Verica Bulović, 257 Viola Tamášová, 195 Vlado Radić, 79

Ζ

Zlatko Čović, 257

### Index

A

Adaptive services, 269 Agile, 137 Agile leaders, 169 Artificial intelligence, 61 Assessing country risk, 13 Authorizations, 137 Automation, 61 Automotive industry, 79

#### B

Banking sector, 119 Behavioral intention, 213 Blended learning, 213 Bosnia and Herzegovina, 103 Brand, 251 Brand creation, 251 Business. 1: 111 **Business communication**, 279 Business efficiency, 163 Business environment, 95; 103 Business ethics, 279 Business process modeling, 185 Business process orientation, 185

### C

Capitalism, 231 CEFTA countries, 13 Change, 111 Civil use, 287 Cloud Services, 263 Commodities, 37 Competitive factors, 103 Competitiveness, 1 Composite indicator, 95 Conformism, 231 Consolidated group, 131 Consumer behaviour, 243 Correlation, 163 COVID-19, 79: 111 COVID-19 crisis, 89 COVID-19 pandemic, 71

#### D

Database, 297 Debt service ratio, 13 Design, 251 Digital competences, 195 Digital experience, 243 Digitalization, 169; 257 Digital marketing, 243 Digital marketing mix, 243 Digital transformation, 195 Directive, 297 Directive 2019/633, 303 Displacement effect, 61 Distance learning, 225

#### E

Ease of doing business, 103 E-Commerce, 89 Economic growth, 71 Economic performance, 71 Economic policy, 53 Economy, 37; 103 Educational process, 225 e-Learning, 225 Employment, 71 Enterprise architecture, 143 Entrepreneurs, 231 Entrepreneurship, 231 Environmental management accounting, 149 ERP, 137 Ethical communication, 279 EU Law, 303 European Union, 1; 53 Exceptions, 297 Expenditure R&D, 157

#### F

Fashion industry, 257 Finance, 111 Financial indicators, 131 Financial investments, 205 Financial literacy, 205 Financial services, 119 Financial transfers risk, 13 Foreign payments risk, 13

G

Н

I.

Globalization, 37 Globalization effects, 43 Globalization index, 43 Growth, 37; 111

Homogenization, 231

Identity, 231 Import ratio, 13 Increased revenues, 89 Industrial policy, 53 Industry 4.0, 149; 263 Information, 149 Information and communication technologies, 143 Information systems, 143 Initial social conditions, 27 Innovation, 1 Institutions, 27 Instrumental variable, 27 Integrations, 43 Intellectual capital, 157 International oil and gas market. 37 IT project, 137

#### K

KOF globalization index in the Republic of Croatia, 43

L

Legal protection, 297 Legal regimes, 321 Legislation, 321 Literature review, 269 LMS self-efficacy, 213 Luxury products, 251

#### Μ

Macroeconomic policy, 13 Macroeconomics, 79 Management, 111; 185



Market cap, 157 MCDM, 313 Micro, 95 Mobility, 269 Motivation factors, 163 Multimedia instruction, 213 Multinational corporations, 89 Music, 231 Musicians, 231

#### N

New forms of employment, 61

#### 0

On-demand services, 269 Online learning, 225 Organization, 111 Organizational behavior, 169

### P

Pandemic, 177; 225 Parent company, 131 Perceived ease of use, 213 Perceived satisfaction, 213 Perceived usefulness, 213 Perceptions, 287 Personnel management, 163 PIPRECIA method, 313 Principles, 177 Production levels, 79 Programmable Logic Controllers, 263 Promotion of qualitative factors, 163

### R

Region, 95 Reinstatement effect, 61 Remote work, 169 Republic of Serbia, 1; 287; 313 Resources, 321 Risk aversion, 205

#### S

Sales levels, 79 SAP, 137 SCADA, 263 **SCRUM**, 137 Serbia, 53 Slovak Republic, 71; 195 Small and medium enterprises, 95 Small and medium enterprises sector, 1 Socio-economic indicators, 95 Software, 257 Strategies, 177 Students, 177 Subsidiary company, 131 Successful businesses, 89 Supply chains, 79 Sustainability, 257 Sustainable development, 53

