1

НАУЧНО-НАСТАВНОМ ВИЈЕЋУ САОБРАЋАЈНОГ ФАКУЛТЕТА У ДОБОЈУ
СЕНАТУ УНИВЕРЗИТЕТА У ИСТОЧНОМ САРАЈЕВУ

Предмет: Извјештај комисије о пријављеним кандидатима за избор наставника у звање **доцент/ванредни професор**, ужа научна област **Транспортно инжењерство.**

Одлуком Научно-наставног вијећа Саобраћајног факултета у Добоју, Универзитета у Источном Сарајеву број ННВ: 202-10/23 од 23.03.2023. године, именовани смо у Комисију за разматрање конкурсног материјала и писање извјештаја по конкурсу, објављеном у дневном листу "Глас Српске" од 01.03.2023. године, за избор наставника у звање **доцент/ванредни професор**, ужа научна област Транспортно инжењерство.

ПОДАЦИ О КОМИСИЈИ

Састав комисије[1] са назнаком имена и презимена сваког члана, звања, назив научне области, научног поља и уже научне/умјетничке области за коју је изабран у звање, датума избора у звање и назив факултета, установе у којој је члан комисије запослен:
1. **Др Илија Танацков, редовни професор, предсједник** Научна област: Саобраћајно инжењерство Научно поље: Техничко-технолошке науке Ужа научна област: Организација и технологије транспортних система Датум избора у звање: 02.07.2014. године Универзитет у Новом Саду, Факултет техничких наука
2. **Др Снежана Тадић, ванредни професор, члан** Научна област: Саобраћајно инжењерство Научно поље: Технично-технолошке науке Ужа научна област: Интермодални транспорт, логистички центри и city логистика Датум избора у звање: 26.08.2019. Универзитет у Београду, Саобраћајни факултет
3. **Др Ратко Ђуричић, редовни професор, члан** Научна област: Инжењерство и технологија Научно поље: Грађевинарство и архитектура Ужа научна област: Транспортно инжењерство Датум избора у звање: 02.10.2017. године Универзитет у Источном Сарајеву, Саобраћајни факултет Добој

РЕПУБЛИКА СРПСКА
УНИВЕРЗИТЕТ У ИСТОЧНОМ САРАЈЕВУ
САОБРАЋАЈНИ ФАКУЛТЕТ
ДОБОЈ
Број 433/23
Дана, 07. 04. 2023

[1] Комисија се састоји од најмање три наставника из научног или умјетничког поља, од којих је најмање један из уже научне или умјетничке области за коју се бира кандидат. Најмање један члан комисије не може бити у радном односу на Универзитету у Источном Сарајеву, односно мора бити у радном односу на другој високошколској установи. Чланови комисије морају бити у истом или вишем звању од звања у које се кандидат бира и не могу бити у сродству са кандидатом.

На претходно наведени конкурс пријавио се 1 кандидат:

1[2]. **Жељко (Радивоје) Стевић**

На основу прегледа конкурсне документације, а поштујући Закон о високом образовању („Службени гласник Републике Српске“, број: 67/20), Правилник о условима за избор у научно-наставна, умјетничко-наставна, наставна и сарадничка звања („Службени гласник Републике Српске“, број: 2/22), Статут Универзитета у Источном Сарајеву и Правилник о поступку и условима избора академског особља Универзитета у Источном Сарајеву, Комисија за писање извјештаја о пријављеним кандидатима за изборе у звања, Научно-наставном вијећу Саобраћајног факултета у Добоју и Сенату Универзитета у Источном Сарајеву подноси сљедећи извјештај на даље одлучивање:

И З В Ј Е Ш Т А Ј

КОМИСИЈЕ О ПРИЈАВЉЕНИМ КАНДИДАТИМА ЗА ИЗБОР У ЗВАЊЕ

I ПОДАЦИ О КОНКУРСУ
Одлука о расписивању конкурса, орган и датум доношења одлуке
Одлука ННВ: 202-10/23 Саобраћајног факултета од 23.03.2023. године
Дневни лист, датум објаве конкурса
„Глас Српске“ , 01.03.2023. године
Број кандидата који се бира
Један (1)
Звање и назив уже научне/умјетничке области, за коју је конкурс расписан
Избор у звање **доцент/ванредни професор**, ужа научна област **Транспортно инжењерство**
Број пријављених кандидата
Један (1)

II ПОДАЦИ О КАНДИДАТИМА
ПРВИ КАНДИДАТ
1. ОСНОВНИ БИОГРАФСКИ ПОДАЦИ
Име (име једног родитеља) и презиме
Жељко (Радивоје) **Стевић**
Датум и мјесто рођења
17.07.1988. године, Лозница, Република Србија
Установе у којима је кандидат био запослен
Универзитет у Источном Сарајеву, Саобраћајни факултет Добој
Звања/радна мјеста
1. 2018 - 2023, доцент 2. 2013 - 2018, виши асистент 3. 2012 - 2013, приправник - стручни сарадник у настави

[2] Навести све пријављене кандидате (име, име једног родитеља, презиме).

Научна област
Инжењерство и технологија
Чланство у научним и стручним организацијама или удружењима
- Члан је International Society on MCDM. - Предсједник Neutrosophic Science International Association (NSIA) одјељка у Босни и Херцеговини. - Члан Програмског Комитета за специфичне програме из Републике Српске – програм – паметни, зелени и интегрисани транспорт (Рјешење Владе Републике Српске на 47. сједници одржаној 22.11.2019. године. - Одговорни наставник за стручну праксу, смјер Логистика, ННВ: 168-1/21.
2. СТРУЧНА БИОГРАФИЈА, ДИПЛОМЕ И ЗВАЊА
Основне студије/студије првог циклуса
Назив институције, година уписа и завршетка
Универзитет у Источном Сарајеву, Саобраћајни факултет Добој, 2007-2011
Назив студијског програма, излазног модула
Студијски програм Саобраћај, смјер Логистика
Просјечна оцјена током студија[3], стечено академско звање
Дипломирани инжењер саобраћаја
Постдипломске студије/студије другог циклуса
Назив институције, година уписа и завршетка
Универзитет у Источном Сарајеву, Саобраћајни факултет Добој, 2011-2013
Назив студијског програма, излазног модула
Студијски програм Саобраћај, смјер Логистика
Просјечна оцјена током студија, стечени академски назив
Магистар (мастер) саобраћаја
Наслов мастер рада
Избор локације логистичког центра у Републици Српској применом AHP методе
Ужа научна област
Транспортно инжењерство
Докторат/студије трећег циклуса
Назив институције, година уписа и завршетка (датум пријаве и одбране дисертације)
Универзитет у Новом Саду, Факултет техничких наука, - година уписа на студије трећег циклуса 2014. година - датум пријаве докторске дисертације 03.11.2016. године, - датум одбране докторске дисертације 12.04.2018. године
Наслов докторске дисертације
Интегрисани модел вредновања добављача у ланцима снабдевања
Ужа научна област
Организација и технологије транспортних система
Претходни избори у звања (институција, звање и период)
1[4]. Универзитет у Источном Сарајеву, Саобраћајни факултет Добој, виши асистент 26.12.2013-14.09.2018 године 2. Универзитет у Источном Сарајеву, Саобраћајни факултет Добој, доцент 14.09.2018-данас
3. НАУЧНА/УМЈЕТНИЧКА ДЈЕЛАТНОСТ КАНДИДАТА
Радови прије првог и/или посљедњег избора/реизбора

Радови у истакнутом научном часопису међународног значаја (радови објављени у часописима са SCI листе):

1. Pamučar, D., **Stević, Ž.,** Zavadskas, E.K. (2018) *Integration of interval rough AHP and interval rough MABAC methods for evaluating university web pages*, Applied Soft Computing (**IF$_{2016}$=3.541**), 67, pp. 141-163. doi.org/10.1016/j.asoc.2018.02.057
2. **Stević, Ž.**, Pamučar, D., Zavadskas, E.K., Ćirović, G., Prentkovskis, O. (2017). *The Selection of Wagons for the Internal Transport of a Logistics Company: A Novel Approach Based on Rough BWM and Rough SAW Methods*. Symmetry (**IF$_{2016}$=1,457**) 9, No. 11: 264. doi.org/10.3390/sym9110264
3. **Stević, Ž.,** Pamučar, D., Vasiljević, M., Stojić, G., Korica, S. (2017), *Novel Integrated Multi-Criteria Model for Supplier Selection: Case Study Construction Company* Symmetry (**IF$_{2016}$=1,457**) 9, No. 11: 279. doi.org/10.3390/sym9110279
4. Zavadskas, E.K., **Stević, Ž.**, Tanackov, I., Prentkovskis. O. (2018). *A Novel Multicriteria Approach – Rough Step-Wise Weight Assessment Ratio Analysis Method (R-SWARA) and Its Application in Logistics*, Studies in Informatics and Control, (**IF$_{2016}$=0,776**), 27(1), pp. 97-106 https://doi.org/10.24846/v27i1y201810
5. Puška, A., Kozarević, S., **Stević, Ž.,** Stovrag, J., (2018). *A new way of applying interval fuzzy logic in group decision making for supplier selection*, Economic Computation & Economic Cybernetics Studies & Research, (**IF$_{2016}$=0,299**) 52(2)
6. Tomašević, M., Ralević, N., **Stević, Ž.,** Marković, V., Tešić, Z. (2018). *Adaptive fuzzy model for determination of quality assessment services in supply chain*, Tehnicki vjesnik - Technical Gazette, (**IF$_{2016}$=0,723**) 25(6), https://doi.org/10.17559/TV-20170705130711
7. **Stević, Ž.,** Vasiljević, M., Zavadskas, E.K., Sremac, S., Turskis, Z. (2018). *Selection of carpenter manufacturer using fuzzy EDAS method*, Engineering Economics (**IF$_{2016}$=0,726**) 29,(3) https://doi.org/10.5755/j01.ee.29.3.16818

Радови у научном часопису међународног значаја (SCOPUS база)

8. **Stević, Ž.,** Tanackov, I., Vasiljević, M., Novarlić, B., Stojić, G. (2016). *An integrated fuzzy AHP and TOPSIS model for supplier evaluation*, Serbian Journal of Management 11 (1), pp. 15-27, https://doi.org/10.5937/sjm11-10452
9. Novarlić, B., **Stević**, **Ž.,** Đurić, P., Vasiljević, M. (2017). *Efficiency in organizing transport routes as part of the city waste management: proposal for innovative way of transport*, International Journal for Quality Research, 11(3) DOI – 10.18421/IJQR11.03-02 pp. 507-524
10. **Stević, Ž.,** Mulalić E., Božičković, Z., Vesković, S., Đalić, I. (2018) *Economic analysis of the project of warehouse centralization in the paper production company*, Serbian Journal of Management 13 (1) pp.47-62 https://doi.org/10.5937/sjm13-13608
11. Stojić, G., **Stević, Ž.,** Antuchevičienė, J., Pamučar, D., Vasiljević, M. (2018). *A novel rough WASPAS approach for supplier selection in a company manufacturing PVC carpentry products.* Information, 9(5), 121, https://doi.org/10.3390/info9050121
12. Vasiljević, M., Fazlollahtabar, X., **Stević, Ž.**, Vesković, S. (2018). *A rough multicriteria approach for evaluation of the supplier criteria in automotive industry*, Decision Making: Applications in Management and Engineering, 1(1) pp. 82-96, DOI 10.31181/dmame180182v

[3] Просјечна оцјена током основних студија и студија првог и другог циклуса наводи се за кандидате који се бирају у звање асистента и вишег асистента.
[4] Навести све претходне изборе у звања.
[5] Навести кратак приказ радова и књига (научних књига, монографија или универзитетских уџбеника) релевантних за избор кандидата у академско звање.

Радови у научном часопису националног значаја:

1. **Stević, Ž.,** Božičković, З., Mićić. Б. (2015) *Optimization of the import of Chipboard-a case study*. International Journal of Engineering, Business and Enterprise Applications 14.1 19-23. http://iasir.net/IJEBEApapers/IJEBEA15-425.pdf
2. **Stević, Ž.** (2017). *Criteria for supplier selection: A literature review*, International Journal of Engineering, Business and Enterprise Applications, 19(1), December 2016-February 2017, pp. 23-27 http://iasir.net/IJEBEApapers/IJEBEA17-106.pdf
3. **Stević, Ž.,** Tanackov, I., Vasiljević, M., Dimanoski, K. (2016) *Modelling of procurement processes using multicriteria analysis* Horizons. ISSN 1857-9892 DOI 10.20544/HORIZONS.B.03.1.16.P37 UDC 658.86/.87:303.22 pp. 359-369 http://uklo.edu.mk/tabs/view/dc984dcd34f55b0aa7b0b0763b264c0f
4. Vasiljević, M., **Stević, Ž.,** Ćosić, I., Mirčetić, D. (2016) *Combined fuzzy AHP and TOPSIS method for solving location problem* Horizons. ISSN 1857-9892 DOI 10.20544/HORIZONS.B.03.1.16.P38 UDC 656.96:519.8(497.6) pp. 373-383 http://uklo.edu.mk/tabs/view/dc984dcd34f55b0aa7b0b0763b264c0f
5. Ожеговић, Б., Сремац, С., Тадић, Ж., **Стевић, Ж**. (2016). *Значај и улога саветника за безбедност у транспорту опасног терета железницом*, Ecologica, бр. 83, Научно-стручно друштво за заштиту животне средине Србије, ISSN 0354-3285, стр. 647-651
6. **Stević, Ž.** (2017). *Modeling performance of logistics subsystems using fuzzy approach*. Transport & Logistics: the International Journal, 2017; Volume 17, Issue 42, April 2017, ISSN 2406-1069 pp. 30-39 http://ulpad.fberg.tuke.sk/transportlogistics/wp-content/uploads/4_Stevic.pdf
7. Badi, I., **Stević, Ž.,** Novarlić, B. (2017). *Emergency medical service location problem: A case study in Misurata, Libya*. Transport & Logistics: the International Journal, 2017; Volume 17, Issue 43, October 2017, ISSN 2406-1069
8. Radović, D., **Stević, Ž.** (2018). *Evaluation and selection of KPI in transport using SWARA method,* Transport & Logistics: the International Journal, 2018; Volume 18, Issue 44, June 2018, ISSN 2406-1069 pp. 60-68, http://ulpad.fberg.tuke.sk/transportlogistics/wp-content/uploads/7_Radovic_Stevic.pdf
9. Васиљевић, М., **Стевић, Ж**. (2017) *Транспортни ланац руде боксит са еколошког аспекта,* Ecologica 24/86, Научно-стручно друштво за заштиту животне средине Србије, ISSN 0354-3285, стр. 419-423
10. **Стевић, Ж.** (2018). *Улога и значај добављача у управљању ланцем снабдевања*, Мегатренд Ревија 15(1) 159-174, ISSN1820-3159
11. **Стевић, Ж.**, Васиљевић, М., Стојић, Г., Танацков, И. (2017). *Интегрисани Фази модел за решавање локацијског проблема*, Железнице, Друштво дипломираних инжењера железничког саобраћаја Србије, Железнице Србије а.д., Вол 62, бр.1, стр. 49 - 56, Београд, Јануар 2017, ISSN 0350-5138, UDK: 658.72:78:510.64
12. **Стевић, Ж.,** Новарлић, Б., Ђуричић, З., Ђурић, П. (2016). *Улога медија у стварању позитивног имиџа ефикасне локалне самоуправе: нови модел комуницирања*, Зборник радова Економског факултета Брчко 10 (10),, DOI 10.7251/ZREFB1610077S стр. 77-86

Предавања по позиву са међународног научног скупа штампано у цјелини:

1. **Stević, Ž.**, Alihodžić, A., Božičković. Z., Vasiljević, M., Vasiljević, Đ. (2015). *Application of combined AHP-TOPSIS model for decision making in management,* 5th International conference "Economics and Management -Based on New Technologies, EMoNT 2015, Vrnjačka Banja, Srbija 18-21 jun 2015., ISBN 978-86-6075-055-8, COBISS.SR-ID pp. 33-40
2. **Stević, Ž.,** Vasiljević, M., Sremac, S. (2016). *Fuzzy AHP and ARAS model for decision making in logistics* 6th International conference "Economics and Management -Based on New Technologies, EMoNT 2016, Vrnjačka Banja, Srbija 16-19 jun 2016., ISBN 978-86-6075-059-6, COBISS.SR-ID 216059148 pp. 34-43

Саопштење са међународног научног скупа штампано у цјелини:

1. **Стевић, Ж.,** Алиходић, А., Васиљевић, М. (2015). *Доставна возила city логистике као фактор загађења животне средине,* V Међународни конгрес Биомедицина и геонауке – утицај животне средине на људско здравље Хотел Crowne Plaza, Београд, Март 03-04, 2015, ISBN 978-86-80140-01-8, COBISS.SR-ID 213516044 , стр. 235-246
2. **Стевић, Ж.** (2015). *Утицај виртуелног маркетинга на свакодневно пословање,* XIV међународни научно-стручни симпозијум Инфотех®-Јахорина 2015 18-20. март 2015. Јахорина, хотел Бистрица, ISBN 978-99955-763-6-3, стр. 624-629 http://infoteh.etf.unssa.rs.ba/zbornik/2015/radovi/RSS-3/RSS-3-13.pdf
3. **Стевић, Ж.** (2015). *Избор и мерење кључних индикатора перформанси у складишном систему,* XIX Интернационални научни скуп SM 2015 Стратегијски менаџмент и системи подршке одлучивању у стратегијском менаџменту, Суботица-Палић 21. мај 2015, ISBN 978-86-7233-352-7, COBISS.SR-ID 296499463 стр. 931-938
4. **Stević, Ž.,** Vesković, S., Vasiljević, M., Tepić, G. (2015). *The selection of the logistics center location using AHP method***,** University of Belgrade, Faculty of Transport and Traffic Engineering, LOGIC 2015. 21-23 May 2015, ISBN: 978-86-7395-339-7, pp. 86-91
5. **Стевић, Ж.** (2015). *Прорачун основних параметара система редова чекања применом WinQSB софтвера* Међународна Мајска конференција о Стратегијском Менаџменту – IMKSM 2015, 29-31. Мај 2015, Бор, Србија, ISBN: 978-86-6305-030-3, стр. 91-100
6. **Стевић, Ж.,** (2015). *Значај логистичких центара, њихова улога и задатак са освртом на стање у Републици Српској,* Међународна Мајска конференција о Стратегијском Менаџменту – IMKSM 2015, 29-31. Мај 2015, Бор, Србија,, ISBN: 978-86-6305-030-3, стр. 80-90 http://menadzment.tfbor.bg.ac.rs/wp-content/uploads/2015/10/Book-of-Proceedings_IMKSM15.pdf
7. **Стевић, Ж.** (2015). *Значај логистичких центара, њихова улога и задатак са освртом на стање у Републици Српској,* Међународна Мајска конференција о Стратегијском Менаџменту – IMKSM 2015, 29-31. Мај 2015, Бор, Србија,, ISBN: 978-86-6305-030-3, стр. 80-90 http://menadzment.tfbor.bg.ac.rs/wp-content/uploads/2015/10/Book-of-Proceedings_IMKSM15.pdf
8. **Stević, Ž.,** Stojić, G., Vasiljević, M., Vesković, S., (2015). *Safety at work in the field of logistics,* International conference for regional collaboration OSH BON TON, 29-31 Oktober 2015, Ohrid, Macedonia, ISBN: 978-608-4624-18-9, COBISS.MK-ID pp. 266-271