#### Т

Technological solutions, 119 Tourism products, 313 Transportation, 269 Transposition, 297

U

UAS, 287 Unemployment, 71 Unfair commercial practices, 303 University educators, 195 Upskilling, 195

#### V

Virus Covid-19, 43

#### W

Water, 321 WISP method, 313 Workplace motivation, 177



### Preface

Organizing is an evolutionary phenomenon, distinctive because of the laws of existence and maintaining all structures in all processes of their functioning. As such, it is a civilizational phenomenon also that occurs as a component of human, individual and social activities and as a factor in the overall development of man and society. On the other hand, as a deliberate human activity, organizing involves seeking solutions to problems that occur on the way to achieving specific goals. No goal can be achieved without appropriate or necessary, or at least minimal organization of conditions, factors, and processes needed for goal achievement. However, the new era requires new types of leaders and managers, and new forms of organization; demands those who are willing and able to lead the company/corporation/state, in a distinct competitive environment, with all the good and bad sides brought by the globalization of world economy.

The purpose of the annual LIMEN conference is to support the power of scientific research and dissemination of the research results with the objective to enhance society by advancing knowledge; policy-making change, lives, and ultimately, the world. Our objective is to continue to be the foremost annual conference on cutting-edge theory and practice of leadership, innovations, management, and economics, encouraging advancement via excellence, and interaction.

LIMEN conference aims to bring together the international academic community (experts, scientists, engineers, researchers, students, and others) and enable interactive discussions and other forms of interpersonal exchange of experiences and popularization of science and personal and collective affirmation.

The annual LIMEN conference is committed to the highest standards of publishing integrity and academic honesty ensuring ethics in all its publications. Conformance to standards of ethical behavior is therefore expected of all parties involved: authors, editors, reviewers, and the publisher. The conference organizer follows the Committee on Publication Ethics (COPE) guidelines on how to deal with potential acts of misconduct.

All received full papers prior peer review process are subject to plagiarism check with iThenticate by Turnitin software. Any identified plagiarism automatically disqualifies a paper. Afterward, all full papers are double-blind peer-reviewed by the reviewers drawn from the editorial committee or external reviewers depending on the topic, title, and the subject matter of the paper. Peer reviewers provide a critical assessment of the paper and may recommend improvements. Although the author may choose not to take this advice, we highly recommend that the author address any issues, explaining why their research process or conclusions are correct.

Association of Economists and Managers of the Balkans headquartered in Belgrade – Serbia along with the partner institutions, namely the Faculty of Engineering Management - Belgrade, Serbia; Modern Business School - Belgrade, Serbia; the University of Novo Mesto, Faculty of Business and Management Sciences, Slovenia; the University of Novo Mesto, Faculty of Economics and Informatics, Slovenia; Business Academy Smilevski - BAS, Skopje, North Macedonia; and BAS Institute of Management, Bitola, North Macedonia organized 7th International Scientific-Business Conference titled: Leadership, Innovation, Management, and Economics: Integrated Politics of Research – LIMEN 2021 on December 16, 2021.

Bearing in mind the challenges of a dynamic engagement in contemporary organizations, it is clear that the analysis of these important subjects should be applied interdisciplinary approach. For this reason, the main theme of the conference LIMEN 2021 was processed through the following key topics:

- COVID-19 Pandemic Influence on Business Operations and Management
- Leaders and Leadership
- Entrepreneurship
- Innovation
- Creativity
- Management of Small and Medium-sized Enterprises
- Contemporary Strategic Management
- Financial Management and Banking
- Marketing Management
- Project Management
- GREEN Management
- Natural Resource Management
- Quality Management

- Management of New Technologies
- Management Information Systems
- Education Management
- Intercultural Management
- Public Sector Management
- Human Resources Management
- Organizational Behavior
- Business Ethics
- Macroeconomics
- Microeconomics
- Finance
- Marketing
- Labour Law
- Business Law