9. **Стевић, Ж.** (2015). *Логистички информациони систем у транспортном предузећу*,. V Међународни симпозијум Нови Хоризонти саобраћаја и комуникација 2015, 20-21 новембар 2015. Добој, Босна и Херцеговина, ISBN: 978-99955-36-57-2, COBISS.RS-ID 5459992 стр. 179-184
10. **Стевић, Ж.,** Танацков, И., Ћосић, И., Весковић, С., Васиљевић, М. (2015). *Поређење AHP и Fuzzy AHP за процену тежине критеријума,* V Међународни симпозијум Нови Хоризонти саобраћаја и комуникација 2015, 20-21 новембар 2015. Добој, Босна и Херцеговина, ISBN: 978-99955-36-57-2, COBISS.RS-ID 5459992 стр. 198-203
11. **Стевић, Ж.,** (2016). *Формирање сценарија city логистике Добоја у циљу смањења загађења животне средине*, 6. Међународни симпозијум о управљању природним ресурсима, Зајечар, 25-26 Јун 2016., Србија, ISBN 978-86-7747-542-0, COBISS.SR-ID 224217100, стр. 82-89
12. **Стевић**, **Ж.** (2016). *Рангирање сценарија city логистике применом комбиноване AHP и COPRAS методе,* XII Међународна Мајска конференција о Стратегијском Менаџменту – IMKSM 2016., Бор, Мај 28-30, 2016, Србија, ISBN 978-86-6305-042-6, COBISS.SR-ID 224844044, стр. 143-153
13. **Стевић**, **Ж.,** Алиходић, А., Кнежевић, С., Стјепановић, Ж., (2016). *Управљање медицинском логистиком - стање у Босни и Херцеговини,* XII Међународна Мајска конференција о Стратегијском Менаџменту – IMKSM 2016., Бор, Мај 28-30, 2016, Србија, ISBN 978-86-6305-042-6, COBISS.SR-ID 224844044, стр. 154-162
14. **Stević, Ž.,** Tanackov, I., Vasiljević, M., Vesković, S. (2016). *Fuzzy Multicriteria Model for Ranking Suppliers in Manufacturing Company,* ENTerprise REsearch InNOVAtion Conference – ENTRENOVA September, 2016 Rovinj, Croatia ISSN 1849-7950 pp. 196-203
15. **Stević, Ž.,** Tanackov, I., Vasiljević, M., Vesković, S. (2016) *Evaluation in logistics using combined AHP and EDAS method,* XLIII International Symposium on Operational Research SYM-OP-IS 2016. 20-23 September 2016, Tara, Serbia, ISBN 978-86-335-0535-2, COBISS.SR-ID 225714444, pp. 309-313
16. Vesković, S., **Stević**, **Ž.,** Stojić, G., Rajilić, S., Vasiljević, M. (2016). *Application of fuzzy AHP method for profit analysis of railway operators with PSO*, XVII International Scientific-Expert Conference on Railways - RAILCON 2016. October 13-14, 2016, Niš, Serbia, ISBN 978-86-6055-086-8, COBISS.SR-ID 226310668, pp. 105-108
17. **Stević**, **Ž.** (2017). *Evaluation of supplier selection criteria in agricultural company using fuzzy AHP method*, 22th International Scientific Conference Strategic Management and Decision Support Systems in Strategic Management, May 19, 2017, Subotica, ISBN 978-86-7233-362-6, COBISS.SR-ID 314372359 pp. 607-612
18. Mulalić, E., **Stević**, **Ž.,** Božičković, Z., Vasiljević, M., Sremac, S. (2017). *Decomposition and centralization of warehouse systems in order to rationalize material flows,* The sixth International conference Transport and Logistics TIL 2017 May 25-26, Niš, Serbia, ISBN 978-86-6055-088-2, COBISS.SR-ID 234418188 pp. 83-90
19. **Stević, Ž.,** Vasiljević, M., Vesković, S., Blagojević, A., Đorđević, Ž., (2017). *Defining the most important criteria for suppliers evaluation in construction companies*, The sixth International conference Transport and Logistics TIL 2017 May 25-26, Niš, Serbia, ISBN 978-86-6055-088-2, COBISS.SR-ID 234418188 pp. 91-96
20. **Stević**, **Ž.,** Mulalić, E., Đalić, I., Vasiljević, N., (2017). *SWOT analysis of logistics system in company of the paper production,* International May Conference on Strategic Management – IMKSM17, Bor, Serbia, ISBN 978-86-6305-059-4, COBISS.SR-ID 238846476 pp. 59-69

21. Fazlollahtabar, H., Vasiljević, M., **Stević, Ž.,** Vesković, S. (2017). *Evaluation of supplier criteria in automotive industry using rough AHP,* The 1st International Conference on Management, Engineering and Environment ICMNEE 2017 ISBN 978-86-80698-09-0 pp. 186-197
22. **Stević, Ž.,** Tanackov, I., Vasiljević, M., Rikalović, A. (2017). *Supplier evaluation criteria: AHP rough approach,* XVII International Scientific Conference on Industrial Systems, Novi Sad, Serbia, ISBN 978-86-7892-978-6 pp. 298-303
23. **Stević, Ž.,** Badi, I., Tanackov, I., Miličić, G. (2017). *Supplier selection in furniture production company using rough AHP and rough TOPSIS*, VI International Symposium New Horizons, Doboj. ISBN 978-99955-36-66-4**,** COBISS.RS-ID 7077144 pp. 524-533
24. **Stević, Ž.,** Nunić, Z., Kumar, A. (2017). *Comparative analysis of AHP, Fuzzy AHP and Rough AHP in decision making process*, VI International Symposium New Horizons, Doboj. ISBN 978-99955-36-66-4**,** COBISS.RS-ID 7077144 pp. 644-652

Саопштење са скупа националног значаја штампано у цјелини

1. **Стевић, Ж.,** Стевић, Б., Нунић, З., Алихоџић, А., (2015). *„Безбједност пјешака на магистралном путу М17 Добој*“ Научно-стручна конференција Безбједност саобраћаја 12. јун 2015. Добој, Босна и Херцеговина, ISBN: 978-99955-36-56-5, COBISS.RS-ID 5391128, стр. 59-65

Радови послије посљедњег избора/реизбора[5]

Радови у истакнутом научном часопису међународног значаја (радови објављени у часописима са SCI листе):

1. **Stević, Ž.,** Pamučar, D., Subotić, M., Antuchevičienė, J., & Zavadskas, *E. K. (2018). The location selection for roundabout construction using Rough BWM-Rough WASPAS approach based on a new rough hamy aggregator*. Sustainability, (IF_{2017}=2.075) 2817, 1-27. (R22) https://doi.org/10.3390/su10082817

   An adequately functionally located traffic infrastructure is an important factor in the mobility of people because it affects the quality of traffic, safety and efficiency of carrying out transportation activities. Locating a roundabout on an urban network is an imperative for road engineering to address traffic problems such as reduction of traffic congestion, enhancement of security and sustainability, etc. Therefore, this paper evaluates potential locations for roundabout construction using Rough BWM (Best Worst Method) and Rough WASPAS (Weighted Aggregated Sum Product Assessment) models. Determination of relative criterion weights on the basis of which the potential locations were evaluated was carried out using the Rough BWM method. In this paper, in order to enable the most precise consensus for group decision-making, a Rough Hamy aggregator has been developed. The main advantage of the Hamy mean (HM) operator is that it can capture the interrelationships among multi-input arguments and can provide DMs more options. Until now, there is no research based on HM operator for aggregating imprecise and uncertain information. The obtained indicators are described through eight alternatives. The results show that the fifth and sixth alternatives are the locations that should have a priority in the construction of roundabouts from the perspective of sustainable development, which is confirmed throughout changes of parameter k and with comparing to other methods in the sensitivity analysis.

2. Sremac, S., **Stevic, Ž.,** Pamucar, D., Arsic, M., & Matic, B. (2018) *Evaluation of a Third-Party Logistics (3PL) Provider Using a Rough SWARA–WASPAS Model Based on a New Rough Dombi Agregator.* Symmetry (IF_{2017}=1.256) 10, no. 8: 305. (R22) https://doi.org/10.3390/sym10080305

   For companies active in various sectors, the implementation of transport services and other logistics activities has become one of the key factors of efficiency in the total supply chain. Logistics outsourcing is becoming more and more important, and there is an increasing number of third party logistics providers. In this paper, logistics providers were evaluated using the Rough SWARA (Step-Wise Weight Assessment Ratio Analysis) and Rough WASPAS (Weighted Aggregated Sum Product Assessment) models. The significance of the eight criteria on the basis of which evaluation was carried out was determined using the Rough SWARA method. In order to allow for a more precise consensus in group decision-making, the Rough Dombi aggregator was developed in order to determine the initial rough matrix of multi-criteria decision-making. A total of 10 logistics providers dealing with the transport of dangerous goods for chemical industry companies were evaluated using the Rough WASPAS approach. The obtained results demonstrate that the first logistics provider is also the best one, a conclusion confirmed by a sensitivity analysis comprised of three parts. In the first part, parameter ρ was altered through 10 scenarios in which only alternatives four and five change their ranks. In the second part of the sensitivity analysis, a calculation was performed using the following approaches: Rough SAW (Simple Additive Weighting), Rough EDAS (Evaluation Based on Distance from Average Solution), Rough MABAC (MultiAttributive Border Approximation Area Comparison), and Rough TOPSIS (Technique for Order of Preference by Similarity to Ideal Solution). They showed a high correlation of ranks determined by applying Spearman's correlation coefficient in the third part of the sensitivity analysis.

3. Pamučar, D., **Stević, Ž.,** Sremac, S. (2018) *A New Model for Determining Weight Coefficients of Criteria in MCDM Models: Full Consistency Method (FUCOM).* Symmetry (IF_{2017}=1.256), *10*, 393. (R22) https://doi.org/10.3390/sym10090393

   In this paper, a new multi-criteria problem solving method—the Full Consistency Method (FUCOM)—is proposed. The model implies the definition of two groups of constraints that need to satisfy the optimal values of weight coefficients. The first group of constraints is the condition that the relations of the weight coefficients of criteria should be equal to the comparative priorities of the criteria. The second group of constraints is defined on the basis of the conditions of mathematical transitivity. After defining the constraints and solving the model, in addition to optimal weight values, a deviation from full consistency (DFC) is obtained. The degree of DFC is the deviation value of the obtained weight coefficients from the estimated comparative priorities of the criteria. In addition, DFC is also the reliability confirmation of the obtained weights of criteria. In order to illustrate the proposed model and evaluate its performance, FUCOM was tested on several numerical examples from the literature. The model validation was performed by comparing it with the other subjective models (the Best Worst Method (BWM) and Analytic Hierarchy Process (AHP)), based on the pairwise comparisons of the criteria and the validation of the results by using DFC. The results show that FUCOM provides better results than the BWM and AHP methods, when the relation between consistency and the required number of the comparisons of the criteria are taken into consideration. The main advantages of FUCOM in relation to the existing multi-criteria decision-making (MCDM) methods are as follows: (1) a significantly smaller number of pairwise comparisons (only $n - 1$), (2) a consistent pairwise comparison of criteria, and (3) the calculation of the reliable values of criteria weight coefficients, which contribute to rational judgment.

4. **Stević, Ž.,** Stjepanović, Ž., Božičković, Z., Das, D.K., Stanujkić, D. (2018). *Assessment of Conditions for Implementing Information Technology in a Warehouse System: A Novel Fuzzy PIPRECIA Method.* Symmetry (IF2017=1.256) 10, 586. (R22) https://doi.org/10.3390/sym10110586

   The application of information technology in all areas represents a significant facilitation of all business processes and activities. A competitive business system is hardly imaginable without adequate information technology. Therefore, this paper evaluates the conditions for the implementation of barcode technology in a warehouse system of a company for the manufacture of brown paper. SWOT (Strengths, Weaknesses, Opportunities, Threats) matrix was formed with a total of 27 elements based on which the benefits of the implementation of barcode technology in the warehouse system need to be analysed. For this purpose, a new fuzzy PIPRECIA (PIvot Pairwise RElative Criteria Importance Assessment) method has been developed to evaluate all elements in SWOT matrix. In addition, a part of the new developed approach includes new fuzzy scales for criterion assessment that are adapted to the methodology required by the fuzzy PIPRECIA method. To determine the consistency of the method, Spearman and Pearson correlation coefficients are applied. The results obtained in this study show that weaknesses are most noticeable in the current system. By implementing barcode technology, it is possible to create opportunities defined in SWOT matrix, which, in a very efficient way, allow elimination of the current weaknesses of the system.

5. Prentkovskis, O., Erceg, Ž., **Stević, Ž.,** Tanackov, I., Vasiljević, M., & Gavranović, M. (2018). *A New Methodology for Improving Service Quality Measurement: Delphi-FUCOM-SERVQUAL Model.* Symmetry, (IF2017=1.256) 10(12), 757. (R22) https://doi.org/10.3390/sym10120757

   The daily requirements and needs imposed on the executors of logistics services imply the need for a higher level of quality. In this, the proper execution of all sustainability processes and activities plays an important role. In this paper, a new methodology for improving the measurement of the quality of the service consisting of three phases has been developed. The first phase is the application of the Delphi method to determine the quality dimension ranking. After that, in the second phase, using the FUCOM (full consistency method), we determined the weight coefficients of the quality dimensions. The third phase represents determining the level of quality using the SERVQUAL (service quality) model, or the difference between the established gaps. The new methodology considers the assessment of the quality dimensions of a large number of participants (customers), on the one hand, and experts' assessments on the other hand. The methodology was verified through the research carried out in an express post company. After processing and analyzing the collected data, the Cronbach alpha coefficient for each dimension of the SERVQUAL model for determining the reliability of the response was calculated. To determine the validity of the results and the developed methodology, an extensive statistical analysis (ANOVA, Duncan, Signum, and chi square tests) was carried out. The integration of certain methods and models into the new methodology has demonstrated greater objectivity and more precise results in determining the level of quality of sustainability processes and activities.

6. **Stević., Ž.,** Vasiljević, M., Puška, A., Tanackov, I., Junevičius, R., & Vesković, S. (2019). *Evaluation of suppliers under uncertainty: a multiphase approach based on fuzzy AHP and fuzzy EDAS.* Transport, (IF2017=1.267) 34(1), 52-66. (R23) https://doi.org/10.3846/transport.2019.7275

   A decision-making process requires a prior definition and fulfilment of certain factors, especially when it refers to complex fields such as supply chain management. One of the most important items in the initial stage of a supply chain, which strongly influences its further flow, is making a decision on the most suitable supplier. In this paper, a model for evaluation and supplier selection has been proposed, which has been considered in more than ten different production areas. The model consists of twenty quantitative and qualitative criteria, which are reduced to a total of nine by the application of the fuzzy AHP and the assessment of managers in production companies. The verification of the model has been presented throughout a selection of suppliers in a company for the production of plastic bags and foils, where the Fuzzy Analytic Hierarchy Process (Fuzzy AHP) method has been used to determine the significance of the criteria, and the Fuzzy Evaluation based on Distance from Average Solution (Fuzzy EDAS) to evaluate and select suppliers. The obtained results have been considered throughout a

sensitivity analysis in which a total of 15 different scenarios have been formed and where the stability of the model has been determined, since the supplier one is the best solution in all the cases.

7. Pamučar, D., Sremac, S., **Stević, Ž.,** Ćirović, G., Tomić, D., (2019) *New multi-criteria LNN WASPAS model for evaluating the work of advisors in the transport of hazardous goods* Neural Computing & Applications. (IF_{2017}=4.213) (R21) https://doi.org/10.1007/s00521-018-03997-7

   Successfully organizing the transport of hazardous materials and handling them correctly is a very important logistical task that affects both the overall flow of transport and the environment. Safety advisors for the transport of hazardous materials have a very important role to play in the proper and safe development of the transport flow for these materials; their task is primarily to use their knowledge and effort to prevent potential accidents from happening. In this research, a total of 21 safety advisors for the transport of hazardous materials in Serbia are assessed using a new model that integrates Linguistic Neutrosophic Numbers (LNN) and the WASPAS (Weighted Aggregated Sum Product Assessment) method. In this way, two important contributions are made, namely a completely new methodology for assessing the work of advisors and the new LNN WASPAS model, which enriches the field of multi-criteria decision making. The advisors are assessed by seven experts on the basis of nine criteria. After performing a sensitivity analysis on the results, validation of the model is carried out. The results obtained by the LNN WASPAS model are validated by comparing them with the results obtained by LNN extensions of the TOPSIS (Technique for Order Performance by Similarity to Ideal Solution), LNN CODAS (COmbinative Distance-based ASsessment), LNN VIKOR (Multi-criteria Optimization and Compromise Solution) and LNN MABAC (Multi-Attributive Border Approximation area Comparison) models. The LNN CODAS, LNN VIKOR and LNN MABAC are also further developed in this study, which is an additional contribution made by the paper. After the sensitivity analysis, the SCC (Spearman Correlation Coefficient) is calculated which confirms the stability of the previously obtained results.

8. Matić, B., Jovanović, S., Das, D. K., Zavadskas, E. K., **Stević, Ž.,** Sremac, S., & Marinković, M. (2019). *A New Hybrid MCDM Model: Sustainable Supplier Selection in a Construction Company*. Symmetry, (IF_{2017}=1.256) *11*(3), 353. (R22) https://doi.org/10.3390/sym11030353

   Sustainable development is one of the most important preconditions for preserving resources and balanced functioning of a complete supply chain in different areas. Taking into account the complexity of sustainable development and a supply chain, different decisions have to be made day-to-day, requiring the consideration of different parameters. One of the most important decisions in a sustainable supply chain is the selection of a sustainable supplier and, often the applied methodology is multi-criteria decision-making (MCDM). In this paper, a new hybrid MCDM model for evaluating and selecting suppliers in a sustainable supply chain for a construction company has been developed. The evaluation and selection of suppliers have been carried out on the basis of 21 criteria that belong to all aspects of sustainability. The determination of the weight values of criteria has been performed applying the full consistency method (FUCOM), while a new rough complex proportional assessment (COPRAS) method has been developed to evaluate the alternatives. The rough Dombi aggregator has been used for averaging in group decision-making while evaluating the significance of criteria and assessing the alternatives. The obtained results have been checked and confirmed using a sensitivity analysis that implies a four-phase procedure. In the first phase, the change of criteria weight was performed, while, in the second phase, rough additive ratio assessment (ARAS), rough weighted aggregated sum product assessment (WASPAS), rough simple additive weighting (SAW), and rough multi-attributive border approximation area comparison (MABAC) have been applied. The third phase involves changing the parameter ρ in the modeling of rough Dombi aggregator, and the fourth phase includes the calculation of Spearman's correlation coefficient (SCC) that shows a high correlation of ranks.

9. Zavadskas, E. K., **Stević, Ž.,** Turskis, Z., & Tomašević, M. (2019). *A Novel Extended EDAS in Minkowski Space (EDAS-M) Method for Evaluating Autonomous Vehicles*. Studies in Informatics and Control, (IF_{2018}=1.347) (R23) *28*(3), 255-264. https://doi.org/10.24846/v28i3y201902

   Multi-Criteria Decision-Making (MCDM) methods have a significant influence on decision making in a variety of strategic fields, including science, business, and real-life studies. These methods also effectively support researchers in solving the emerging issues that may be encountered during their research activity. This work introduces a new Evaluation method based on the Distance from the Average Solution in the Minkowski space (EDAS-M). The main contribution of this study is the EDAS-M based MCDM model for the evaluation of an autonomous vehicle. Besides, the CRITIC (Criteria Importance Through Intercriteria Correlation) was used to determine objective criteria weights. The EDAS-M method provides a modified extension of the conventional Evaluation method based on the Distance from the Average Solution (EDAS) method. Seven different MADM methods are used to compare problem-solving results. Namely, the EDAS, WASPAS (Weighted Aggregated Sum Product ASsessment), SAW (Simple Additive Weighting), ARAS (Additive Ratio ASsessment), TOPSIS (Technique for Order Preference by Similarity Ideal Solution), TOPSIS-M (TOPSIS Minkowski space) and MABAC (Multi-Attributive Border Approximation Area Comparison) techniques validate the stability of the results obtained by using the new method above mentioned. Sensitivity analysis reflects the dynamics of the influence of dynamic matrices. It showed a high correlation of positions with all applied approaches. This correlation has also been maintained in a dynamic environment.

10. Erceg, Ž.; Starčević, V.; Pamučar, D.; Mitrović, G.; **Stević, Ž.;** Žikić, S. (2019) *A New Model for Stock Management in Order to Rationalize Costs: ABC-FUCOM-Interval Rough CoCoSo Model*. Symmetry, (IF_{2018}=2.143) *11*, 1527. (R22) https://doi.org/10.3390/sym11121527

    Cost rationalization has become imperative in every economic system in order to create adequate foundations for its efficient and sustainable management. Competitiveness in the global market is extremely high and it is challenging to manage business and logistics systems, especially with regards to financial parameters. It is necessary to rationalize costs in all activities and processes. The presence of inventories is inevitability in every logistics system, and it tends to create adequate and symmetrical policies for their efficient and sustainable management. In order to be able to do this, it is necessary to determine which products represent the largest percentage share in the value of procurement, and which are the most represented quantitatively. For this purpose, ABC analysis, which classifies products into three categories, is applied taking into account different constraints. The aim of this paper is to form a new model that involves the integration of ABC analysis, the Full Consistency Method (FUCOM), and a novel Interval Rough Combined Compromise Solution (CoCoSo) for stock management in the storage system. A new IRN Dombi weighted geometric averaging (IRNDWGA) operator is developed to aggregate the initial decision matrix. After grouping the products into three categories A, B and C, it is necessary to identify appropriate suppliers for each category in order to rationalize procurement costs. Financial, logistical, and quality parameters are taken into account. The FUCOM method has been used to determine the significance of these parameters. A new Interval CoCoSo approach is developed to determine the optimal suppliers for each product group. The results obtained have been modeled throughout a multi-phase sensitivity analysis.