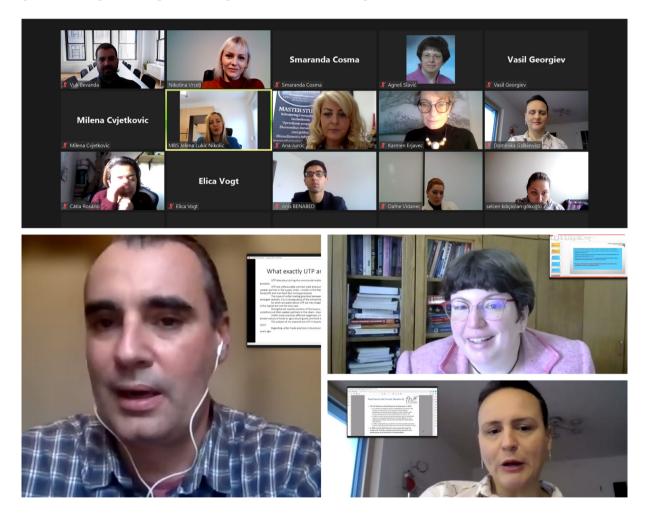
LIMEN 2021 keynote speaker was Prof. Dr Dominika Gałkiewicz representing the University of Applied Sciences Kufstein, Tirol, Kufstein, Austria with the topic "Sustainability Regulation and Reporting: Trends in the Dach Region".

Within publications from LIMEN 2021 conference:

- 15 double peer-reviewed papers have been published in the Selected Papers International Scientific-Business Conference LIMEN 2021,
- 39 double peer-reviewed papers have been published in the Conference Proceedings International Scientific-Business Conference LIMEN 2021,
- 70 abstracts have been published in the Book of Abstracts International Scientific-Business Conference LIMEN 2021.

Altogether LIMEN 2021 publications have more than 600 pages. All full papers have DOI numbers and ORCID iD integration.

Participation in the conference took nearly 140 researchers with the abstracts/papers representing 16 different countries from different universities, eminent faculties, scientific institutes, colleges, various ministries, local governments, public and private enterprises, multinational companies, associations, etc.





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### Multiple-Criteria Approach for Serbian Tourism Products Assessment

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#### 1. INTRODUCTION

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**Abstract:** The main intention of this paper is to emphasize the crucial tourism products that will contribute to the tourism development of the Republic of Serbia. With that aim, the Multiple-Criteria Decision-Making – MCDM approach is proposed based on the Plvot Pairwise RElative Criteria Importance Assessment – PIPRECIA and the Simple Weighted Sum Product – WISP methods. PIPRECIA method is applied for defining the criteria weights, while the WISP method is used for ranking the considered tourism products. The final results are reliable and the tourism product City break is emphasized as the one with the greatest potential.

Decision-making in the tourism field is not less complex as it is in other business areas (Rigall-I-Torrent, & Fluvià, 2011). One of the questions that arise when it comes to decision-making in the mentioned area is what tourism product is the most attractive for the tourists. The attractiveness of the tourism products is affected by various factors which should be considered in the decision and evaluation process. For example, the Republic of Serbia in *The strategy of the tourism development of the Republic of Serbia* ("Službeni glasnik RS", br. 91/2006) elicited nine crucial tourism products that could foster further tourism development. These alternative products were estimated against eleven criteria by using an adequate number of points. But, based on this it is very hard to clear determine what product should be a priority because of its potential. In resolving this issue the application of the multiple-criteria approach would be very helpful.

Multiple-Criteria Decision-Making methods (MCDM) are very popular and used for the facilitation of decision-process in the various business fields as well as in the tourism field (Alptekin & Büyüközkan, 2011; Liu et al., 2012; Liu et al., 2013; Stević et al., 2019; Lin, 2020; Lin & Chang, 2020). So far, many different approaches are introduced. Although all of them have the same goal of facilitating the decision process, the reason for the continual proposal of the new methods reflects the researchers' intention for finding the best possible technique that will give optimal and reliable results. In the present case, the approach based on the PIvot Pairwise

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RElative Criteria Importance Assessment – PIPRECIA and the Simple Weighted Sum Product – WISP is proposed for assessment of the aforementioned Serbian tourism products. The main reason for the application of these methods relies on their simplicity, ease of use and reliability.

### 2. PROPOSED METHODOLOGY

#### 2.1. The PIPRECIA method

The first phase in the application of the MCDM methods is defining the criteria significance. There are a significant number of MCDM approaches dedicated to obtaining of the criteria weights, to name a few: The Entropy method (Shannon, 1948), the Analytic Hierarchy Process – AHP (Saaty, 1980), the Best-Worst Method – BWM (Rezaei, 2015, 2016), the Full Consistency Method – FUCOM (Pamučar et al., 2018) and the Stepwise Weight Assessment Ratio Analysis – SWARA (Keršuliene et al., 2010). In this case, the PIPRECIA method (Stanujkic et al., 2017) is applied for defining the criteria weights. The main reason for its usage relies in its simplicity and adequacy for using in the group decision-make environment.

The calculation procedure of the PIPRECIA method could be precisely illustrated by the following steps.

- **Step 1.** Evaluation criteria selection. In the first step of the PIPRECIA method, there is no need for sorting the criteria according to the expected importance.
- **Step 2.** Determination of the relative importance  $s_j$ , beginning from the second criterion, is as follows:

$$s_{j} = \begin{cases} > 1 & when \quad C_{j} > C_{j-1} \\ 1 & when \quad C_{j} = C_{j-1} \\ < 1 & when \quad C_{j} < C_{j-1} \end{cases}$$
(1)

**Step 3.** Determination of the coefficient  $k_i$  as follows:

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

$$\tag{2}$$

**Step 4.** Calculation of the recalculated value  $q_{j}$  in the following manner:

$$q_{j} = \begin{cases} 1 & j = 1 \\ \frac{q_{j-1}}{k_{j}} & j > 1 \end{cases}$$
(3)

**Step 5.** Determination of the relative criteria weights by using the following equation:

$$w_j = \frac{q_j}{\sum_{k=1}^n q_k} \tag{4}$$

where  $w_i$  denotes the relative weight of the criterion *j*.

**Step 6.** Determination of the relative criteria weights when the greater number of decision-makers are involved in the evaluation procedure. In that case, the overall criteria weights are defined in the following way:

$$w_{j}^{*} = \left(\prod_{r=1}^{R} w_{j}^{nr}\right)^{\frac{1}{R}}$$
(5)

$$w_j = \frac{w_j^*}{\sum_{j=1}^n w_j^*}$$
(6)

where  $w_j^{nr}$  is the weight of criterion *j* that is defined by the respondent *r*, *R* represents the total number of the respondents,  $w_j^*$  is group weight of criterion *j* before its adjusting in order to fulfill the condition  $\sum_{i=1}^{n} w_i = 1$ , and  $w_i$  is the overall weight of criterion *j*.

#### 2.2. The WISP method

The WISP method is introduced by Stanujkic et al. (2021) which incorporates four relationships between benefit and cost criteria in order to define a final utility of an alternative. Its procedure is very comprehensive and it successfully facilitates the decision process.

The computation procedure of this method could be represented by using the following steps.

**Step 1.** Creation of a normalized decision matrix. The normalized ratings are calculated in the following way:

$$r_{ij} = \frac{x_{ij}}{\max_i x_{ij}} \tag{7}$$

where  $r_{ij}$  is a dimensionless number that represents a normalized rating of alternative *i* regarding the criterion *j*.

Step 2. Calculation of the values of four utility measures, by using the following equations:

$$u_i^{wsd} = \sum_{j \in \Omega_{max}} r_{ij} w_j - \sum_{j \in \Omega_{min}} r_{ij} w_j \tag{8}$$

$$u_i^{wpd} = \prod_{j\Omega_{max}} r_{ij} w_j - \prod_{j \in \Omega_{min}} r_{ij} w_j \tag{9}$$

$$u_i^{wsr} = \frac{\sum_{j \in \Omega_{max}} r_{ij} w_j}{\sum_{j \in \Omega_{min}} r_{ij} w_j} \tag{10}$$

$$u_i^{wpr} = \frac{\prod_{j \in \Omega_{max} r_{ij} w_j}}{\prod_{j \in \Omega_{min} r_{ij} w_j}}$$
(11)

where:  $u_i^{wsd}$  and  $u_i^{wpd}$  represent differences between the weighted sum and weighted product of normalized ratings of alternative *i*, respectively. Analogous to the previous one,  $u_i^{wsr}$  and  $u_i^{wpr}$  remarks ratios between weighted sum and weighted product of normalized ratings of alternative *i*, respectively.