11. **Stević, Ž.,** Pamučar, D., Puška, A., & Chatterjee, P. (2020). *Sustainable supplier selection in healthcare industries using a new MCDM method: Measurement Alternatives and Ranking according to COmpromise Solution (MARCOS)*. Computers & Industrial Engineering, (IF_{2019}=4.135) 140 106231. (R21) https://doi.org/10.1016/j.cie.2019.106231

    Multi-criteria decision-making (MCDM) methods are very useful tools for daily decision-making in different fields. In addition, determining an acceptable solution with respect to different factors is certainly a very demanding and difficult task. In this paper, a new Measurement of Alternatives and Ranking according to COmpromise Solution (MARCOS) method for a sustainable supplier selection in the healthcare industry (in a polyclinic) in Bosnia and Herzegovina is developed. The advantages of the

developed method are: the consideration of an anti-ideal and ideal solution at the very beginning of the formation of an initial matrix, closer determination of utility degree in relation to both solutions, the proposal of a new way to determine utility functions and their aggregation, the possibility to consider a large set of criteria and alternatives while maintaining the stability of the method. Supplier selection is very important for organizations in the medical industry. Sustainability in the supplier selection process in the medical industry is a strategically important issue, and poorly implemented in the private medical sector. Therefore, the example explains how to use the MARCOS method to select sustainable suppliers in the private medical sector. A case study of a sustainable supplier selection for the healthcare industry (a polyclinic) includes ranking of eight alternatives with regard to 21 criteria for all aspects of sustainability. The results and verification of the new method are carried out throughout a comprehensive sensitivity analysis. 21 scenarios with changes in the weight values of criteria were established, the measurement scale from 1 to 9 was changed to 1–5, a comparison with six other MCDM methods was performed, and it was verified in dynamic conditions which implied a change of the elements of the initial decision-making matrix. All phases of the sensitivity analysis showed the validity of MARCOS method. The obtained results and all scenarios in sensitivity analysis show that A2 remains the best alternative.

12. Mishra, A. R., Rani, P., Pardasani, K. R., Mardani, A., **Stević, Ž.,** & Pamučar, D. (2020) *A novel entropy and divergence measures with multi-criteria service quality assessment using interval-valued intuitionistic fuzzy TODIM method*. Soft Computing, (IF2018=2.784) 1-21. (R22) https://doi.org/10.1007/s00500-019-04627-7

    Interval-valued intuitionistic fuzzy sets (IVIFSs) are proven to be the fastest growing research area and are more flexible way to handle the uncertainty. Information measures play vital role in the study of uncertain information; therefore, number of new interval-valued intuitionistic fuzzy divergence and entropy measures have been proposed in the literature and applied for different purposes. Recently, multi-criteria decision-making (MCDM) methods with IVIFSs have broadly studied by researchers and practitioners in various fields. In this paper, firstly surveys of IVIF-divergence and entropy measures are conducted and then demonstrated some counter-intuitive cases. Then, novel divergence and entropy measures are originated for IVIFSs to avoid the shortcomings of previous measures. Later on, systematic reviews of Portuguese for Interactive Multi-criteria Decision Making (TODIM) method are presented with recent fuzzy developments. Based on classical TODIM method, a new approach for MCDM is introduced under IVIF environment which considers the bounded rationality of decision makers. In the present method, the proposed entropy measure is utilized to compute the weight vector of the criteria, and the proposed divergence measure is applied in the calculation of dominance degrees. To illustrate the effectiveness of the present approach, a decision-making problem of vehicle insurance companies is presented where the evaluation values of the alternatives are given in terms of IVIF numbers. Comparison with some existing methods shows the applicability and consistency of the present method.

13. Sremac, S., Ziramov, N, Tanackov, I., **Stević, Ž.,** & Ristić.B. (2020). *Ammonia-risk distribution by logistic subsystems and type of consequence*. Burns. (IF2018=2.247) 46, 2, 360-369 (R22) https://doi.org/10.1016/j.burns.2019.07.032

    Detailed quantitative analysis of results, influence of position within logistic systems and consequence of dangerous goods ammonia has been done based on a sample of 1165 workers or third persons involved in 295 accidents. Results of accidents for those involved have been classified as unhospitalized, hospitalized survived, hospitalized deceased and killed. From the logistic point of view accidents with ammonia are located in production, storage, reloading, transport and use subsystems. ammonia's consequences are systematized in the following manner: Respiratory–Toxic (RT), Cold Injury (CI), Fire and Burns (FB), and mechanical consequences after explosions (EX). Distribution laws for unhospitalized, hospitalized, deceased and killed have been determined. The highest average number of persons involved in an accident has been determined in the production subsystem. Cold Injury by ammonia in 47.5% of accidents includes 65.23% of persons involved in accident, but the most invasive consequence of ammonia is RT. Significantly critical fatal outcomes of accidents has been found for Respiratory–Toxic consequence of ammonia in the reloading subsystem, with extremely high average value of 0.4193 killed per accident. Based on obtained results of research certain procedures are proposed to reduce the risk of serious consequences of ammonia's dangerous influence.

14. Stanković, M., **Stević, Ž.,** Das, D. K., Subotić, M., & Pamučar, D. (2020). *A New Fuzzy MARCOS Method for Road Traffic Risk Analysis.* Mathematics, (IF_{2019}=1.747) (R21) *8*(3), 457. https://doi.org/10.3390/math8030457

    In this paper, a new fuzzy multi-criteria decision-making model for traffic risk assessment was developed. A part of a main road network of 7.4 km with a total of 38 Sections was analyzed with the aim of determining the degree of risk on them. For that purpose, a fuzzy Measurement Alternatives and Ranking according to the COmpromise Solution (fuzzy MARCOS) method was developed. In addition, a new fuzzy linguistic scale quantified into triangular fuzzy numbers (TFNs) was developed. The fuzzy PIvot Pairwise RElative Criteria Importance Assessment—fuzzy PIPRECIA method—was used to determine the criteria weights on the basis of which the road network sections were evaluated. The results clearly show that there is a dominant section with the highest risk for all road participants, which requires corrective actions. In order to validate the results, a comprehensive validity test was created consisting of variations in the significance of model input parameters, testing the influence of dynamic factors—of reverse rank, and applying the fuzzy Simple Additive Weighing (fuzzy SAW) method and the fuzzy Technique for Order of Preference by Similarity to Ideal Solution (fuzzy TOPSIS). The validation test show the stability of the results obtained and the justification for the development of the proposed model.

15. Vesković, S., **Stević, Ž.,** Karabašević, D., Rajilić, S., Milinković, S., Stojić, G. (2020) *A New Integrated Fuzzy Approach to Selecting the Best Solution for Business Balance of Passenger Rail Operator: Fuzzy PIPRECIA-Fuzzy EDAS Model,* Symmetry (IF2018=2,143), Vol. 12, No. 5, (R22) https://doi.org/10.3390/sym12050743

    The analysis of operations of the passenger traffic operator in the Republic of Srpska (RS) showed that the volume of passenger transport has, for the last fifteen years, been in constant decline. It is of particular importance that the operator has, year after year, recorded a negative balance of business. The way out of the current unfavorable situation in the sector of passenger traffic is based on the application of Public Service Obligation (PSO) based on the Regulation 1370/2007. In order to solve the problems, seven realistically possible variants have been identified. This paper defines the criteria for selecting the best variant, as well as a new integrated fuzzy model for the selection of the best variant that will enable the operator to make a profit. To define the weights of criteria in this paper, we have used the fuzzy PIvot Pairwise RElative Criteria Importance Assessment (F-PIPRECIA) method, while for ranking and selection of the best variant, we have used the Fuzzy Evaluation based on Distance from Average Solution (F-EDAS) method. Results show that the seventh variant: "Increase in revenue from ticket sales and PSO services and reduction in costs" is the best solution in current conditions. Validation tests are performed with different scenarios and approaches and show that the model is stable. A validity test was created consisting of variations in the significance of model input parameters, testing of reverse rank, applying the fuzzy Measurement Alternatives and Ranking according to the COmpromise Solution (F-MARCOS), fuzzy Simple Additive Weighing (F-SAW) method, and fuzzy Technique for Order of Preference by Similarity to Ideal Solution (F-TOPSIS). As a part of the validation tests, Spearman's coefficient of correlation (SCC) in some scenarios is performed and weights of the criteria have been obtained using the Fuzzy Analytic Hierarchy Process (F-AHP) and Full Consistency Method (FUCOM).

16. Pribićević, I., Doljanica, S., Momčilović, O., Das, D.K., Pamučar, D., **Stević, Ž.** (2020) *Novel Extension of DEMATEL Method by Trapezoidal Fuzzy Numbers and D Numbers for Management of Decision-Making Processes.* Mathematics (IF2018=1.105), 8, 812. (R21) https://doi.org/10.3390/math8050812

    The decision-making trial and evaluation laboratory (DEMATEL) method is one of the most significant multi-criteria techniques for defining the relationships among criteria and for defining the weight coefficients of criteria. Since multi-criteria models are very often used in management and decision-making under conditions of uncertainty, the fuzzy DEMATEL model has been extended in this paper by D numbers (fuzzy DEMATEL-D). The aim of this research was to develop a multi-criteria methodology that enables the objective processing of fuzzy linguistic information in the pairwise comparison of criteria. This aim was achieved through the development of the fuzzy DEMATEL-D method. Combining D numbers with trapezoidal fuzzy linguistic variables (LVs) allows for the additional processing of uncertainties and ambiguities that exist in experts' preferences when comparing criteria with each other. In addition, the fuzzy DEMATEL-D methodology has a unique reasoning algorithm

that allows for the rational processing of uncertainties when using fuzzy linguistic expressions for pairwise comparisons of criteria. The fuzzy DEMATEL-D methodology provides an original uncertainty management framework that is rational and concise. In order to illustrate the effectiveness of the proposed methodology, a case study with the application of the proposed multi-criteria methodology is presented.

17. Subotić M., **Stević Ž.,** Softić E., Radičević V., (2020). *Passenger car equivalents on downgrades of two-lane roads,* The Baltic journal of road and bridge engineering (IF2019=0,771), 15(4) pp. 152-173 (R23) https://doi.org/10.7250/bjrbe.2020-15.499

    In this paper, empirical research about Passenger Car Equivalents (PCEs) on the longitudinal downgrade of two-lane roads in Bosnia and Herzegovina has been conducted in order to determine the influence of vehicle structure under free traffic flow conditions. The research has been carried out considering the classes of vehicles at cross-sections on the downgrade of two-lane roads. As a result, the negative influence of vehicle structure under free traffic flow conditions using passenger car equivalents (PCEs) has been determined. The results show that on the downgrade of two-lane roads, the value of passenger car equivalent decreases from the level terrain to the boundary minimum value for the determined downgrade g = −3.00%, after which its value starts to increase slightly. Based on the obtained values, the models calibrated with a second-degree polynomial have been developed to determine the average value of passenger car equivalent as a function of its boundary value. The paper also compares the results obtained by the developed models with the models from the Highway Capacity Manual under free traffic flow conditions. In addition, models for the percentage values of PCE15%, PCE50% and PCE85% have been established.

18. Blagojević, A., **Stević, Ž.,** Marinković, D., Kasalica, S., Rajilić, S. (2020) *A Novel Entropy-Fuzzy PIPRECIA-DEA Model for Safety Evaluation of Railway Traffic.* Symmetry, 12, 1479, (IF2019=2,645), (R22) https://doi.org/10.3390/sym12091479

    The conditions of globalization often dictate the functioning of transport markets, so it is necessary to conduct frequent research in order to achieve sustainable business. This is achieved through adequate risk and safety management at all levels. The research carried out in this paper includes determining the state of railway traffic safety in a total of nine railway sections in Bosnia and Herzegovina (B&H). The aim of this paper is to develop a new integrated Entropy-Fuzzy PIPRECIA (PIvot Pairwise RElative Criteria Importance Assessment)-DEA (Data Envelopment Analysis) model for determining the state of safety in B&H under particular conditions of uncertainty. Additionally, the aim is to combine the advantages of linear programming (DEA), an objective method (Entropy), and a subjective method (Fuzzy PIPRECIA). In this way, an integrated objective–subjective model is created that provides accurate and balanced decision-making through their integration. Eleven sustainable criteria were defined and divided into six inputs and five outputs. The Entropy model was used to determine the weight values of the inputs, while due to the nature of the outputs, Fuzzy PIPRECIA was used to evaluate them. After the application of the two methods, the way of averaging their values was defined. The DEA model, which implies an input- and output-oriented model, was applied to determine which railway sections have satisfactory performance in terms of safety. Two sections were eliminated from further computation due to extremely poor performance and high risk. Then, the weighted overall efficiency ranking method was applied to determine the final ranking of the railway sections. The results obtained were verified through a sensitivity analysis, which involved changing the impact of the five most significant criteria and a comparison with two Multi-Criteria Decision-Making (MCDM) methods.

19. Đalić, I., Ateljević, J., **Stević, Ž.,** Terzić, S., (2020). *An integrated SWOT – Fuzzy PIPRECIA model for analysis of competitiveness in order to improve logistics performances,* Facta Universitatis, Series: Mechanical Engineering, Special Issue: Decision-Making Techniques, Fuzzy Approaches and Data Analysis in Technology and Logistics (IF2020=3.324) (R22) https://doi.org/10.22190/FUME200325029D

    On the question: how to react in a particular situation, the management of the company must have a quick answer. In the time of fast and huge changes in production, the management must know what resources are available in the company and what kind of environment it faces. To respond promptly to the requirements of the environment, the company must define a clear strategy for its business. To define a strategy, management must know the state of the company. From these reasons, in this research

it was conducted SWOT analysis of specific company, and after that the elements of the SWOT matrix were ranked using fuzzy PIPRECIA method. This ranking shows on which element company should pay the most attention.

20. Mitrović Simić, J., **Stević, Ž.,** Zavadskas, E.K., Bogdanović, V., Subotić, M., Mardani, A. (2020). *A Novel CRITIC-Fuzzy FUCOM-DEA-Fuzzy MARCOS Model for Safety Evaluation of Road Sections Based on Geometric Parameters of Road* Symmetry, *12*, 2006. (IF_{2019}=2,645) (R22) https://doi.org/10.3390/sym12122006

    Trends of globalization very often cause the emergence of phenomena that asymmetrically affect the overall sustainability of the transport system. In order to predict certain situations and potentially be able to manage the transport system, it is necessary to manage risk situations and traffic safety in a timely manner. This study has conducted an investigation which implies defining the level of safety of a total of nine sections of two-lane roads. The main aim of the paper is to create a new multiphase model consisting of CRITIC (The CRiteria Importance Through Intercriteria Correlation), Fuzzy FUCOM (Full Consistency Method), DEA (Data Envelopment Analysis), and Fuzzy MARCOS (Measurement Alternatives and Ranking according to the COmpromise Solution) methods for determining the level of traffic safety on road sections under the conditions of uncertainty. In order for the created model to be adequately applied, eight parameters were created, and they were classified through four inputs and four outputs. To calculate the significance of the inputs, the CRITIC method based on the symmetric correlation matrix was used, and taking into account the nature of the outputs, the Fuzzy FUCOM method based on averaged values using the fuzzy Bonferroni Mean (BM) operator was applied to determine their weights. To determine the degree of safety, the DEA model was created. After that, the Fuzzy MARCOS method was used in order to determine the final ranking of the remaining five sections of the road network. Finally, the verification of results was performed through three phases of Sensitivity Analysis (SA).

21. Anysz, H., Nicał, A., **Stević, Ž.,** Grzegorzewski, M., & Sikora, K. (2021). *Pareto Optimal Decisions in Multi-Criteria Decision Making Explained with Construction Cost Cases.* Symmetry, 13(1), 46. (IF2020=2,713) (R22) https://doi.org/10.3390/sym13010046

    In multi-criteria decision-making (MCDM) problems the decision-maker is often forced to accept a not ideal solution. If the ideal choice exists, it would be certainly chosen. The acceptance of a non- ideal solution leads to some inadequate properties in the chosen solution. MCDM methods help the decision-maker to structure his needs considering different units, in which the properties of the solutions are expressed. Secondly, with MCDM tools the assessment of the available solutions can be calculated with consideration of the decision-maker's needs. The incorporation of the cost criterion into the decision maker's preferences calculation, and the solution assessment calculation, deprives the decision-maker of the ability to calculate the financial result of the decision he must make. A new multi-criteria decision making with cost criterion analysed at the final stage (MCDM-CCAF) method is developed based on principle of Pareto optimal decisions. It is proposed to exclude the cost criterion from the MCDM analysis and consider it at the final phase of the decision-making process. It is illustrated by example solutions with consideration of cost criterion and without it. It is proposed to apply the invented post-processing method to all MCDM analyses where the cost criterion of analysed variants is considered.

22. Blagojević, A., Kasalica, S., **Stević, Ž.,** Tričković, G., Pavelkić, V. (2021). *Evaluation of Safety Degree at Railway Crossings in Order to Achieve Sustainable Traffic Management: A Novel Integrated Fuzzy MCDM Model.* Sustainability, 13, 832. (IF2020=3.251) (R22) https://doi.org/10.3390/su13020832

    Sustainable traffic system management under conditions of uncertainty and inappropriate road infrastructure is a responsible and complex task. In Bosnia and Herzegovina (BiH), there is a large number of level crossings which represent potentially risky places in traffic. The current state of level crossings in BiH is a problem of the greatest interest for the railway and a generator of accidents. Accordingly, it is necessary to identify the places that are currently a priority for the adoption of measures and traffic control in order to achieve sustainability of the whole system. In this paper, the Šamac–Doboj railway section and passive level crossings have been considered. Fifteen different

criteria were formed and divided into three main groups: safety criteria, road exploitation characteristics, and railway exploitation characteristics. A novel integrated fuzzy FUCOM (full consistency method)—fuzzy PIPRECIA (pivot pairwise relative criteria importance assessment) model was formed to determine the significance of the criteria. When calculating the weight values of the main criteria, the fuzzy Heronian mean operator was used for their averaging. The evaluation of level crossings was performed using fuzzy MARCOS (measurement of alternatives and ranking according to compromise solution). An original integrated fuzzy FUCOM–Fuzzy PIPRECIA–Fuzzy MARCOS model was created as the main contribution of the paper. The results showed that level crossings 42 + 690 (LC4) and LC8 (82 + 291) are the safest considering all 15 criteria. The verification of the results was performed through four phases of sensitivity analysis: resizing of an initial fuzzy matrix, comparative analysis with other fuzzy approaches, simulations of criterion weight values, and calculation of Spearman's correlation coefficient (SCC). Finally, measures for the sustainable performance of the railway system were proposed.

23. Matić, B., Jovanović, S., Marinković, M., Sremac, S., Kumar Das, D., **Stević, Ž.** (2021). *A Novel Integrated Interval Rough MCDM Model for Ranking and Selection of Asphalt Production Plants.* Mathematics, 9, 269. (IF2020=2.258) (R21) https://doi.org/10.3390/math9030269

    Asphalt production plants play an important role in the field of civil engineering, but also in the entire economic system since the construction of roads enables uninterrupted functioning within it. In this paper, the ranking of asphalt production plants on the territory of the Autonomous Province of Vojvodina has been performed. The modern economy needs contemporary models and methods to solve complicated MCDM problems and, for these purposes, it has been developed an original Interval Rough Number (IRN) Multi-criteria decision-making (MCDM) model that implies an extension of two methods belonging to the field with interval rough numbers. After forming a list of eight most significant criteria for assessing the efficiency of asphalt production plants, the Interval Rough Number PIvot Pairwise RElative Criteria Importance Assessment (IRN PIPRECIA) method was developed to determine the significance of the criteria. A total of 21 locations with asphalt mixture installation were considered. For that purpose, seven asphalt production plants were included, and for their ranking, the IRN EDAS (Evaluation based on Distance from Average Solution) method was created. The aim of this paper is to develop a novel interval rough model that can be useful for determining the efficiency of asphalt production plants. Averaging in group decision-making (GDM) for both methods was performed using an IRN Dombi weighted geometric averaging (IRNDWGA) aggregator. The obtained results show that (A15) Ruma (SP)–Mačvanska Mitrovica–Zasavica has the best characteristics out of the set of locations considered in this study. However, Alternatives A6 and A19 are also variants with remarkably good characteristics since there is very little difference in values compared to the first-ranked alternative. Also, the obtained results have shown that the developed model is applicable, which is proven through a comparative analysis.