Step 3. Recalculation of the values of four utility measures, as follows:

$$\bar{u}_i^{wsd} = \frac{1 + u_i^{wsd}}{\left(1 + u_{max_i}^{wsd}\right)} \tag{12}$$

$$\bar{u}_i^{wpd} = \frac{1 + u_i^{wpd}}{\left(1 + u_{max_i}^{wpd}\right)} \tag{13}$$

315

$$\bar{u}_i^{wsr} = \frac{1 + u_i^{wsr}}{\left(1 + u_{max_i}^{wsr}\right)} \tag{14}$$

$$\bar{u}_i^{wpr} = \frac{1 + u_i^{wpr}}{\left(1 + u_{max_i}^{wpr}\right)} \tag{15}$$

where:  $\overline{u}_i^{wsd}$ ,  $\overline{u}_i^{wpd}$ ,  $\overline{u}_i^{wsr}$  and  $\overline{u}_i^{wpr}$  represents recalculated values of  $u_i^{sd}$ ,  $u_i^{pd}$ ,  $u_i^{sr}$  and  $u_i^{pr}$ .

**Step 4.** Definition of the overall utility  $u_i$  of each alternative by using Eq. (16):

$$u_{i} = \frac{1}{4} \left( \bar{u}_{i}^{wsd} + \bar{u}_{i}^{wpd} + \bar{u}_{i}^{wsr} + \bar{u}_{i}^{wpr} \right)$$
(16)

Step 5. Rank the alternatives in descending order and select the optimal one. The alternative which has the highest value of  $u_i$  is the best one.

#### 3. NUMERICAL EXAMPLE

The application of the proposed approach is demonstrated through a real case study directed to the ranking of the tourism products of the Republic of Serbia. Tourism products that are submitted under evaluation are:

- $A_1$  City break
- $A_2$  Circular tours
- $A_3$  Business tours
- $A_4 \text{Spa/wellness}$
- $A_5$  Mountains and lakes
- $A_6$  Nautics
- $A_7$  Events
- $A_8$  Special interests
- $A_9$  Rural tourism

The evaluation criteria are:

- $C_1$  Threat from the new competition entrance
- $C_2$  Threat from the substitutes
- $C_3$  Competition intensity
- $C_4$  Bargaining power on the customer side
- $C_5$  Bargaining power on the supplier side
- $C_6$  Demand volume
- $C_7$  Potential of the growth of demand
- $C_8$  Image creating
- $C_9$  Speed of investment attraction
- $C_{10}$  The amount of investment required
- $C_{11}$  Technical and managerial complexity

Table 1 contains the initial assessment of the tourism products retrieved from *The Strategy of the tourism development of the Republic of Serbia* ("Službeni glasnik RS", br. 91/2006), which represents the input data for further MCDM analysis.

	$C_1$	<i>C</i> <sub>2</sub>	<i>C</i> <sub>3</sub>	<i>C</i> <sub>4</sub>	$C_5$	<i>C</i> <sub>6</sub>	<i>C</i> <sub>7</sub>	<i>C</i> <sub>8</sub>	<i>C</i> <sub>9</sub>	$C_{10}$	<i>C</i> <sub>11</sub>
	min	min	min	min	max	max	max	max	max	min	min
w <sub>i</sub>	0.092	0.090	0.085	0.080	0.084	0.094	0.092	0.085	0.098	0.106	0.095
$A_1$	1	4	1	4	5	5	5	5	3	5	5
$A_2$	1	4	2	3	5	5	3	5	3	5	4
$A_3$	3	5	3	3	5	5	5	5	4	2	3
$A_4$	4	4	3	5	4	3	4	3	3	2	1
$A_5$	3	3	3	3	5	4	4	3	3	2	3
$A_6$	4	4	3	3	5	3	3	4	4	2	3
$A_7$	4	3	5	5	5	3	3	5	2	4	4
$A_8$	3	5	3	5	5	1	2	4	2	5	5
$A_9$	3	3	3	3	5	1	3	4	3	4	4
	Source: Službeni glasnik RS" hr. 01/2006										

Table 1. Initial decision-making matrix

Source: Službeni glasnik RS", br. 91/2006

First, the criteria weights are defined. Three-decision makers are involved in the procedure in order to gain adequate weighting results. The criteria weights according to decision-makers as well as the overall weights of criteria are shown in Table 2.