24. Pamučar, D., Puška, A., **Stević, Ž.,** & Ćirović, G. (2021). A new intelligent MCDM model for HCW management: The integrated BWM–MABAC model based on D numbers. Expert Systems with Applications, 175, 114862. (IF2020=6.954) (R21) https://doi.org/10.1016/j.eswa.2021.114862

    Healthcare waste (HCW) management is a complex and challenging problem. It is one of the priorities in health. An increase in the number of the health services provided leads to an increase in the amount of HCW, which has particularly been noticeable in recent years. Since this is the waste that may pose a risk to humans and the environment, it is necessary to ensure an adequate treatment of the same. HCW management is particularly important in developing countries, due to inappropriate disposal methods, underfunding and a lack of the infrastructure. In order to achieve the cost-effectiveness and sustainability of this area, HCW should be minimized through an adequate treatment of the same. The Public Enterprise Zdravstvo Brčko (Brčko Health System) has intensively been addressing the HCW management issue. They have decided to upgrade the HCW system by purchasing a new infectious waste treatment facility. The paper is aimed at creating a new original integrated multicriteria decision-making model based on D numbers for processing fuzzy linguistic information. This model will serve to support management in the procurement of the mentioned facility. The model integrates the benefits of different approaches and theories. An initial model was formed, consisting of the six potential solutions

evaluated based on the 18 criteria classified into the following four groups: social, environmental, economic and technological. Four experts in this field evaluated the criteria and potential solutions. Then, a new Best-Worst Method based on D numbers (BWM-D) was applied in order to determine the significance of the criteria. After that, a Multi-Attributive Border Approximation Area Comparison Based on D numbers (MABAC-D) was developed and applied so as to evaluate and select an infectious waste treatment facility. The results have shown that the alternative A1 gives the best results, whereas the alternative A5 shows the worst results. Finally, a sensitivity analysis was performed to validate the obtained results. In this part of the paper, the Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS-D) and VIšekriterijumska Optimizacija Kompromisnog Rešenja (VIKOR-D) were developed in order to validate the results. When procuring a new Contagious Waste Treatment System, the characteristics of the available devices need be perceived and all the criteria need be taken into account in order to provide a device which will solve the HCW problem in the best way. This paper has shown how D numbers can be used when making a selection of an HCW management device, and also how all the characteristics of such a device can be perceived and how the device demonstrating the best characteristics can be selected.

25. Đalić, I., **Stević, Ž.,** Ateljević, J., Turskis, Z., Zavadskas, E.K., Mardani, A. (2021). *A novel integrated MCDM-SWOT-TOWS model for the strategic decision analysis in transportation company,* Facta Universitatis, Series: Mechanical Engineering, Special Issue: Application of operations research tools in transport and logistics (IF2020=3.324) (R22) https://doi.org/10.22190/FUME201125032D

    In this paper, based on the Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis, a matrix of Threats, Opportunities, Weaknesses and Strengths (TOWS) was formed. It represents possible business strategies of the transport company. To choose the right plan, a model based on the integration of Fuzzy PIvot Pairwise RElative Criteria Importance Assessment (fuzzy PIPRECIA), Full Consistency Method (FUCOM) and Measurement Alternatives and Ranking according to COmpromise Solution (MARCOS) methods, has been formed. A case study was conducted in the transport company from Bosnia and Herzegovina which provides services on the domestic and the European Union market for 20 years and belongs to a group of small and medium enterprises (SMEs). The SWOT analysis in this transport company was the basis for forming the TOWS matrix, which represents a set of possible business strategies. These strategies are the basis for developing five basic alternatives. The transport company should choose the best one of them for future business. The research focuses on forming a model for choosing the best strategy by which the transport company seeks to improve its business. Decision-making (DM) is not a straightforward sequence of operations, so the harmonization of methods as well as the verification of their results, are essential in the research. This model is applicable in SMEs that make these and similar decisions. Using this model, companies can adjust their business policies to the results of the model and achieve better business results. This research is the first that allows the use of such a model in making strategic decisions.

26. Jakovljevic V, Zizovic M, Pamucar D, **Stević Ž,** Albijanic M. (2021) *Evaluation of Human Resources in Transportation Companies Using Multi-Criteria Model for Ranking Alternatives by Defining Relations between Ideal and Anti-Ideal Alternative (RADERIA).* Mathematics. 9(9): 976. (IF2020=2.258) (R21) https://doi.org/10.3390/math9090976

    Multi-criteria decision-making methods (MCDM) represent a very powerful tool for making decisions in different areas. Making a rational and reliable decision, while respecting different factors, is a challenging and difficult task; MCDM models have a great impact on achieving this goal. In this paper, a new MCDM technique is presented—ranking alternatives by defining relations between the ideal and anti-ideal alternative (RADERIA), which was tested for the evaluation of human resources (HR) in a transportation company. The RADERIA model has three key advantages that recommend it for future use: (1) the RADERIA model has a new approach for data normalization that enables defining the normalization interval according to the judgments of a decision-maker; (2) an adaptive model for data normalization of the RADERIA model allows tough conversion into various forms of decreasing functions (linear, quadratic equation, etc.); and (3) the resistance of the RADERIA model to the rank reversal problem. Furthermore, in many simulations, the RADERIA method has shown stability when

processing a larger number of datasets. This was also confirmed by a case study with 36 alternatives, as considered in this paper. The results and verification of the proposed new method were acquired through a comprehensive verification of the complexity of the results. The complexity of the results was executed through (1) comparison with four other multi-criteria methods, (2) checking the resistance of the RADERIA model to the rank reversal problem, and (3) the analysis of the impact of changes in the measurement scale on the ranking results.

27. **Stević, Ž.,** Tanackov, I., Puška, A., Jovanov, G., Vasiljević, J., & Lojaničić, D. (2021). *Development of Modified SERVQUAL–MCDM Model for Quality Determination in Reverse Logistics*. Sustainability, 13(10), 5734. (IF2020=3.251) (R22) https://doi.org/10.3390/su13105734

    To run a business successfully, quality determination and customer relations are very important factors. Therefore, it is necessary to measure quality and identify critical points of business. In this paper, an original integrated model for measuring the service quality of reverse logistics (RL) was developed for the company Komunalac Teslić, which was used as an example. The Delphi and Full Consistency Method (FUCOM) was applied to determine the significance of the quality dimensions, while a modified SERVQUAL (SQ) model was used to measure the service quality of the logistics. An original SQ questionnaire was formed with a total of 21 statements that were arranged in five standard dimensions. Examining the reliability of the questionnaire for quality dimensions using the Cronbach Alpha coefficient, it was found that the measurement scales for dimensions are appropriate in terms of user expectations, while in terms of quality perception there is no measurement scale for the empathy dimension. An extensive statistical analysis was then performed to verify the results. A Signum test was applied to identify the relationship between the responses in terms of expectations and perceptions, i.e., to examine their differences. The findings obtained by this research show that the expectations were higher than the perceived quality of the services and that there was a significant statistical difference for 12 of the SQ statements. For two statements, there was a significant statistical difference in favor of perceived quality compared to expectations. Based on the results obtained, the company must improve its services in order for service quality to be at a satisfactory level.

28. Vrtagić, S., Softić, E., Subotić, M., **Stević, Ž.,** Dordevic, M., & Ponjavic, M. (2021). *Ranking Road Sections Based on MCDM Model: New Improved Fuzzy SWARA (IMF SWARA)*. Axioms, 10(2), 92. (IF2021=1.824) (R22) https://doi.org/10.3390/axioms10020092

    Traffic management is a significantly difficult and demanding task. It is necessary to know the main parameters of road networks in order to adequately meet traffic management requirements. Through this paper, an integrated fuzzy model for ranking road sections based on four inputs and four outputs was developed. The goal was to determine the safety degree of the observed road sections by the methodology developed. The greatest contribution of the paper is reflected in the development of the improved fuzzy step-wise weight assessment ratio analysis (IMF SWARA) method and integration with the fuzzy measurement alternatives and ranking according to the compromise solution (fuzzy MARCOS) method. First, the data envelopment analysis (DEA) model was applied, showing that three road sections have a high traffic risk. After that, IMF SWARA was applied to determine the values of the weight coefficients of the criteria, and the fuzzy MARCOS method was used for the final ranking of the sections. The obtained results were verified through a three-phase sensitivity analysis with an emphasis on forming 40 new scenarios in which input values were simulated. The stability of the model was proven in all phases of sensitivity analysis.

29. **Stević, Ž.,** Karamaşa, Ç., Demir, E. and Korucuk, S. (2021), "*Assessing sustainable production under circular economy context using a novel rough-fuzzy MCDM model: a case of the forestry industry in the Eastern Black Sea region*", Journal of Enterprise Information Management, (IF2020=5.396) (R21) https://doi.org/10.1108/JEIM-10-2020-0419

    Forests are negatively affected from rapid world population increase and industrialization that create intense pressures on natural resources and the possibility of an achieving circular economy. Forests can be considered as essential resources for providing sustainable society and meeting the requirements of

future generations and circular economy. Therefore sustainable production tools as part of circular economy can be handled as one of the basic indicators for achieving circular economy. Accordingly the main purpose of this study is developing a novel rough – fuzzy multi-criteria decision-making model (MCDM) for evaluation sustainable production for forestry firms in Eastern Black Sea Region. For determining 18 criteria weights a novel Rough PIPRECIA (PIvot Pairwise RElative Criteria Importance Assessment) method is developed. Eight decision-makers (DMs) participated in the research, and to obtain group rough decision matrix, rough Dombi weighted geometric averaging (RNDWGA) operator has been applied. For evaluation forestry firms fuzzy MARCOS (Measurement of alternatives and ranking according to COmpromise solution) method was utilized. After application developed model the fourth alternative was found as the best. Sensitivity analysis and comparison were made to present the applicability of this method. Development of novel integrated Rough PIPRECIA-Fuzzy MARCOS model with emphasis on developing new Rough PIPRECIA method.

30. Yazdani, M., Torkayesh, A. E., **Stević, Ž.,** Chatterjee, P., Ahari, S. A, Hernandez, V. D., (2021). *An Interval Valued Neutrosophic Decision-Making Structure for Sustainable Supplier Selection,* Expert Systems with Applications, (IF2020=6.954) (R21) https://doi.org/10.1016/j.eswa.2021.115354

    Evolution of supply chain management (SCM) in recent years has transformed it beyond the simple logic of benefit and economic point of views. One of such key strategic elements in establishing a sustainable and socially responsive SCM is supplier selection and performance assessment. This study brings forward a sustainable supplier evaluation structure under multiple criteria and interval valued fuzzy neutrosophic (IVFN) model. The proposed structure uses CRiteria Importance Through Inter - criteria Correlation (CRITIC) and combined compromised solution (CoCoSo) under IVFN environment for evaluation and selection of suppliers for a dairy company in Iran. Alternative supplier 5 (S5) emerges as the best supplier with the highest overall score (1.168). Average Spearman rank correlation coefficient between the proposed model and other well established decision-making models methods is found as 0.9651 which establishes reliability of model outcomes. The estimated zero value of Gini Index indicates that supplier 5 has a constant ranking in all considered methods. This is a practical sustainable supplier selection platform which allows decision makers in procurement and SC industries to select the most suitable supplier in any pre-determined period.

31. Mahmutagić, E., **Stević, Ž.,** Nunić, Z., Chatterjee, P., & Tanackov, I. (2021). *An integrated decision-making model for efficiency analysis of the forklifts in warehousing systems.* Facta Universitatis, Series: Mechanical Engineering. Special Issue: Application of operations research tools in transport and logistics (IF2020=3.324), (R21) https://doi.org/10.22190/FUME210416052M

    In the logistics world, special attention should be given to warehousing systems, cost rationalization, and improvement of all the factors that affect efficiency and contribute to smooth functioning of logistics subsystems. In real time industrial practice, the issue of evaluating and selecting the most appropriate forklift involves a complex decision-making problem that should be formulated through an efficient analytical model. The forklifts efficiency plays a very important role in the company. The forklifts are being used on a daily basis and no logistical processes could be done without them. Therefore, it has been decided to determine their efficiency, which will contribute to the optimization of the process in this logistics subsystem. This study puts forward an integrated forklift selection model using Data Envelopment Analysis (DEA), Full Consistency Method (FUCOM) and Measurement Alternatives and Ranking According to the Compromise Solution (MARCOS) methods. Five input parameters (regular servicing costs, fuel costs, exceptional servicing costs, total number of all minor accidents and damage caused by forklifts) and one output parameter (number of operating hours) were first identified to assess efficiency of eight forklifts in a warehousing system of the Natron-Hayat company using the DEA model. This step allows sorting of efficient forklifts which are subsequently evaluated and ranked using FUCOM and MARCOS methods. A sensitivity analysis is also performed in order to check reliability and accuracy of the results. The findings of this research clearly show that the proposed decision-making model can significantly contribute to all spheres of business applications.

32. Ercegovac P, Stojić G, Kopić M, **Stević Ž,** Sinani F, Tanackov I. (2021). *Model for Risk Calculation and Reliability Comparison of Level Crossings.* Entropy. 23(9):1230. (IF_{2020}=2.524), (R22), https://doi.org/10.3390/e23091230

    There is not a single country in the world that is so rich that it can remove all level crossings or provide their denivelation in order to absolutely avoid the possibility of accidents at the intersections of railways and road traffic. In the Republic of Serbia alone, the largest number of accidents occur at passive crossings, which make up three-quarters of the total number of crossings. Therefore, it is necessary to constantly find solutions to the problem of priorities when choosing level crossings where it is necessary to raise the level of security, primarily by analyzing the risk and reliability at all level crossings. This paper presents a model that enables this. The calculation of the maximal risk of a level crossing is achieved under the conditions of generating the maximum entropy in the virtual operating mode. The basis of the model is a heterogeneous queuing system. Maximum entropy is based on the mandatory application of an exponential distribution. The system is Markovian and is solved by a standard analytical concept. The basic input parameters for the calculation of the maximal risk are the geometric characteristics of the level crossing and the intensities and structure of the flows of road and railway vehicles. The real risk is based on statistical records of accidents and flow intensities. The exact reliability of the level crossing is calculated from the ratio of real and maximal risk, which enables their further comparison in order to raise the level of safety, and that is the basic idea of this paper.

33. Puška, A., **Stević, Ž.,** & Pamučar, D. (2021). *Evaluation and selection of healthcare waste incinerators using extended sustainability criteria and multi-criteria analysis methods.* Environment, Development and Sustainability, 1-31. (IF_{2020}=3.219), (R22) https://doi.org/10.1007/s10668-021-01902-2

    Disposal of healthcare waste is a key issue of environmental sustainability in the world. The amount of healthcare waste is increasing every day, and it is necessary to adequately dispose of this kind of waste. There are various treatments for healthcare waste disposal, of which incineration of healthcare waste is one of the solutions. This paper suggests a model for selection of the type of incinerators that best solve the problem of healthcare waste in secondary healthcare institutions in Bosnia and Herzegovina. In the selection of incinerators, extended sustainability criteria were applied. Basic sustainability criteria: environmental, economic, and social criteria, were extended with the technical criterion. To assess which of the incinerators best meets the needs for healthcare waste collection, multi-criteria decision-making was used. For this purpose, a combination of two MCDA methods was applied in this paper, namely full consistency method (FUCOM) and compromise ranking of alternatives from distance to ideal solution (CRADIS). The FUCOM method was applied to determine the weights of the criteria, while the CRADIS method was applied to rank the alternatives. The best alternative of the six alternatives used is A2 (I8-M50), followed by alternative A1 (I8-M40), while the worst ranked alternative is A5 (I8-M100). These results were confirmed by applying the other six methods of multi-criteria analysis and the performed sensitivity analysis. The contribution of this paper is reflected through a new method of multi-criteria analysis that was used to solve decision-making problems. This method has shown simplicity and flexibility in operation and can be used in all problems when it is necessary to make a multi-criteria selection of alternatives.

34. Vesković, S., **Stević, Ž.,** Nunić, Z. Sanjin Milinković, Dušan Mladenović, (2022). *A novel integrated large-scale group MCDM model under fuzzy environment for selection of reach stacker in a container terminal.* Applied intelligence (IF_{2021}=5.019), (R22), https://doi.org/10.1007/s10489-021-02914-1

    The selection of transshipment and handling machinery in container terminals is a complex and responsible task due to a number of daily operations required. Accordingly, there is a need to manage a circular economy that integrates economic parameters and attitudes toward the environment. Depending on the size of the container terminal itself, a necessary set of means for performing transshipment and handling operations is designed. In this paper, based on the previously identified needs of the IRT Belgrade container terminal, the evaluation and selection of a reach stacker within large-scale group decision making under fuzzy environment was performed. The main goal of the paper is to create an adequate fuzzy group multi-criteria decision making (MCDM) model based on the integration of Fuzzy

FUCOM (Full Consistency Method), Fuzzy MARCOS (Measurement of alternatives and ranking according to COmpromise solution) and Fuzzy Bonferroni Mean (BM) operator. It was formed a total of 15 criteria divided into three basic groups: economic, technological and technical, which were evaluated on the basis of 18 experts. To determine the weight values of the criteria, the Fuzzy FUCOM method was applied through a total of 72 models averaged using the Fuzzy BM operator. Evaluation and selection of a reach stacker (RS) was performed using the Fuzzy MARCOS method and the Fuzzy BM operator. The obtained results have shown that the most important group of criteria in group decision making and processing of a larger set of data is the technological group. The best option is the seventh variant, and thus the requirement to select RS for the container terminal is met. The verification of the obtained results was performed through the following phases: the influence of the reverse rank fuzzy matrix, simulation of the weight values of the criteria through 50 formed scenarios and comparison with two other MCDM methods in a fuzzy form.

35. **Stević Ž.,** Das D.K., Tešić R., Vidas M., Vojinović D. (2022). *Objective Criticism and Negative Conclusions on Using the Fuzzy SWARA Method in Multi-Criteria Decision Making.* Mathematics. 10(4):635. (IF_{2020}=2.258) (R21) https://doi.org/10.3390/math10040635

The quality of output or decision-making depends on high-quality input data, their adequate evaluation, the application of adequate approaches, and accurate calculation. In this paper, an objective criticism of applying the fuzzy SWARA (step-wise weight assessment ratio analysis) method based on the Chang TFN (triangular fuzzy number) scale is performed. Through research, it has been noticed that a large number of studies use this approach and, as an epilogue, there are wrong decisions based on inconsistent values in relation to the initial assessment of decision-makers (DMs). Seven representative studies (logistics, construction industry, financial performance management, and supply chain) with different parameter structures and decision matrix sizes have been singled out. The main hypothesis has been set, which implies that the application of this approach leads to wrong decisions because the weight values of the criteria are incorrect. A comparative analysis with the improved fuzzy SWARA (IMF SWARA) method has been created and a number of negative conclusions has been reached on using the fuzzy SWARA method and the Chang scale: Primarily, that using such an approach is impossible for two or more criteria to have equal value, that allocating TFN (1,1,1) leads to criteria values that are inconsistent with expert evaluation, that the last-ranked criteria in the fuzzy SWARA method have no influential value on the ranking of alternatives, that there is a great gap between the most significant and last-ranked criteria, and that the most significant criterion has a huge impact on the evaluation of alternative solutions and decision making. As a general conclusion, it is given that this approach is not adequate for application in problems of multi-criteria decision making because it produces inadequate management of processes and activities in various spheres.

36. **Stević, Ž.,** Miškić, S., Vojinović, D., Huskanović, E., Stanković, M., & Pamučar, D. (2022). *Development of a Model for Evaluating the Efficiency of Transport Companies: PCA–DEA–MCDM Model.* Axioms, 11(3), 140. (IF2021=1.824) (R22) https://doi.org/10.3390/axioms11030140

The efficiency of transport companies is a very important factor for the companies themselves, as well as for the entire economic system. The main goal of this paper is to develop an integrated model for determining the efficiency of representative transport companies over a period of eight years. An original model was developed that includes the integration of DEA (Data Envelopment Analysis), PCA (Principal Component Analysis), CRITIC (Criteria Importance Through Inter criteria Correlatio), Entropy and MARCOS (Measurement Alternatives and Ranking according to the COmpromise Solution) methods in order to determine the final efficiency of transport companies based on 10 input–output parameters. The results showed that the most efficient business performance was achieved in the period 2014–2017, followed by slightly less efficient results. Then, extensive sensitivity analysis and comparative analysis were performed, which confirmed, to some extent, the previously obtained results. In the sensitivity analysis, 30 scenarios with changes in the weights of criteria were created, while the comparative analysis was carried out with three other MCDM (Multi-Criteria Decision-Making) methods. Finally, the rank correlation index was determined using the Spearman and WS (Wojciech Salabun) correlation coefficients. According to the final results, very efficient years can be separated that can be the benchmark for furthering the business.

37. Damjanović, M., **Stević, Ž.,** Stanimirović, D., Tanackov, I., & Marinković, D. (2022). *Impact of the number of vehicles on traffic safety: multiphase modeling.* Facta Universitatis, Series: Mechanical Engineering. 20(1), 177-197. (IF_{2020}=3.324), (R22) https://doi.org/10.22190/FUME220215012D

    Traffic safety is one of the key issues nowadays, given the fact that a large number of people lose their lives in traffic accidents every day. There are various influential factors in the occurrence of traffic accidents, the number of vehicles being one of them. This paper assesses the traffic safety in Montenegro in the period 1998-2020 by applying the multiphase modeling with a purpose to obtain comparative results which enable implementation of adequate strategies. A total of six scenarios were formed with two inputs and two outputs in a DEA (Data Envelopment Analysis) model, with the number of registered vehicles per year being an input in all scenarios. In addition, as inputs, the scenarios included AADT (Annual Average Daily Traffic), passengers in road transport, passenger-km by road transport, goods transported by road, tone-km by road, and passengers in local transport. The number of traffic accidents with casualties, the number of traffic accidents with material damage, the number of fatal cases and the number of injured persons, depending on a scenario, were observed as outputs. After the DEA model, IMF SWARA (Improved Fuzzy Stepwise Weight Assessment Ratio Analysis) was applied to determine the weights of inputs and outputs, while the final state of traffic safety by years was determined using the MARCOS (Measurement of alternatives and ranking according to COmpromise solution) method.

38. **Stević, Ž.,** Nunić, D., Badi, I., & Karabašević, D. (2022). *Evaluation of dimensions of SERVQUAL model for determining quality of processes in reverse logistics using a Delphi–Fuzzy PIPRECIA model.* Romanian Journal of Economic Forecasting, *25*(1), 139. (IF_{2020}=0.831), (R23)

    Determining a quality measure is a complex process that requires a large number of input parameters and extensive analysis. The purpose of this paper is to evaluate the dimensions of SERVQUAL model for its application in one of reverse logistics channels. A methodology that includes a combination of Delphi and PIPRECIA (PIvot Pairwise RElative Criteria Importance Assessment) method in a fuzzy form was applied. The Delhi method was applied in order for 112 users who filled in the SERVQUAL questionnaire to rank its five constituent dimensions according to significance. After that, based on the evaluation of five experts using the Fuzzy PIPRECIA method, the final values of the dimensions were obtained. Based on results, we could determine that the most significant dimension is C5 (responsiveness) with a weight coefficient of 0.259, followed by the reliability dimension (C1) with a weight of 0.228, slightly smaller than the responsiveness dimension. The assurance dimension and tangibles dimension follow with values (C2=0.207 and C3=0.183), while the empathy dimension is in the last position – C4=0.156. The obtained results show that certain improvement measures should be applied since certain dimensions do not meet the expectations of users to a greater extent. The originality of this research can be seen through the integration of a new Delphi – Fuzzy PIPRECIA model which is presented for the first time. In addition, reviewing other studies, it has been noticed that this is the first time that the SERVQUAL model or its dimensions are applied in the field of reverse logistics.

39. Čabrić, N., Đuričić, R., Malčić, V., & **Stević, Ž.** (2022). *Designing a Petri Net Model to Organize the Transport of Goods in the European Rail Chain*. Acta Polytechnica Hungarica, 19(6). (IF_{2021}=1.711), (R23), DOI: 10.12700/APH.19.6.2022.6.4

    A new railway concept where there is more than one company participating in the transportation chain, Lead Railway Undertaking – LRU, should be in charge of managing and controlling the transportation chain. Using a timed Petri net – TPN, a model of organizing European railway transport will be introduced as a system with discreet events whose state depends on the occurrence of discreet events from the moment of ordering the transportation until the moment of delivering the goods to the client. The tracking of wagons/goods is presented with a token that moves through a designed petri organization model. With the example of a possibility of shortening the estimated time of the wagon retention in stations by shortening the time of commercial checkups of goods, the PN model portrays a strong diagram of all the operations that include wagons, as well as the processes that occur parallel and in sync all along the railway chain.

40. Popović, V., Pamučar, D., **Stević, Ž.,** Lukovac, V., & Jovković, S. (2022). *Multicriteria Optimization of Logistics Processes Using a Grey FUCOM-SWOT Model.* Symmetry, 14(4), 794. (IF2020=2,713), (R22) https://doi.org/10.3390/sym14040794

    Optimization of logistics processes and activities in the function of supply-chain sustainability is a great challenge for logistics companies. It is necessary to rationalize processes in accordance with the strict requirements of the market, while respecting aspects of sustainability, which is not an easy task. Multicriteria decision making can be a tool that contributes to the optimization of logistics processes in terms of making the right decisions and evaluating different strategies in different logistics subsystems. In this paper, we considered the warehousing system as one of the most important logistics subsystems in a company. Conditions and the possibility of implementing barcode technology in order to optimize warehousing processes were evaluated. We formed a strengths, weaknesses, opportunities, and threats (SWOT) matrix consisting of a total of 27 elements. In order to determine the weights of all factors at the first level of decision making and its indicators at the second level of the decision making hierarchy, an original model was developed. This model involved the creation of a novel grey full-consistency method (FUCOM-G) and integration with a SWOT analysis. Since it was a matter of group decision making, we developed a novel grey Hamy aggregator that, by adequately treating uncertainties and ambiguities, contributed to making more precise decisions. The original grey FUCOM-SWOT model based on the grey Hamy aggregator represents a contribution to the entire field of decision making and optimization of logistics processes. Based on the applied model, the obtained results showed that Weaknesses, as part of the SWOT matrix, are currently the most dominant indicators, and that the implementation of barcode technology in a warehousing system is justified.

41. Pamučar, D., Petrović, I., Ćirović, G., & **Stević, Ž.** (2022). *An extension of the MABAC and OS model using linguistic neutrosophic numbers: selection of unmanned aircraft for fighting forest fires.* Transport, 1-25. (IF_{2020}=1.469) (R23) https://doi.org/10.3846/transport.2022.16645

    The paper presents a new approach to the treatment of uncertainty and subjectivity in the decision-making process based on the modification of Multi-Attributive Border Approximation area Comparison (MABAC) and an Objective–Subjective (OS) model by applying Linguistic Neutrosophic Numbers (LNN) instead of traditional numerical values. By integrating these models with LNN it was shown that it is possible to a significant extent to eliminate subjective qualitative assessments and assumptions by decision makers in complex decision-making conditions. On this basis, a new hybrid LNN–OS–MABAC model was formed. This model was tested and validated on a case-study in which the optimal unmanned aircraft were selected to combat forest fires. After defining the criteria and their attributes, they were prioritized using the LNN–OS model, in which the weights of the criteria and their attributes are a combination of the objective values obtained by the method of maximum deviation and the subjective values of the criteria obtained by expert examination using LNN. The ranking and selection of the optimal unmanned aircraft from those on offer with similar characteristics was carried out using the LNN–MABAC model. Testing of the model showed that the proposed model based on LNN provides an objective expert evaluation by eliminating subjective assessments when determining the numerical values of criteria. A sensitivity analysis of the LNN–OS–MABAC model, carried out through 54 scenarios of changes in the weight coefficients, showed a high degree of stability in the solutions obtained when the alternatives were ranked. The results were validated by comparison with LNN extensions of the Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS) model.

42. Ulutaş, A., Topal, A., Pamučar, D., **Stević, Ž.,** Karabašević, D., & Popović, G. (2022). *A New Integrated Multi-Criteria Decision-Making Model for Sustainable Supplier Selection Based on a Novel Grey WISP and Grey BWM Methods.* Sustainability, *14*(24), 16921. (IF_{2021}=3,889), (R22) https://doi.org/10.3390/su142416921

    Supplier selection is an important task in supply chain management, as suppliers have a vital role in the success of organisations in a supply chain. Sustainability has emerged as a solution to decreasing resources and increasing environmental and social problems in the past few decades. It has been applied to various industrial operations, one of them is supplier selection, to mitigate unwanted effects in the

future. Sustainable supplier selection is a complicated multi-criteria decision making problem, including several criteria from economic, environmental, and social perspectives. To deal with subjective judgements of decision makers, fuzzy and grey methods are widely used in multi-criteria decision making, In the case of small, limited, and incomplete data, the grey theory provides satisfactory results, compared to fuzzy methods. Therefore, this study is an integrated method including grey Best-Worst Method (BWM) and grey Weighted Sum-Product (WISP) for choosing the most sustainable supplier for a textile manufacturer, which includes three main criteria and twelve sub-criteria. According to the result of the proposed model, the supplier with the best performance was determined to be the supplier with the SP2 coded. The results of the developed model were shown to the experts, and the accuracy of the results was confirmed. According to the experts, a higher amount of product can be purchased from the supplier with the SP2 code, and a tighter relationship can be worked with this supplier. The contributions of this study are: (1) Develop a new grey MCDM model called Grey WISP. (2) Create a new integrated MCDM model with grey theory, BWM, and WISP methods that can be applied to assess supplier sustainability using this hybrid model. The proposed model can be used not just for selecting sustainable suppliers, but also for any other decision problems that have multiple criteria and alternatives. The findings suggest that the Grey WISP method achieved accurate results.

43. **Stević, Ž.,** Subotić, M., Tanackov, I., Sremac, S., Ristić, B., & Simić, S. (2022). *Evaluation of two-lane road sections in terms of traffic risk using an integrated MCDM model.* Transport, *37*(5), 318-329. (IF_{2021}=1,455), (R23) https://doi.org/10.3846/transport.2022.18243

    The impact of geometric characteristics on traffic risk is reflected through identifying conflict points on roads,traffic accidents, and any other unforeseen situation that is inherently hazardous for traffic participants. In order to identify the road sections with the highest risk, it is necessary to consider a number of criteria that affect risk, and conduct extensive empirical research, analysis and data synthesis. This paper evaluates 9 sections of two-lane roads in the territory of Bosnia and Herzegovina (the Republic of Srpska) using an integrated Multi-Criteria Decision-Making (MCDM) model.To determine the significance of 8 criteria for the evaluation of the sections, it was applied a subjective–objective model consisting of 3 methods: (1) CRiteria Importance Through Inter-criteria Correlation (CRITIC), (2) FUll COnsistency Method (FUCOM) and (3) fuzzy PIvot Pairwise RElative Criteria Importance Assessment (PIPRECIA). The aggregation of the criterion values obtained using the methods yielded the final criterion values. Measurement Alternatives and Ranking according to COmpromise Solution (MARCOS) method was used to evaluate the sections and determine their objective diversity. The obtained results identified one location as extremely hazardous by most of analysed input parameters. The section with the highest risk is the Rudanka – Doboj section (A4), which represents a section of the road infrastructure of the 105 road. The validation of the results obtained by applying the integrated MCDM model was performed through an extensive sensitivity analysis. The weights of criteria were observed through initially individual methods implemented in the MARCOS method. Then, a comparative analysis was performed with 6 other MCDM methods and Spearman's Correlation Coefficient (SCC) was calculated as a statistical indicator of rank correlation in a sensitivity analysis. In addition,the Standard Deviation (STDEV) of the obtained results was determined.

44. Pamucar, D., Deveci, M., **Stević, Ž.,** Gokasar, I., Isik, M., & Coffman, D. M. (2022). *Green strategies in mobility planning towards climate change adaption of urban areas using fuzzy 2D algorithm.* Sustainable Cities and Society, 87, 104159. (IF_{2021}=10,696), (R21) https://doi.org/10.1016/j.scs.2022.104159

    Urban mobility planning must urgently confront the challenges attendant to the low carbon transition and green transformation. The necessary paradigm shift from the traditional approaches to embracing environmental sustainability requires maintaining a firm and stable balancing act between opposing forces. The policy-making process in the transition period is complex and requires a detailed analysis that the academic literature lacks. This study analyzes the decision-making process for urban mobility planning to contribute the academic literature on sustainable transitions. In order to illustrate the complexities in the decision-making process, we design an original case scenario. In the case, the planners are supposed to choose the best project from among four recent green strategies. In the process, they need to take the conflicting requirements on the social, economic, environmental and technical issues into account. Sixteen constraints reflect the available physical and financial conditions. Because the decision-making process includes complexities, a novel two-stages model is introduced in the

method that is used to solve the problem. In the first stage, the fuzzy D PIvot Pairwise RElative Criteria Importance Assessment (PIPRECIA) algorithm is applied to determine the weights. In the second stage, the fuzzy D Dombi (fuzzy 2D) algorithm is proposed to evaluate the alternatives. The results show that societal dynamics are crucially important in choosing the best alternative. Among four alternatives, the one that is inclusive and makes the existing investments more efficient is highly prioritized. Our findings offer policy implications emphasizing the importance of green mobility projects that favors the social benefits as well as financial issues.

45. Bouraima, M. B., Qiu, Y., **Stević, Ž.,** & Simić, V. (2022). *Assessment of alternative railway systems for sustainable transportation using an integrated IRN SWARA and IRN CoCoSo model.* Socio-Economic Planning Sciences, 101475. (IF_{2021}=4,641), (R21) https://doi.org/10.1016/j.seps.2022.101475

    The long-term sustainability of the railway transportation system is determined by a set of criteria that must be considered. For this reason, multi-criteria decision-making (MCDM) techniques have been used because of their high possibility of providing complementary instruments with successful flexibility. Keeping this in mind, we developed a multi-criteria method to conduct an assessment of currently operational railway systems in West Africa for sustainable transportation based on the examination of key challenges affecting the railway system. This study presents the interval rough step-wise weight assessment ratio analysis-combined compromise solution (IR-SWARA-CoCoSo) model. We have adapted the model to group decision-making by incorporating a new technique for dealing with ambiguity and the utilization of interval rough numbers (IRNs). To evaluate the importance coefficients of criteria in the group decision-making procedure, a new interval rough SWARA method has been introduced as an improvement to handle the issues related to MCDM. For the evaluation of the railway transportation system for sustainable transportation, a novel interval rough CoCoSo method was used. According to the findings, information systems is the most critical challenge to the railway transportation system, while the railway system in Nigeria is the best among others. The results were validated in two stages of sensitivity analysis: a comparison with different interval rough approaches, and the calculation of Spearman's correlation coefficient and WS coefficient for all ranks in the comparative analysis.

46. **Stević, Ž.,** Korucuk, S., Karamaşa, Ç., Demir, E., & Zavadskas, E. K. (2022). *A Novel Integrated Fuzzy-Rough MCDM model for assessment of barriers related to smart logistics applications and demand forecasting method in the COVID-19 period.* International Journal of Information Technology & Decision Making, *21*(05), 1647-1678. (IF_{2021}=3,508), (R22) https://doi.org/10.1142/S0219622022500274

    During the pandemic period, smart logistics applications have rapidly changed the way organizations do business in order to provide competitive products and services while still remaining flexible. Smart logistics applications and demand forecasting, which have an important place in ensuring customer satisfaction and increasing competitive advantage, came to the fore even more in this period. However, smart logistics applications are often bogged down by several barriers, and then there is the need to choose the most ideal demand forecasting method despite these barriers. The main purpose of this study is to assess the barriers to the smart logistics applications in companies that receive and provide logistics services with corporate identity in Ordu Province, and to choose the most ideal demand forecasting method during the COVID-19 period. This study has the characteristic of a roadmap that helps the construction of smart logistics transformation applications by detecting barriers related to smart logistics applications and determining the most ideal demand forecasting alternative in logistics sector. Fuzzy FUCOM (FUll COnsistency Method)-based interval rough EDAS (Evaluation based on Distance from Average Solution) methodology was used to weight the barriers and to rank and choose the most ideal demand forecasting method during COVID-19 period, respectively.

47. Ivanović, B., Saha, A., **Stević, Ž.,** Puška, A., & Zavadskas, E. K. (2022). *Selection of truck mixer concrete pump using novel MEREC DNMARCOS model.* Archives of Civil and Mechanical Engineering, 22(4), 173. (IF_{2021}=4,042), (R21) https://doi.org/10.1007/s43452-022-00491-9

    Construction is one of the most developed industries of this century, especially thanks to the high rate of urbanization, mobility, and the tendency to fulfill global goals. A very important component of civil

engineering is adequate and modern equipment which depends on the efficiency of execution of operations and processes in construction. A novel MCDM (multi-criteria decision-making) scheme was proposed in this paper, which means the development of the original and innovative DNMARCOS (Double normalized measurement alternatives and ranking according to the compromise Solution) for choosing a construction equipment among 16 variant solutions. For determination the criteria weights, an objective MEREC was applied, whose integration with the DNMARCOS method represents an additional contribution. The obtained results show that the first three alternatives Magnum MK 24.4Z-80/115 RH (A1); Magnum MK 28L-5-80/115 RH (A2); Magnum MK 25 H80 RH (A3) are the best solution for a construction company. To check the robustness of the proposed DNMARCOS method, a comparative analysis was made with the extant MCDM methods, and SCC (Spearman's correlation coefficient) coefficient and WS (Wojciech Salabun) coefficients were calculated. The final results show the justification for the development of the original and innovative DNMARCOS model.

48. Matić, B., Marinković, M., Jovanović, S., Sremac, S., & **Stević, Ž.** (2022). *Intelligent Novel IMF D-SWARA—Rough MARCOS Algorithm for Selection Construction Machinery for Sustainable Construction of Road Infrastructure*. Buildings, *12*(7), 1059. (IF_{2021}=3,324), (R22) https://doi.org/10.3390/buildings12071059

    The quality of road infrastructure largely depends on the quality of road construction and adequate construction machinery. In order to reduce uncertainties and improve the performance of road infrastructure, it is necessary to apply modern and appropriate construction machinery. The aim of this study was to create a novel integrated multi-criteria decision-making (MCDM) model for the selection of pavers for the middle category of roads. A total of 16 criteria were defined and then divided into four main groups, on the basis of which the performance of 12 pavers was evaluated. Improved Fuzzy Stepwise Weight Assessment Ratio Analysis (IMF SWARA) with D numbers (IMF D-SWARA) was extended to determine the significance of the criteria for the selection of construction machinery based on two groups of experts. Rough measurement of choices and their ranking as a compromise solution (R-MARCOS) was used to evaluate and rank the performance of construction machinery. The results show that three alternatives out of the set considered can satisfy defined requirements. After that, we performed a multi-phase validity test in which different values of criterion weights were simulated. A comparative analysis with seven other Rough MCDM methods was also created, and the Spearman's correlation coefficient (SCC) and WS coefficient were calculated to determine the correlation of ranks for sensitivity analysis and comparative analysis. Thus, the obtained results were verified.

49. **Stević, Ž.,** Zavadskas, E. K., Tawfiq, F. M., Tchier, F., & Davidov, T. (2022). *Fuzzy Multicriteria Decision-Making Model Based on Z Numbers for the Evaluation of Information Technology for Order Picking in Warehouses*. Applied Sciences, *12*(24), 12533. (IF_{2021}=2,838), (R22) https://doi.org/10.3390/app122412533

    Order-picking process management is one of the most demanding tasks within the operations of a warehouse system. It is especially evident in companies that have a high intensity of product flows, so the question of increasing the productivity of order picking arises. In this paper, a novel integrated fuzzy MCDM (Multicriteria Decision-Making) model was developed for the evaluation and selection of information technologies for order picking in a warehouse system, which is one of the most important novelties and contributions of the paper. Barcode, pick-to-light, pick-to-voice, and pick-to-vision technologies were evaluated based on IMF SWARA (improved fuzzy stepwise weight assessment ratio analysis) and fuzzy EDAS (evaluation based on distance from average solution) based on Z numbers. IMF SWARA-Z was applied to determine the importance of four criteria while the information technologies for order picking were evaluated with the fuzzy EDAS-Z method. The averaging of the estimates of the critera and alternatives was performed using the fuzzy Dombi aggregator. The results show that in this particular case under these research conditions, pick-to-vision is the best order-picking technology. Subsequently, validation tests were carried out, and they included the simulation of criteria weights and the impact of the reverse rank matrix.

50. Bouraima, M. B., Tengecha, N. A., **Stević, Ž.,** Simić, V., & Qiu, Y. (2023). *An integrated fuzzy MCDM model for prioritizing strategies for successful implementation and operation of the bus rapid transit system*. Annals of Operations Research, 1-32. (IF_{2021}=4,820), (R21) https://doi.org/10.1007/s10479-023-05183-y

    The selection and prioritization of suitable strategies to address the challenges to the successful operation and implementation of the bus rapid transit (BRT) system is a common problem faced by practitioners and decision-makers. Recent research has widely discussed the issue, but such assessments have remained limited in the city of Dar es Salaam, Tanzania context, where there are mobility difficulties. The present study addresses this research gap and identifies the most critical challenges to BRT implementation and operation, and recommends the most appropriate strategy for overcoming them. Seven strategies are defined. To prioritize these strategies, five criteria are determined. An integrated multi-criteria decision-making model is introduced. Improved Fuzzy Step-Wise Weight Assessment Ratio Analysis based on the Bonferroni operator was used to determine the importance of the criteria. Measurement of alternatives and ranking according to compromise solution was applied to assess and rank the strategies. The results indicate that "frequent flooding at the Jangwani bridge bus terminal" and "long waiting time at bus stops" are the most critical challenges while the fourth alternative "strengthening the operation and management" is the appropriate strategy to be implemented for successful operation and implementation of the BRT system. After that, a five-phase sensitivity analysis is performed to observe the robustness of the proposed approach. The results indicate the flexibility and applicability of the proposed approach can address real-life problems. The proposed methodology in this work can be instrumental in assisting mass transit operators with the successful implementation and operation of the BRT system.