Criteria	$DM_1$	$DM_2$	<b>D</b> M3	w <sub>i</sub>
$C_1$	0.103	0.097	0.077	0.092
<i>C</i> <sub>2</sub>	0.086	0.108	0.077	0.090
<i>C</i> <sub>3</sub>	0.086	0.090	0.077	0.085
<i>C</i> <sub>4</sub>	0.078	0.075	0.086	0.080
$C_5$	0.087	0.079	0.086	0.084
$C_6$	0.097	0.088	0.095	0.094
<i>C</i> <sub>7</sub>	0.097	0.084	0.095	0.092
<i>C</i> <sub>8</sub>	0.088	0.080	0.087	0.085
$C_9$	0.098	0.088	0.108	0.098
<i>C</i> <sub>10</sub>	0.098	0.111	0.108	0.106
<i>C</i> <sub>11</sub>	0.081	0.101	0.103	0.095

Table 2. The criteria weights

Source: Own research

When the criteria weights are determined, the WISP method is applied. In Table 3 the recalculated values of four utility measures are presented, which are computed by using Eqs. (12) - (15).

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	$\overline{u}_i^{wsd}$	$\overline{u_i}^{wpd}$	$\overline{u}_i^{wsr}$	$\overline{u}_i^{wpr}$		
$A_1$	0.047322	0.000005	0.501570	0.996044		
$A_2$	0.030187	0.000003	0.481527	0.498022		
$A_3$	0.087440	0.000006	0.559165	0.655832		
$A_4$	-0.031423	0.000001	0.398204	0.191241		
$A_5$	0.032994	0.000002	0.490487	0.314799		
$A_6$	-0.000417	0.000002	0.440279	0.177075		
$A_7$	-0.129245	0.000001	0.308314	0.019921		
$A_8$	-0.213176	0.000000	0.230804	0.003022		
$A_9$	-0.075405	0.000000	0.345548	0.029512		

 Table 3. Recalculated values of four utility measures

Source: Own research

The ranking order of the considered tourism products is defined by using Eq. (16) and presented in Table 4.

	<i>u<sub>i</sub></i>	Rank			
$A_1$	0.3862	1			
$A_2$	0.2524	3			
$A_3$	0.3256	2			
$A_4$	0.1395	6			
$A_5$	0.2096	4			
$A_6$	0.1542	5			
$A_7$	0.0497	8			
$A_8$	0.0052	9			
$A_9$	0.0749	7			
Source: Own research					

Table 4.	Ranking	order	of the	alternatives
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As Table 4 shows, the most significant tourism product in present conditions for the Serbian tourism sector is  $A_1$  – City breaks.

#### 4. CONCLUSION

The main target of this paper was to emphasize the crucial tourism products of the Republic of Serbia that should have adequate attention and that should be further developed. With that aim, the MCDM approach is proposed based on the PIPRECIA and WISP methods. PIPRECIA method is used for defining the criteria weights, while the WISP method is applied for the final ranking of the considered alternative tourism products. Nine tourism products are evaluated against the eleven criteria, and the decision process is performed by three decision-makers. The final results spot light on the alternative  $A_1$  – City breaks as a tourism product that has the greatest potential and could greatly contribute to the tourism development of the Republic of Serbia.

The main limitation of this paper is expressed thorough application of the crisp numbers in the computational procedure. So, the first proposition for future research goes in favor of proposing adequate extensions based on the fuzzy, grey or neutrosophic numbers. Besides, if a greater number of decision-makers from the tourism field will be involved in the defining of the criteria weights, the obtained results would be more representative and reliable. Also, performing an additional analysis by using different MCDM models based on other combinations of the MCDM methods will enable confirmation of the obtained results.

Despite the outlined shortcomings of the given paper, the applicability of the proposed approach as well as the reliability of the gained results could not be refuted. The proposed model facilitates the evaluation process and decision-making is performed effectively. Obtained results are real and relevant and are in accordance with the present conditions.

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