Радови у научном часопису међународног значаја (SCOPUS база)

1. Vesković, S., **Stević, Ž.,** Stojić, G., Vasiljević, M., & Milinković, S. (2018). *Evaluation of the railway management model by using a new integrated model DELPHI-SWARA-MABAC*. Decision Making: Applications in Management and Engineering. https://doi.org/10.31181/dmame1802034v

    The functioning of each traffic system depends to a great extent on the way the rail transport system operates. Taking into account the aspect of market turbulence and the dependence on adequate delivery when it comes to freight transport and traffic in accordance with a yearly Timetable in passenger traffic, transport policies are changing with time. Therefore, this document is considering the railway management models on the territory of Bosnia and Herzegovina. For the purpose of evaluating these models, a new hybrid model has been applied, i.e. the model which includes a combination of the Delphi, SWARA (Step-Wise Weight Assessment Ratio Analysis) and MABAC (Multi-Attributive Border Approximation Area Comparison) methods. In the first phase of the study, the criteria ranking was determined based on 16 expert grades used in the Delphi Method. After that, a total of 14 decision-makers determined the mutual criteria impact, which is a prerequisite for the application of the SWARA Method used to determine the relative weight values of the criteria. The third phase involves the application of the MABAC Method for evaluating and determining the most suitable variant. In addition, a sensitivity analysis involving the application of the ARAS, WASPAS, SAW and EDAS methods has been performed, thus verifying the previously obtained variant ranking.

2. Kamal, M., Gupta, S., Chatterjee, P., Pamucar, D., & **Stević, Ž.** (2019). *Bi-Level Multi-Objective Production Planning Problem with Multi-Choice Parameters: A Fuzzy Goal Programming Algorithm.* Algorithms, 12(7), 143. https://doi.org/10.3390/a12070143

    This paper deals with the modeling and optimization of a bi-level multi-objective production planning problem, where some of the coefficients of objective functions and parameters of constraints are multi-choice. A general transformation technique based on a binary variable has been used to transform the multi-choices parameters of the problem into their equivalent deterministic form. Finally, two different types of secularization technique have been used to achieve the maximum degree of individually membership goals by minimizing their deviational variables and obtained the most satisfactory solution of the formulated problem. An illustrative real case study of production planning has been discussed and, also compared to validate the efficiency and usefulness of the proposed work.

3. Fazlollahtabar, H., Smailbašić, A., **Stević, Ž.,** (2019). *FUCOM method in group decision-making: selection of forklift in a warehouse,* Decision Making: Applications in Management and Engineering, Vol. 2, Issue 1, pp. 49-65 https://doi.org/10.31181/dmame1901065f

   A warehouse system as a time transformation of the flows of goods plays an essential role in a complete logistics chain. The efficiency of a complete warehouse system largely depends on the efficiency of carrying out transport and handling operations. Therefore, it is essential to have adequate means of internal transport that will influence the efficiency of the warehouse system by its performance. In this paper, the evaluation and selection of side- loading forklift using the FUCOM-WASPAS model, which has been used for the first time in the literature in this paper, is performed. The FUCOM method was used to obtain the weight values of the criteria, while WASPAS was applied for the evaluation and ranking of forklifts. A possibility to apply the FUCOM method in group decision-making was presented. A comparative analysis, in which other methods of multi-criteria decision-making were applied, was carried out. The analysis showed the stability of the results obtained.

4. Chatterjee, P., & **Stević, Ž**. (2019). *A two-phase fuzzy AHP-fuzzy TOPSIS model for supplier evaluation in manufacturing environment.* Operational Research in Engineering Sciences: Theory and Applications, 2(1), 72-90. https://oresta.org/article-view/?id=29

   Supplier selection is one of the most important issues in supply chain management (SCM) which greatly affects its performance and market competitiveness. In the recent years, supplier selection in SCM has become imperative to balance between the ordinal and cardinal criteria. This paper proposes a two-phase model which aims to evaluate and select suppliers using an integrated Fuzzy Analytical Hierarchy Process (FAHP) and Fuzzy Technique for Ordering Preference by Similarity to Ideal Solution (FTOPSIS) methods. A fully developed model consisting of several evaluation criteria, both quantitative and qualitative in nature, as assessed by FAHP method to estimate the criteria weights, while FTOPSIS method is used to rank the potential suppliers that have been singled out through expert assessment. The proposed model is a support tool in the optimization of the purchasing process, and it provides the possibility of realizing additional savings by developing stronger cooperation with the optimal supplier.

5. **Stević, Ž.;** Brković, N. (2020) *A Novel Integrated FUCOM-MARCOS Model for Evaluation of Human Resources in a Transport Company*. Logistics, *4*,4. https://doi.org/10.3390/logistics4010004

   The application of different evaluation approaches in logistics requires considering many factors with different significance for making the final decision. Multi-criteria decision-making (MCDM) methods are often applied in logistics to create different strategies and evaluations. In this paper, research has been carried out in a transport system of an international transport company. An MCDM model has been created for the purpose of human resource evaluation, on which the overall efficiency of the company depends. A total of 23 drivers were evaluated on the basis of five crucial criteria in order to increase employees' motivation through their periodic remuneration. The Full Consistency Method (FUCOM) was applied to determine the significance of the criteria, while the evaluation of potential solutions was performed using Measurement Alternatives and Ranking according to COmpromise Solution (MARCOS). After the results had been obtained, the created model was validated throughout comparisons with seven other MCDM methods.

6. Zavadskas, E. K., Turskis, Z., **Stević, Ž.,** & Mardani, A. (2020). *Modelling procedure for the selection of steel pipes supplier by applying fuzzy AHP method.* Operational Research in Engineering Sciences: Theory and Application 3(2), 39-53. https://oresta.org/article-view/?id=78

   The objective of this study is the supplier evaluation and selection by applying the fuzzy multi-criteria analysis. The study used the fuzzy Analytic Hierarchy Process (FAHP) to choose the most suitable supplier for the purchase of materials necessary for the production of pre-insulated pipes. Decision-makers selected among five suppliers based on nine criteria. Effective execution of procurement, in this case, the procurement of material needed for the production logistics subsystem, influences the overall efficiency of the business. Results show that it is very important to perform the right ranking in the process of supplier selection. Good decisions can ensure lower costs and higher quality of production

and therefore a better position in the market. Also, applied methodology and the rank show that supplier A is the most suitable solution.

7. Bouraima, M. B., **Stević, Ž.,** Tanackov, I., & Qiu, Y. (2021). *Assessing the performance of Sub-Saharan African (SSA) railways based on an integrated Entropy-MARCOS approach*. Operational Research in Engineering Sciences: Theory and Applications, 4(2), 13-35. https://oresta.org/article-view/?id=38

   In this study, the performance of Sub-Saharan African railways systems (SSA) is assessed by using an integrated Entropy-MARCOS (Measurement Alternatives and Ranking according to COmpromise Solution) - based methodology. In the first phase, the Entropy method is employed to determine the weights of each sub-criterion of the decision model. This process identifies six main criteria, i.e., safety, security, internal business aspect, intermodal aspect, innovation, and learning aspect, and customer satisfaction which are further supplemented by 13 sub-criteria. In the second phase, the MARCOS method is used to rank the countries based on their railway performance assessment. Based on the results from the proposed method, a sensitivity analysis was carried out through a comparative analysis with seven other multicriteria decision-making (MCDM) methods. The results of the study indicate that the most weighted sub-criterion is the labor productivity (internal business perspective criteria) followed by the terrorist incidence (security criteria) and the number of employees going through training/exposure sessions (innovation and learning perspective criteria). Moreover, it was revealed that Kenya is the best alternative in terms of its railway performance followed by Ethiopia, Cameroon, Nigeria, and Ghana. Based on the findings from this study, decision-makers can be assisted during the operative, designing, and planning investigations of the railway system through the consideration of these parameters as insert indicators. Also, the findings can help as a benchmark for the performance analysis of other railway systems in other African countries.

8. Đalić, I., **Stević, Ž.,** Karamasa, C., Puška, A. (2020). *A Novel Integrated Fuzzy PIPRECIA–Interval Rough Saw Model: Green Supplier Selection*, Decision Making: Applications in Management and Engineering (DMAME), 3, 1, 126-145, 10.31181/dmame2003114d

   In this paper is presented a novel integrated fuzzy – rough Multi-Criteria Decision-Making (MCDM) model based on integration fuzzy and interval rough set theory. Model integrates Fuzzy PIvot Pairwise RElative Criteria Importance Assessment - fuzzy PIPRECIA and Interval rough Simple Additive Weighting (SAW) methods. An illustrative example for demonstration of the model is proposed that represents evaluation and supplier selection based on nine environmental criteria. Fuzzy PIPRECIA method is used for determining the significance of the following seven criteria: C1 - environmental image, C2 - recycling, C3 - pollution control, C4 - environmental management system, C5 – environmentally friendly products, C6 - resource consumption and C7 - green competencies. Iterval rough SAW method is applied for evaluation four alternatives. Results show that third criterion is most important while fourth alternative represents the best solution.

9. Miškić S, **Stević Ž,** Tanackov I. (2021). *A novel integrated SWARA-MARCOS model for inventory classification*. IJIEPR. 2021; 32 (4): 1-17 http://ijiepr.iust.ac.ir/article-1-1243-en.html

   In the field of logistics, there is a daily need for decision making, i.e. the need to solve business problems by selecting an appropriate solution. During the implementation of decision-making processes, it is necessary to find an optimal solution that will best meet the needs of companies. The selection of an optimal solution is crucial for the profitability, cost-effectiveness and long-term development of companies. The decision-making process in logistics is facilitated by applying various tools such as multi-criteria decision-making methods. In this paper, an integrated SWARA (Step-wise Weight Assessment Ratio Analysis) – MARCOS (Measurement Alternatives and Ranking according to Compromise Solution) model was developed and applied in order to classify products. Fifty alternatives, i.e. products were evaluated based on three criteria. The first criterion is the quantity of purchased products, the second criterion is the unit price of products and the third criterion is the annual value of purchase. The SWARA method was applied to determine the significance of the criteria, while the classification of products was performed using the MARCOS method. According to the results of the originally created MCDM model, the products were grouped into three categories A, B, and C. Then, a sensitivity analysis was performed using a model involving the integration of SWARA method and ABC analysis. Using this model, the classification of products into three groups was performed on the basis of the aforementioned criteria, and then a comparative analysis was conducted.

10. Abbaspour M, Fazlollahtabar H, **Stevic Ž.** (2022). *Multi-Objective Rough Best-Worst Method to Evaluate Sustainability of a Biofuel Energy Supply Chain*. IJIEPR. 2022; 33 (1): 1-17 http://ijiepr.iust.ac.ir/article-1-1151-en.html

    The role of sustainability dimensions in the value creation process has received much attention. Adopting a proper set of key performance indicators sustainability leads to accurate calculation of chain value. This paper focuses on the dimensions of in the biofuel supply chain and seeks to evaluate the value in the chain. First, the importance of biofuels and its various types are discussed. Then, a new model is presented by designing the proposed energy chain and considering its sustainability dimensions and indicators in uncertain environment. Rough set theory is one of the best mathematical tools for dealing with uncertainty. The proposed biofuel energy supply chain is modeled to obtain the total value of the system considering sustainability indicators and layers of the supply chain. A multi-objective rough mathematical formulation is presented and solved. Best-worst method was integrated to determine the significance score of sustainability indicators. Finally, the model of the rough linear mathematical program is solved with optimization tools and the sustainable value of the chain is obtained.

11. Yazdani, M., Chatterjee, P., & **Stević, Ž.** (2022). *A two-stage integrated model for supplier selection and order allocation: an application in dairy industry*. Operational Research in Engineering Sciences: Theory and Applications, 5(3), 210-229. https://oresta.org/article-view/?id=122

    Selecting the best supplier is a recurrent organizational challenge that occurs in a supply chain (SC) as a result of the presence of complex variables, restrictive criteria, and conflicting priorities. Since an SC network is often developed with ambiguous conditions and information due to the industrialization of society and the intricacy of market competitiveness, fuzzy decision-making models are more effective. This paper proposes a two-stage decision-making model to select suppliers and to estimate cost-effective order numbers per supplier. The initial stage of the proposed model involves identifying fuzzy linguistic variables, interpreting appropriate decision criteria for evaluating suppliers, and modelling fuzzy technique for order preference and similarity to ideal solution (TOPSIS) method. The goal of fuzzy TOPSIS method is to attenuate the ambiguous expert inputs. In the second stage, economic order quantity is determined and assigned to each supplier using TOPSIS scores as inputs for a linear programming (LP) model. Different constraints, including demand, density qualification, acidity qualification, price, and capacity are formulated using the LP model. The mathematical model seeks to optimize total value of purchasing. The model is implemented in a dairy company to show its applicability and effectiveness. It has been found that supplier A1 and supplier A4 need to deliver 8000 kg of dry milk to the company, while supplier A5 needs to supply only 3500 kg. It is expected that the obtained results will assist organizations in developing a methodical strategy for addressing order allocation and supplier selection problems in more a realistic context.

12. Miškić, S., **Stević, Ž.,** & Marinković, D. (2022). *Evaluating the efficiency of a transport company applying an objective-subjective model.* International Journal of Management Science and Engineering Management, 1-15. https://doi.org/10.1080/17509653.2022.2101153

    The main goal of every company is to gain as much profit as possible, and a very important goal is also to obtain a competitive advantage in the market. In this paper, it has been developed and applied an integrated model, which is based on a PCA-DEA-MCDM approach, with the aim of evaluating the efficiency of a transport company from Bosnia and Herzegovina. At the very beginning, using the PCA (Principal Component Analysis)–DEA (Data Envelopment Analysis) model, efficient and inefficient business years were identified, and then, using CRITIC (Criteria Importance Through Inter Criteria Correlation) and the Entropy method, weight values of defined parameters were determined. After that, the decision-making units were ranked using MARCOS (Measurement Alternatives and Ranking according to the Compromise Solution). In addition, the sensitivity analysis includes the formation of scenarios of changes in weight values of five most significant criteria and the calculation of SCC and WS correlation coefficients. The application of this integrated model, in addition to identifying efficient/inefficient years of operation, enables the identification of influencing factors of the most efficient year of operation, which can serve as a benchmark to further contribute to the efficiency of the transport company.

13. Puška, A., **Stević, Ž.,** Maksimović, A., & Osmanović, N. (2022). *Assessing the impact of supply chain practices and performance of food companies in Bosnia and Herzegovina.* International Journal of Logistics Systems and Management, 41(3), 243-264. https://doi.org/10.1504/IJLSM.2022.122961

    The conducted research represents empirical study of the multidimensional relationship between supply chain practice and performance. In the supply chain practice, the focus is on customer, customer relationship and information sharing. This research shows what type of impact has the practice on supply chain performance. Supply chain performance is measured by four constructors: flexibility, cost, quality and delivery. Data were collected from food companies of Bosnia and Herzegovina (BiH) and has been used for testing the hypothesis. There have been three tested hypotheses using multiple linear regression analysis. The results have shown that individual supply chain practices have an impact on supply chain performance. In addition, it has been shown that the relationship with the supplier and the buyer affects the quality of the supply chain, while the relationship with the supplier affects the delivery. The results have shown that information sharing has no impact on individual constructors of supply chain performance. The obtained results provide practical insights to the managers of food companies to understand the supply chain, its practices and performance as well as the limitations of different practices to improve supply chain performance.

14. Pamucar, D., Badi, I., & **Stević, Ž.** (2022). *An integrated FUCOM-RAFSI model for assessing the potential of a new gateway port in Libya for some African landlocked countries.* International Journal for Quality Research, 16(2), 613-624, 10.24874/IJQR16.02-17

    The present paper aims at suggesting a multi-criteria decision-making model that would help in making the appropriate decision regarding the selection of the best gateway port for landlocked countries. There are 44 landlocked countries around the world, which do not have a seaport directly linked to the rest of the world. Sixteen of these countries are located in Africa, making it weak to compete in the global market, in addition to the high costs of its imports. The model proposed in this paper was applied to two landlocked countries in the African continent: Chad and Niger. The paper proposed 8 evaluation criteria related to evaluating the ports themselves in terms of infrastructure and services tariffs, as well as to the level of safety and the transport infrastructure from the transit country to the landlocked one. The Full Consistency Method (FUCOM) was used for the purpose of evaluating such criteria, and the number of navigation lines was the most important one. Ranking of Alternatives through Functional mapping of criterion sub-intervals into a Single Interval (RAFSI) method was used for the purpose of comparing 6 ports to conclude that the Misurata seaport is the best alternative.

15. Tadić, S., Krstić, M., **Stević, Ž.,** & Veljović, M. (2023). *Locating Collection and Delivery Points Using the p-Median Location Problem.* Logistics, *7*(1), 10. https://doi.org/10.3390/logistics7010010

    Background: Possible solutions to overcome the many challenges of home delivery are collection and delivery points (CDPs). In addition to commercial facilities, the role of CDPs can also be played by users' households, providing a crowd storage service. Key decisions regarding CDPs relate to their location, as well as the allocation of users to selected locations, so that the distance of users from CDPs is minimal. Methods: In this paper, the described problem is defined as a p-median problem and solved for the area of the city of Belgrade, using the heuristic "greedy" and the simulated annealing algorithm. Results: Fifty locations of CDPs were selected and the users allocated to them were distributed in over 950 zones. The individual distances between users and the nearest CDPs and the sum of these distances, multiplied by the number of requests, were obtained. An example of modification of the number of CDPs is presented as a way of obtaining solutions that correspond to different preferences of operators and/or users in terms of their distances from the CDPs. Conclusions: User households can be used as CDPs to achieve various benefits. Locating CDPs, i.e., selecting households, can be solved as a p-median problem, using a combination of heuristic and metaheuristic algorithms. In addition, by modifying the number of medians, the total and average distances between users and CDPs can be better managed. The main contributions of the paper are the establishment of users' households as potential locations of CDPs, the establishment of a framework for analysis of impact of the number of CDPs on the sum and average distances from the customers, as well as the creation of a basis for upgrading and modifying the model for implementation in the business practice.

Радови у часопису националног значаја:

1. Puška, A., **Stević, Ž.,** & Šadić, S. (2019). *Uticaj razmjene informacija sa dobavljačem i kupcem na organizacione performanse prehrambenih preduzeća u Bosni i Hercegovini.* EMC Review - Časopis za ekonomiju, *17* (1). str. 33-52, (R51) http://dx.doi.org/10.7251/EMC1901033P

   In the turbulent environment which is characterized by constant market changes and the development of informational technologies, supply chain is becoming the key instrument for competitive advantage. To survive on the market and be competitive, enterprises have to share and distribute knowledge and information. Information sharing affects the fundamental decisions of the supply chain management. Information sharing with partners is a precondition for the exchange of knowledge needed for business. Most important partners for every enterprise are their suppliers and buyers. Suppliers and buyers are key participants of the supply chain from which they get needed information. Relations with suppliers and buyers are an important precondition for the improvement of the operative performance of the enterprise. Sharing information with suppliers and buyers is done in the following way: information delivered to suppliers, information obtained from the supplier, information delivered to buyers and information obtained from buyers. To examine the impact of the supply chain used an empirical study about multi-dimensional relations. The research is focused on information sharing by food industry in Bosnia and Herzegovina (BiH). A random systematic sample was used to distribute the questionnaire to these companies. Collected data is analysed using the Confirmatory factor analysis (CFA), and the model was tested using the Structural equations model (SEM). The results showed that information sharing impacts the improvement of the organizational performance of companies, and partnerships with supplier and buyer impact on the information sharing. Results of this study showed that information sharing does not have a significant impact on the sub constructors of operative performances of the enterprise because there is no significant connection with flexibility, while for the other constructors there is a significant connection between information sharing and operative performances of the enterprise. Based on these facts, it examined the importance information sharing in the supply chain for the development of partnerships and improvement of performance this companies. The results will help managers on food industry in BiH how to improve quality of the information sharing through partnerships and how to developing operative performances companies. The model gives directions for developing business enterprises in food industry using information sharing within the supply chain. Apart from that, obtained results contributed to the better understanding of the significance of the information sharing in the food supply industry enterprises. Based on what is said, to improve the business of the enterprise, it is needed to share quality information which is possible to get through improving cooperation with key participants in the supply chain.

2. **Stević, Ž.,** Ibrahimović. F., Mirčetić. D., (2020). *Racionalizacija procesa u skladišnom sistemu primenom ABC analize i višekriterijumskog odlučivanja*. Tehnika, (Saobraćaj) 67(5), 621-628. (R51) 10.5937/tehnika2005621S

   Racionalizacija troškova postala je imperativ u svakom privrednom sistemu kako bi se stvorile adekvatne podloge za njegovo efikasno i održivo upravljanje. Konkurentnost na globalnom tržištu je izuzetno velika i izazov je upravljati poslovnim i logističkim sistemima, naročito kada su u pitanju finansijski parametri. Postojanje zaliha je neminovnost u svakom logističkom sistemu, stoga se teži kreiranju adekvatnih politika za njihovo efikasno i održivo upravljanje. Da bi se to moglo izvršiti neophodno je utvrditi koji proizvode čine najveći procentualni udeo u vrednosti nabavke, a koji su kvantitativno najzastupljeniji. U ovom radu razmatrano je skladište građevinskog materijala koje predstavlja veleprodajni sistem. Uzimajući u obzir da je to veleprodaja, neophodno je utvrditi koliki su troškovi nabavke i kakva je potražnja za određenim proizvodima. Izvršeno je grupisanje proizvoda u tri kategorije A, B i C, nakon čega je potrebno odrediti adekvatne dobavljače za različite proizvode kako bi se racionalizovali troškovi nabavke. U obzir su uzeti finansijski, logistički i parametri kvaliteta. Za određivanje značaja ovih parametara primenjena je FUCOM metoda. Za vrednovanje i izbor dobavljača za svaku grupu proizvoda primenjena je ARAS metoda.

3. Mešić, A., Miškić, S., **Stević, Ž.,** & Mastilo, Z. (2022). *Hybrid MCDM solutions for evaluation of the logistics performance index of the Western Balkan countries.* Economics, *10*(1), 13-34. (R51) https://doi.org/10.2478/eoik-2022-0004

   The Logistics Performance Index (LPI) performed by the World Bank is an indicator of the logistics environment quality of a country in which logistics operators act. The LPI is an interactive tool designed to help countries identify challenges, innovative solutions, and opportunities they face in their work in the field of trade and logistics. The aim of this paper is to conduct a comparative analysis and ranking of the LPI of the countries in the Western Balkans (Bosnia and Herzegovina, North Macedonia, Albania, Serbia and Montenegro), calculated by the World Bank for 2018, using an integrated Criteria Importance Through Intercriteria Correlation (CRITIC)-Measurement Alternatives and Ranking according to Compromise Solution (MARCOS) model and thus show the real picture of the logistics environment. In order to determine the performance of countries and show the overall logistics performance, six key dimensions are used: customs, infrastructure, international transport, logistics capability, tracking and tracing of goods and shipment delivery within scheduled or expected times. Using the CRITIC method, the weight values of the previously mentioned six criteria were calculated, whereby the criterion related to shipment delivery within scheduled times was singled out as the most significant criterion. Then, by applying the MARCOS method, the countries of the Western Balkans were ranked on the basis of the six defined criteria. Based on the results obtained, the best-ranked country is Serbia. The analysis of the sensitivity of the results to changes in the significance of the criteria does not show significant changes in the ranking.

4. Ibrahimović, F. I., Kojić, S. L., **Stević, Ž. R.,** & Erceg, Ž. J. (2019). *Donošenje investicione odluke u transportnoj kompaniji primenom integrisanog FUCOM-MABAC modela.* Tehnika, (Menadžment) 74(4), 577-584. (R52) https://doi.org/10.5937/tehnika1904577I

   Transport kao logistički podsistem predstavlja veliki uzročnik troškova logistike, a samim tim i utiče i na upravljanje poslovnim rezultatima kompanije. Stoga je potrebno donositi određene odluke i sprovoditi aktivnosti u cilju racionalizacije i optimizacije troškova. Jedan od načina je donošenje adekvatnih investicionih odluka koje mogu pozitivno uticati na poslovanje kompanije. U ovom radu je primjenjen integrisani Full Consistency method (FUCOM) - Multi-Attributive Border Approximation area Comparison (MABAC) model za izbor adekvatnog transportnog sredstva u kompaniji za međunarodni transport. FUCOM metoda je primjenjena za određivanje značaja kriterijuma na osnovu kojih se vrši izbor transportnog sredstva, dok je primjenom MABAC metode izvršeno rangiranje alternativa. Nakon toga izvršena je analiza osetljivosti koja potvrđuje prethodno dobijene rezultate.

5. Korucuk, S., Demir, E., Karamasa, C., & **Stević, Ž.** (2020). *Determining the dimensions of the innovation ability in logistics sector by using plithogenic-critic method: An application in Sakarya Province.* International Review, (1-2), 119-127. (R53) https://doi.org/10.5937/intrev2001119K

   Today's changing and developing level of competition and power, continuous learning, knowledge and technology management, transformation in the production process, market-oriented-based innovation and knowledge as communication applications, companies are routed to make more resources and research about the ability of innovation. The innovation factor has enabled new processes, products, ideas to adapt successfully for the production and market structure, and correspondingly implementation of them. In this point of view, innovation ability is the integration of new information resulting in product and process innovation by activating the power that a company provides to its employees. This ability has referred to the information between internal knowledge and external market demands. Accordingly, the factors affecting the innovation capability dimensions have a vital importance for companies. The fact that there exist limited number of studies on the weighting of the factors affecting the dimensions of innovation ability in the comprehensive literature review, is another factor increasing the importance of the subject. In this study, the innovation ability dimensions have been weighted in corporate logistics companies in Sakarya. Plithogenic set based CRITIC method, which is one of the multi criteria decision making techniques, has been used. The most important factor in the study was determined to be ability of accessing information resources.

6. Đalić, I., **Stević, Ž.,** Erceg, Ž., Macura, P., & Terzić, S. (2020). *Selection of a distribution channel using the integrated FUCOM–MARCOS model.* International Review, (3-4), 91-107 (R53), https://doi.org/10.5937/intrev2003080Q

   The management of manufacturing companies faces a number of decisions, and one of the most important is the selection of distribution channels. A large number of these companies do not sell their products directly to end consumers. For this reason, there are marketing intermediaries between manufacturers and end consumers whose primary function is to connect manufacturers and consumers. Their task is to provide the goods from manufacturers to consumers with the satisfaction of logistics characteristics: at the right time, at the right place and in a form that is convenient to use, and certainly with minimal costs. Distribution is one of four marketing mix instruments without which the optimal combination of the instruments would not be obtained. Thus, the decision on selecting distribution channels is as important as the decisions regarding products, prices and promotion. Based on the set criteria and the evaluation of certain distribution channels by the criteria, the management of the company will be able to make the best decision. The evaluation of distribution channels based on the set criteria was performed by marketing experts and experts in certain markets using an integrated multi-criteria model. The FUCOM method was applied to determine the significance of the criteria, and then the distribution channels were evaluated by applying the new MARCOS method. Thereafter, a sensitivity analysis was performed using other MCDM methods to verify the results previously obtained.

Пленарно предавање по позиву на скупу међународног значаја штампано у цјелини (R31):

1. Nunić, Z., **Stević, Ž.** (2019). *A novel integrated multi-criteria decision-making model: FUCOM-EDAS-M.* 5th international scientific conference Innovation as an initiator of the development. COBISS.SR-ID 281066252, ISBN 978-86-84531 -43-0, pp. 19-34

   Multi-criteria decision-making (MCDM) methods are an extraordinary tool in supporting decision-making in everyday situations. They are used for various purposes, and in this paper, a new integrated MCDM model was formed, combining FUCOM (Full Consistency Method) and EDAS-M (Evaluation method based on the Distance from the Average Solution in the Minkowski space). The aim is to combine the benefits of these two methods, and, above all, reduce subjectivity and solve complicated models with more potential solutions. The model was tested on an example of evaluation and selection of an electric vehicle. The FUCOM method was applied to determine the weighting values of five criteria on the basis of which further evaluation of alternatives was performed. The EDAS-M method was applied in order to rank 12 different potential solutions.

2. **Stević, Ž.,** Tanackov, I., Subotić, M., (2020). *Evaluation of road sections in order assessment of traffic risk: Integrated FUCOM-MARCOS model*. 1st International Conference on Challenges and New Solutions in Industrial Engineering and Management and Accounting, 16 July Mazandaran, Iran

   In this research an integrated multi-criteria decision-making (MCDM) model for evaluation of road sections in order assessment of traffic risk has been applied. It is considering part of road network I category with length 6.6 km with total of nine short sections. The influence of geometric characteristics on traffic risk is reflected through identifying conflict points on roads, traffic accidents, and any other unforeseen situation that is inherently dangerous for traffic participants. In order to identify the road sections with the highest risk, it is necessary to consider a number of criteria that affect risk. For determining criteria weights on the basis which evaluation of road sections is performed Full Consistency Method (FUCOM) is applied. After data collection and forming MCDM model Measurement Alternatives and Ranking according to COmpromise Solution (MARCOS) is used for selection most dangerous section. Results showed that exists one dominant section with higher risk for all traffic participants. In order to make validation of obtained results extend sensitivity analysis is performed: changing criteria weights, comparison to other MCDM methods and reverse ranking matrix. Also, Spearman's correlation coefficient was calculated as a statistical indicator of rank correlation in a sensitivity analysis. In addition, the standard deviation of the obtained results was determined. Through sensitivity analysis obtained results are validated.

3. Sremac, S., **Stević, Ž.,** Karamasa, C., (2020). *Safety requirements for the use of prescribed packaging in the transport of dangerous goods.* VI international scientific conference safety and crisis management - theory and practise safety for the future - SeCMan 2020. Belgrade, Serbia. ISBN 978-86-80692-06-7 pp. 10-19

   As a consequence of industrial development, significant quantities of hazardous substances are produced annually, thus creating increased risks to human life and health, the environment and material goods. One of the ways to reduce the risk is to use prescribed packaging in the transport of dangerous goods and related logistics activities. The area of hazardous substances is one of the most normatively regulated areas in the transport and logistics sector. The standards that packaging for dangerous substances have to meet exceed the requirements set for the transport of "classic" types of goods. It is necessary to meet all safety requirements defined in relevant legal acts. In the area of packing hazardous substances, it refers primarily to the use of appropriate packaging for a certain substance, conformity assessment and periodic inspection of packaging, and appropriate marking and labeling of packaging.

4. Korucuk, S., Karamasa, C., & **Stević, Ž.** (2021). *Rating the efficiency of smart logistics applications for storages in logistic firms: a case study in Samsun.* 2st International Conference on Challenges and New Solutions in Industrial Engineering and Management and Accounting, May 6-7, 2021 Mazandaran, Iran

   Industry 4.0 as a period of emerged with digital trnasformation with respect to technological based systems and applications released smart logistics components to the market too. Firms specialized in technological based solutions and process management have gained considerable benefits in terms of competitive power and efficiency. Smart logistics concept and applications as component of digital transformation provide key benefits of cost reduction and customer satisfaction. That shows the importance of usability of smart logistics applications for storages as a key component of logistic firms. In this study the efficiency of smart logistics applications is rated for logistic firms' storages in Samsun province in Turkey. Q rung orthopair fuzzy sets based AHP is used for weighting criteria under inconsistent, uncertain and vague environment. The most and the least important criteria are obtained for smart logistics applications in providing storage efficiency.

5. **Stević, Ž.,** (2021). *Decision-making in transport and logistics using integrated models* The 8th International conference Transport and Logistics TIL 2021 December 3, Niš, Serbia, 21-26 http://til.masfak.ni.ac.rs/images/til-pedja/til2021_Proceedings_3.pdf

   Everyday decision making requires consideration of various influencing factors. Important tools for solving and supporting such problems are MCDM models, most often in combination with uncertainty theory or other approaches. The aim of this paper is to emphasize the rapid development of this field and its importance for solving professional problems showed on examples in field of transportat and logistics. The significance of such integrated models has been manifested through few examples in which the MCDM methods (FUCOM, MARCOS, Fuzzy PIPRECIA, Fuzzy FUCOM, Fuzzy EDAS) have integrated with other approaches such is SERVQUAL model, Delphi method, SWOT/TOWS analysis, DEA, PCA, ABC analysis. These integrated approaches can be useful for decision-making because it can helps: to reduce costs in company, to increase quality of logistics services, to have possibility for determination the quality and efficiency of the company, to chose the best strategy for own business, to clearly shows which road to choose, to be applicable in small and medium enterprises (SMEs) that make these and similar decisions, to can adjust their business policies to the results of the model and achieve better business results.

Радови саопштени на скупу међународног значаја штампани у цјелини (R33):

1. **Stević, Ž.,** Petrović, G., Stanujkić, D. (2018). *Novel rough delphi method for determination weights of criteria.* The 2nd International Conference on Management, Engineering and Environment At: Obrenovac – Belgrade, ISBN 978-86-80698-12-0, COBISS.SR-ID 245070860 pp. 98-107

   The decision-making process in all areas requires understanding of a number of elements involved in this process. In that, very important role have the significance of the criteria on the basis of which evaluation or selection of alternatives is carried out. In this paper, the Delphi method is expanded with

rough numbers for determining the relative weight of the criteria. The developed approach allows determining the significance of criteria based on an expert evaluation, which must be at least ten. The approach is demonstrated on the example of evaluating performance indicators in transport based on the assessment of 19 decision makers. A sensitivity analysis was perform ed in which the SWARA method was applied which gives very similar results with a developed approach. Taking into account both approaches, the only difference in the rankings of the criteria is at the last position.

2. Memić, Z., Vasiljević, M., Tanackov, I., **Stević, Ž.,** (2018). *Measuring the quality of logistics services in the transport company using the SERVQUAL model* The 2nd International Conference on Management, Engineering and Environment At: Obrenovac – Belgrade, ISBN 978-86-80698-12-0, COBISS.SR-ID 245070860 pp. 119-129

   The quality of logistics services, if it is positive, can affect loyalty and user's satisfaction. Therefore, it is necessary to constantly measure the quality of the service and strive to improve its worst elements. The aim of this research is to determine the quality of logistics services for the company Bosnaekspress d.o.o. Doboj. To measure the quality of logistics services, one of the most well-known and most frequently used models, the SERVQUAL model, was used. The application of the SERVQUAL model allows obtaining concrete results for the conducted research in order to work on possible improvement. Within the SERVQUAL model, there are five key dimensions based on which a research team conducted a customer's satisfaction survey to establish the level of customer's satisfaction with the service offered by Bosnaekspress d.o.o. Doboj. Five key dimensions are: reliability, safety, tangibility, empathy and capability. Each of these dimensions has different significance for different users, what contributes to easier determination of the logistics services' quality. The obtained results show that users of logistics services of the given company are not satisfied with the same, that is, the quality is poor, because all dimensions have negative values of the difference in observations and expectations. A Signum test was applied for the purposes of statistical conclusions and variance analysis to determine the significance of significant changes on individual issues.

3. Vasiljević, M., Marković, B., **Stević, Ž.,** (2018). *Route evaluation for hazmat transportation based on BWM-EDAS methods,* II International Scientific Conference Transport for today's society, Bitola, Macedonia May DOI 10.20544/TTS2018.P44, UDK 620.26:656.02]:519.874, 429-438

   The aim of this research is to determine the most suitable route for transport of dangerous goods, using methods of multi-criteria decision making. The evaluation is made among three routes based on five criteria using Best Worst Method (BWM) and Evaluation Based on Distance from Average Solution (EDAS) method. In this research we used BWM for the determination of weighted values of criteria, while EDAS method is used to determine the most suitable rout for transport of dangerous goods from Bijeljina to Derventa. The methods COPRAS, TOPSIS and SAW were used in order to check the stability of the proposed model and the obtained results. The sensitivity analysis showed the stability of the results, where alternatives do not change their ranks.

4. Mujkanović, A., Rahmanović, A., Nunić, Z., **Stević Ž.,** Sremac, S., (2019) *Selection of transportation mean using integrated FUCOM-ARAS model* 12th International Conference of Iranian Operations Research Society ICORS 2019, Mizban International Hotel, Babolsar, Iran—1 st and 2nd May 2019

   Acquisition of adequate vehicle for international freight transport is an extremely important task. Each carrying process carried on with it many risks and limitations, especially in transportation heterogeneous kinds of goods. The goal of this paper is to make a choice valuing and choosing the best means of transport used in international transport. Multicriteria model consists of five criteria and five alternatives. For determining the importance of the criteria used is Full Consistency Method (FUCOM), while ranking alternative made using the ARAS method. In order to checking the stability of the model was carried out to compare results with Simple Additive Weighting (SAW), Weighted Aggregated Sum Product Assessment (WASPAS) and Multi-Attributive Border Approximation Area Comparison (MABAC). The results of the sensitivity analysis confirm the stability of the model and complete correlation ranks.

5. **Stević, Ž.,** Pamučar, D., Sremac, S., (2019) *An integrated FUCOM-EDAS model for decision making in transportation of dangerous goods*, XV International May Conference on Strategic Management - Volume XV, Issue (1) (2019) 17-25, May 24 - 26, 2019, Bor, Serbia, ISSN 2620-0597

   Multi-criteria decision-making (MCDM) play an important role in the field of transportation and logistics. It is used for decision-making and solving various problems. In this paper, an integrated MCDM model has proposed for selection logistics provider in transportation of dangerous goods. Logistics outsourcing and transportation of dangerous goods are two very important fields for functioning of the complete supply chain. Integrated model implies combination of Full Consistency Method (FUCOM) and Evaluation based on Distance from Average Solution (EDAS). For determination weights of the eight criteria used in this model FUCOM method has applied. Ranking of alternatives has performed using EDAS method. Integration of these methods in one model is first time proposed in this paper. Obtained results have checked through sensitivity analysis with comparing to other methods.

6. **Stević, Ž.,** Mićić, B,. Lukić. D., Tomašević. M., Sremac, S., (2019). *Supplier selection for distribution of finished products: combined FUCOM-MABAC model*. The 7th International conference Transport and Logistics TIL 2019 December 5, Niš, Serbia, ISBN 978-86-6055-127-8, COBISS.SR-ID 281238028 pp. 35-40

   Supplier selection is an issue of a great importance for the functioning of the entire supply chain. The task that is performed ed in most of the researches is the supplier selection of materials that are involved in the production process, in order to create a finished product. In this paper the situation is different because of there is a supplier selection of finished products for the distribution phase. The research was carried out for the "Napredak promet" doo Company and it was based on nine criteria. An expert team was formed to evaluate the criteria and potential suppliers. The significance of the criteria was determined using the Full consistency method (FUCOM), while the Multi Attributive Border Approximation area Comparison (MABAC) was used to rank potential suppliers. The results were verified through the sensitivity analysis and comparison with other multi-criteria decision- making methods.

7. Durmić, E,. Tomašević. M., Vasiljević, M., **Stević, Ž.,** Chatterjee, P. (2019). *An integrated FUCOM Rough SAW model for sustainable supplier evaluation.* The 7th International conference Transport and Logistics TIL 2019 December 5, Niš, Serbia, ISBN 978-86-6055-127-8, COBISS.SR-ID 281238028 pp. 21-27

   In recent decades, due to the rapid consumption o f natural resources and the need for environmental protection, sustainability in supply chain management has emerged as an increasingly important issue. Therefore, in this paper, supplier selection has been performed in order to achieve sustainability, taking into account economic, social and environmental elements. For this purpose, an integrated FUCOM - Rough SAW model has been applied. The assessment of 2 1 criteria grouped at two levels has been carried out by an expert team according to the needs of the company whose main activity is lime production. To obtain the criterion weight values, the FUCOM (FUll COnsistency Method) has been applied, which allows solving the problem of decision-makers' subjective judgment. In order to avoid uncertainty and imprecision in the supplier evaluation process, integration with the Rough SAW method, which is used for ranking and supplier selection, has been applied. In order to check the stability o f the proposed model, a sensitivity analysis has been performed ed throughout two phases. The first phase involves changing the weights of the criteria throughout a total of 12 scenarios, while the second phase involves a comparative analysis using other MCDM methods.

8. **Stević, Ž.,** Kotorić, M., Stojić, G., Sremac S. (2021). *Selection of delivery vehicle using integrated objective-subjective MCDM model.* Proceedings of 25th International Scientific Conference Transport Means 2021 Part I. October 6–8, Kaunas University of Technology, ISSN 1822-296 X (print), ISSN 2351-7034 (online) pp. 309-315.

   The transport system as part of the logistics system has a huge impact on the development of the entire economic system. Thanks to the daily movements of goods flows, which are becoming more and more extensive from year to year, transport has become one of the key links of the economy. Therefore, it is

very important to pay adequate attention to transport and delivery vehicles. The aim of this paper is the selection of adequate delivery vehicle for the needs of a newly established company by applying a subjective-objective MCDM model. Five potential solutions (delivery vehicles) were considered based on seven selected criteria. First, the objective CRITIC (CRiteria Importance Through Intercriteria Correlation) method was applied, and then the subjective FUCOM (FUll COnsistency Method), on the basis of which the importance of the criteria for the selection of a delivery vehicle was determined. The MARCOS (Measurement of Alternatives and Ranking according to COmpromise Solution) method was applied to rank delivery vehicles and select the most acceptable solution from the set of considered alternatives. The results showed that the purchase price plays the most important role in choosing a delivery vehicle, while the Peugeot Boxer was chosen as the best solution for a given transport company.

9. **Stević, Ž.,** Bajgurić, M., Nunić, Z., & Vasiljević, M. (2021). *Evaluation of criteria for performing oversized transport using Fuzzy PIPRECIA method.* 3rd International Scientific Conference "TRANSPORT FOR TODAY'S SOCIETY", Bitola, North Macedonia, October 14-16, 2021 DOI 10.20544/TTS2021.1.1.21.p30

   Oversized transport is an organizationally and infrastructurally demanding way of performing transport activities. It is a very important factor in an overall economic system. Since it is a mode of transport that has specific requirements in terms of organization and infrastructure, this paper evaluates the factors for its execution. The Fuzzy PIvot Pairwise RElative Criteria (Fuzzy PIPRECIA) method was used to determine the significance of ten criteria. The purpose of this paper is to analyze the necessary conditions for adequate and safe oversized transport.

10. Subotić, M., **Stević, Ž.,** & Tubić, V. (2021). *Analysis of the influence of the number of access points on the reduction of free–flow speed in Bosnia and Herzegovina*. 3rd International Scientific Conference "TRANSPORT FOR TODAY'S SOCIETY", Bitola, North Macedonia, October 14-16, 2021, DOI 10.20544/TTS2021.1.1.21.p12

    In this paper, an extensive analysis of the number of access points on a rural road network in the territory of Bosnia and Herzegovina has been performed. The HCM methodology defines that each access point adversely affects the speed of free traffic flow. The negative impact is quantitatively shown through 19 sections of rural roads, as well as a trend of reducing traffic flow speed on each of the analyzed sections. By analyzing and synthesizing the data, the values obtained indicate that access points affect reducing free traffic flow speed in the Federation of Bosnia and Herzegovina twice more than in the Republic of Srpska. The analysis also shows the spatial distribution of accesses points on the main roads section, which has been measured on 200 m subsections.

11. Huskanović, E., & **Stević, Ž.** (2022). *Forklift Selection Using An Integrated CRITIC MARCOS Model.* In 5th Logistics International Conference, Belgrade, Serbia 26-27 May. ISBN 978–86–7395–453–0

    In modern logistics processes, forklifts represent one of crucial means for performing handling operations. As a result, they play a very important role in achieving the overall efficiency of logistics systems. Based on the research conducted in the warehousing system of the Natron-Hayat company, and taking into account the current needs of the company, experience and knowledge of managers as decision-makers in this warehouse, criteria and alternatives for selecting a forklift were defined. The objective CRITIC (Criteria Importance Through Intercriteria Correlation) method was used to determine the significance of the criteria, while the MARCOS (Measurement of Alternatives and Ranking according to Compromise Solution) method was used to evaluate and select the most favorable forklift. By analyzing the collected data using the MARCOS method, it was obtained the ranking of alternatives, according to which the A4 forklift is the most favorable alternative, and the A1 forklift is the worst alternative. The obtained results have been verified through sensitivity analysis, which includes changes in weight criteria, as well as comparative analysis with other methods of multi-criteria decision making.

12. Petrović, J., **Stević, Ž.,** & Zečević, S. (2022). *Locating a humanitarian logistic center: case of Serbia*. In 5th Logistics International Conference, Belgrade, Serbia 26-27 May. ISBN 978–86–7395–453–0

Nowadays life is becoming unpredictable regarding nature control and potential ecological problems. In situations when a natural disaster overpowers the human mechanism of defense, readiness for a fast reaction is the key. An extremely influential alleviation factor of disaster consequences is an adequate realization of logistic activities which in large depends on the location of the humanitarian logistic center. This task has strategic proportions and represents a potential issue while providing first aid to threatened parts if the solution is not optimal. Locating the humanitarian logistic center is a complex issue and involves considering various alternatives and criteria for its valuation, therefore multi-criteria decision-making methods are used. In this paper, the location of the humanitarian logistic center in Serbia has been considered on the territory of Novi Sad, Belgrade, Kragujevac, and Niš. Preference Ranking Organization Method for Enrichment Evaluation (PROMETHEE) method is used for problem-solving. By processing the data and comparing alternatives according to the relevant criteria, Belgrade has been determined as the optimal location of the humanitarian logistic center for the case of Serbia.

4. ОБРАЗОВНА ДЈЕЛАТНОСТ КАНДИДАТА

Образовна дјелатност прије првог и/или /посљедњег избора/реизбора

Навести све активности (уџбеници и друге образовне публикације, предмети на којима је кандидат ангажован, гостујућа настава, менторство[6])

Звање вишег асистента је добио 26.12.2013. године. У том периоду изводио је вјежбе из следећих предмета: Друга година првог циклуса студија: Транспортна средства и уређаји и Логистика у саобраћају. Трећа година првог цилуса студија: Логистички центри и Складишни системи. Четврта година првог циклуса студија: Логистички контролинг, Специјалне области логистике и Индустријска логистика.
На другом цуклусу студија изводио је вјежбе из предмета Управљање складишним системима.

Прије последњег избора у звање објавио је један универзитетски уџбеник:
Алихоџић, А., **Стевић, Ж**, *Специјалне области логистике*, Универзитет у Источном Сарајеву, Саобраћајни факултет Добој 2014. година

Образовна дјелатност послије посљедњег избора/реизбора

Навести све активности (уџбеници и друге образовне публикације, предмети на којима је кандидат ангажован, гостујућа настава, менторство[6])

Универзитетски уџбеник:

1. Васиљевић, М., **Стевић. Ж**. *Логистички контролинг*, Универзитет у Источном Сарајеву, Саобраћајни факултет Добој, 2018. ISBN 978-99955-36-70-1
2. Нунић, З.,, **Стевић. Ж**. *Транспортна средства и уређаји, збирка ријешених задатака*, Универзитет у Источном Сарајеву, Саобраћајни факултет Добој, 2019. ISBN 978-999-55-36-72-5
3. Нунић, З.,, **Стевић. Ж**. *Транспортна средства и уређаји*, Универзитет у Источном Сарајеву, Саобраћајни факултет Добој, 2020. ISBN 978-99955-36-81-7

Поглавља у књизи:

1. Biswas, T. K., **Stević, Ž.,** Chatterjee, P., & Yazdani, M. (2019). *An Integrated Methodology for Evaluation of Electric Vehicles Under Sustainable Automotive Environment.* In Advanced Multi-Criteria Decision Making for Addressing Complex Sustainability Issues (pp. 41-62). (R16) IGI Global. DOI:10.4018/978-1-5225-8579-4.ch003

2. Badi, I., **Stević, Ž.,** Sremac, S. (2019) *An Integrated Fuzzy Model for Solid Waste Management in Libya*, in Sustainability Modeling in Engineering, A Multi-Criteria Perspective 117-143 (R14) WORLD SCIENTIFIC, ISBN: 978-981-3276-32-1 https://doi.org/10.1142/9789813276338_0005

Гостујућа предавања:

1. **Stević Ž.** „*A brief overview of newly developed MCDM approaches in the last three years*, Seminar for Decision making – theory, technology and practice, *28.11.2019.* Mathematical Institute of the Serbian Academy of Sciences and Arts
2. **Stević Ž.** „*Application of combined approaches for processes modeling in supply chain*“ CEEPUS network, project Interdisciplinary approach for enhancing knowledge in supply chain analytics (SCAN) – Visiting professor at University of Novi Sad, Faculty of Technical Sciences, 2021.
3. **Stević Ž.** „*Integration of MCDM methods with other approaches and their application in transportation companies*„ International online conference on recent trends in engineering and technology (RTET) 2021, India
4. **Stević Ž.** „*Model for analysis of strategic decision making in logistics*“ University "St. Kliment Ohridski" Faculty of Technical Sciences – Bitola 2021. Republic North Macedonia, 2021.
5. **Stević Ž.** „*8 časova predavanja na Univerzitetu Žilina, Slovačka*. ERASMUS+ 2020-1-SK01-KA107-077885, nastavnička mobilnost, 2022
6. **Stević Ž.,** *Objective criticism and negative conclusions on using the fuzzy SWARA method in multi-criteria decision making*, Seminar for Decision making – theory, technology and practice, *03.11.2022.* Mathematical Institute of the Serbian Academy of Sciences and Arts

Кандидат доц. др Жељко Стевић остварио је изузетан допринос и на пољу формирања стручних кадрова, јер је у изборном периоду био ментор 25 пута на првом циклусу студија из области логистике, операционих истраживања и транспорта. Поред тога, до сада је био члан Комисије завршних радова на првом циклусу студија 32 пута.

Менторство на другом циклусу студија:

1. Махмутагић Елдина, (2021), *Развој модела за оптимизацију параметара редова чекања у складишном систему*, ННВ: 139-7/18 и ННВ:177-7/21
2. Мулалић Енис, (2022), *Развој модела за управљање залихама у складишту техничког материјала у компанији за производњу папира*, ННВ: 155-7/20 и ННВ: 190-9/22
3. Мишкић Смиљка (2022), *Интегрисани модел вредновања индекса логистичких перформанси са освртом на значај анализе осјетљивости*, ННВ: 192/22 и ННВ: 194-7/22.

Када је у питању учешће у комисији, као предсједник или члан за одбрану мастер рада учествовао је четири пута, два пута као предсједник и два пута као члан. Називи завршних мастер радова и бројеви одлука дати су наставку.

Учешћа у комисији за оцјену и одбрану мастер рада:

1. Ђурић Владан, *Утицај контроле приступа на безбједност саобраћаја на двотрачним путевима* (предсједник), одлука 156-8/20 од 12.02.2020 – 12.06.2020.
2. Иконић Марко, (Универзитет у Београду, Саобраћајни факултет), *Моделирање технологије и капацитета контејнерског терминала ЖИТ у станици Београд ранжирна* (члан), одлука 512/1 од 22.06.2020. – 25.06.2020.
3. Икановић Емир, *Транспортна средства за превоз опасних материја и законска регулатива у друмском саобраћају* (предсједник), одлука 161-10/20 од 10.07.2020. 23.10.2020.
4. Маријановић Драгана, *Примјена еко возила у City логистици* (члан), одлука 182-6/21 од 23.11.2021.

Чланство у комисији под редним бројем два остварено је на Универзитету у Београду, на Саобраћајном факултету. Поред наведеног кандидат је био три пута члан у комисијама за оцјену подобности кандидата, теме и ментора за израду докторске дисертације, на Универзитету у Новом Саду, Универзитету у Источном Сарајеву и Burch Универзитету.

Учешће у комисијама за оцјену подобности кандидата, теме и ментора за израду докторске дисертације:

1. Савковић Татјана, (Универзитет у Новом Саду, Факултет Техничких Наука), *Модел за оптимизацију периодичне обуке возача у режимима система еко-вожње*, 012-199/2-2019
2. Вртагић Сабахудин, (Burch Универзитет), *Impact of vehicles on the asphalt surface through the prism of computational algorithms*, 04-31/2020
3. Цвијановић Раде (Универзитет у Источном Сарајеву, Саобраћајни факултет), *Моделирање показатеља ефикасности рада жељезничких оператера у тржишним условима пословања*, ННВ: 199-4/22

Четири пута је учествовао у комисијама за оцјену и одбрану докторске дисертације, и то два пута на Факултету техничких наука, Универзитета у Новом Саду, једном на Техничком факултету у Бору, Универзитета у Београду и једном на Burch Универзитету.

Учешће у комисијама за оцјену и одбрану докторске дисертације:

1. Стефановић Виолета, (Универзитет у Београду, Технички факултет у Бору), *Моделовање фактора ризика на радним местима у производним процесима са претежно женском радном снагом*, VI/4-30-10 22.10.2019.
2. Савковић Татјана, (Универзитет у Новом Саду, Факултет Техничких Наука), *Модел за оптимизацију периодичне обуке возача у режимима система еко-вожње*, 012-199/2-2019, 28.05.2020.
3. Вртагић Сабахудин, (Burch Универзитет), *Impact of vehicles on the asphalt surface through the prism of computational algorithms* 01-134/21, 15.07.2021.
4. Ерцеговац Памела, (Универзитет у Новом Саду, Факултет Техничких Наука), *Модел за процену и компарацију ризика од настанка несрећа и незгода на путно-пружним прелазима*, 012-199/19-2018, 30.12.2021.

Свој допринос у формирању научних кадрова дао је и кроз учешће у три комисије за избор у звање, на Универзитету у Источном Сарајеву, Саобраћајном факултету у звање асистента, вишег асистента и на Факултету техничких наука, Универзитета у Новом Саду у звању асистента са докторатом.

Учешће у Комисијама за избор у звање:

1. Махмутагић Елдина, асистент, (ННВ: 153-11/19 од 13.11.2019.)
2. Савковић Татјана, (Универзитет у Новом Саду, Факултет Техничких Наука), асистент са докторатом, (01-1427/2 od 15.07.2020.)
3. Махмутагић Елдина, виши асистент, (ННВ: 190/22 од 18.05.2022)

Афирмацију младих научних кадрова поспјешио је и кроз активно учешће студената првог и другог циклуса студија на међународним научним скуповима, гдје су излагали своја истраживања, најчешће из дипломских радова које је водио као ментор доц. др Жељко Стевић. Такође, рад са студентима је видљив кроз активно публиковање радова у часописима националног и међународног карактера.

Резултати анкете[7]

Чланови Комисије су након увида у извјештаје Саобраћајног факултета, установили да резултати студентских анкета спроведених у периоду од 2018/19 до 2022/23 указују на високе оцјене које је кандидат доц. др Жељко Стевић добио као наставник на више предмета. Просјечне оцјене кандидата по школским годинама дате су у наставку:

- 2018/19, просјечна оцјена 4,59
- 2019/20, просјечна оцјена 5,00
- 2020/21, просјечна оцјена 4,93 и 3,48
- 2021/22, просјечна оцјена 4,33 и 4,06
- 2022/23, просјечна оцјена 4,69

5. СТРУЧНА ДЈЕЛАТНОСТ КАНДИДАТА

Навести учешће у НИ пројектима (одобрени и завршени: назив НИ пројекта са ознаком, период реализације, да ли је кандидат руководилац или учесник).

Учешће и руковођење научно истраживачким пројектима:

1. Члан пројектног тима: „*Безбедност саобраћаја младих возача*“ суфинансираног од стране Министарства за научнотехнолошки развој, високо образовање и информационо друштво у 2018. години, 19/6-020/961-49/18.
2. Координатор пројекта: "*Утицај геометријских елемената двотрачних путева у моделима анализе саобраћајног ризика*" суфинансираног од стране Министарства за научнотехнолошки развој, високо образовање и информационо друштво у 2019. години, 19.032/961-58/19.
3. Локални координатор пројекта: „*Interdisciplinary approach for enhancing knowledge in supply chain analytics (SCAN)*, у оквиру CEEPUS мреже, CIII-RS-1412-01-1920.
4. Сертификовани ментор за мала и средња предузећа у оквиру пројекта: „*Успостављање и промоција менторинг услуга за мала и средња предузећа на Западном Балкану (фаза 2)*“ подржаног од стране Развојне агенције Републике Српске (Министарство привреде и предузетнишва) и Јапанске агенције за међународну сарадњу (JICA)

5. Учесник кроз наставничку мобилност, *ERASMUS+ KA107* одобрен од стране European Commission, 2020-1-SK01-KA107-077885.

Рецензије уџбеника, помоћног уџбеника, техничког рјешења:

1. Сремац, С., Матијашевић, М., (2021), *Транспорт опасне робе*, Универзитет у Новом Саду, Факултет техничких наука, основни уџбеник, ISBN 978-86-6022-325-0
2. Talevska Bunevska J., (2021), *Урбана Логистика*, University "St. Kliment Ohridski" Faculty of Technical Sciences – Bitola, Republic North Macedonia, помоћни уџбеник, 02-679/7
3. Велимировић, Л., Јанковић Бабић, Р., Велимировић, Ј., Јањић А., Вранић, П., (2022). *Развој паметног система за управљање водама, Матични научни одбор за математику, рачунарске науке и механику* (Србија) – техничко рјешење, матични одбор сједница 13.09.2021.
4. Нунић, Б.З., Хускановић Е., (2022). *Основни видови транспорта 2*, Универзитет у Источном Сарајеву, Саобраћајни факултет Добој, ISBN 978-99955-36-94-7

Учешће у уредничком одбору часописа:

Главни уредник:

1. Operational Research in Engineering Sciences: Theory and Applications (ORESTA)
2. Journal of Intelligent Management Decision (JIMD)
3. Decision Making and Analysis (DMA)

Уредник или сарадник уредника:

1. Journal of Decision Analytics and Intelligent Computing (JDAIC)
2. Put i Saobraćaj
3. Current Chinese Science, Computer science

Члан уређивачког одбора:

1. Modern Problems of Russian Transport Complex
2. Neutrosophic Sets and Systems
3. Transportation Safety and Environment (China) Oxford University Press
4. Alphanumeric journal
5. LOGI – Scientific Journal on Transport and Logistics
6. Facta Universitatis, Series: Mechanical Engineering
7. Journal of Computational and Cognitive Engineering
8. Journal of process management and new technologies
9. Advances in Operations Research
10. ESIC Digital Economy and Innovation Journal
11. Military Technical Courier

Уредник специјалних издања у часописима – водећи гостујући уредник и гостујући уредник:

1. Symmetry (SCI), SI Multi-Criteria Decision-Making Techniques for Improvement Sustainability Engineering Processes

2. Algorithms (WoS), SI Algorithms for Multi-Criteria Decision-Making
3. Sustainability (SCI) SI Operational Research Tools for Solving Sustainable Engineering Problems
4. Logistics, SI Application of Multi-Criteria Decision-Making Methods for Evaluation in Logistics and Supply Chain
5. Symmetry (SCI), SI Multi-Criteria Decision-Making Techniques for Improvement Sustainability Engineering Processes II
6. Discrete Dynamics in Nature and Society (SCI), SI Uncertain Optimization Problems in Sustainable Engineering
7. Facta Universitatis, Series: Mechanical Engineering (SCI), SI Application of operations research tools in transport and logistics
8. Decision Making: Applications in Management and Engineering (SCOPUS), SI Decision Analytics and Intelligent Computing: Models And Applications
9. Complexity (SCI), SI Uncertainty Models in Complex Engineering Systems
10. CMES - Computer Modeling in Engineering & Sciences (SCI), SI Advanced Computational Models for Decision-Making of Complex Systems in Engineering
11. Symmetry (SCI), SI Algorithms for Multi-Criteria Decision-Making under Uncertainty
12. Complexity (SCI), SI Uncertainty Models in Complex Systems 2022
13. Sustainability (SCI), SI Circular Economy and Logistics
14. Sustainability (SCI), SI Application of Decision-Making Approaches under Uncertainty for Sustainable Transport
15. PeerJ Computer Science (SCI), SI Decision Making in Complex Systems: Intelligent Computing
16. Sustainability (SCI), SI Sustainable Management of Logistic and Supply Chain
17. Logistics (SCOPUS), SI Multi-Criteria Decision-Making and Its Application in Sustainable Smart Logistics
18. Demonstratio Mathematica (SCI), SI Development of Fuzzy Sets and Their Extensions

Члан Програмског одбора научног скупа међународног значаја:

1. ICMNEE 2018 - International Conference On Management, Engineering and Environment (Srbija)
2. 7th International Conference on Transport and Logistics (TIL 2019) (Srbija)
3. 2nd International Conference On Frontiers of Operations Research & Business Studies (FORBS 2019) (Indija)
4. ICMNEE 2019 - International Conference On Management, Engineering and Environment (Srbija)
5. 5th International scientific conference „Innovation as an initiator of the development 2019“ Belgrade (Srbija)
6. 3rd International Scientific Conference "TRANSPORT FOR TODAY'S SOCIETY", Bitola, North Macedonia, May 28-30, 2020
7. 1st International Conference on Challenges and New Solutions in Industrial Engineering and Management and Accounting
8. International Conference on Recent Trends in Engineering and Technology (RTET 2020), (Indija)
9. 8th International Conference on Transport and Logistics (TIL 2021), (Srbija)
10. International May Conference on Strategic Management – IMCSM22, (Srbija)

Резултати, награде и признања:

1. **Међу 2% научника у свијету за 2020. годину** (Извјештај Станфорд Универзитета)
2. **Међу 2% научника у свијету за 2021. годину** (Извјештај Станфорд Универзитета)
3. У новембру 2017. године на 7. Фестивалу науке који је организовало Министарство науке и технологије Републике Српске проглашен је за **најбољег младог истраживача III циклуса студија.**
4. Добитник медаље **заслуга за народ у области образовања и науке** - 09.01.2018. године.
5. Врхунски рецензент - **Global Peer Review Awards 2019** (Publons) – Web of Science.
6. Добитник је престижне стипендије Фонд др Милан Јелић (Министарство науке и технологије Републике Српске) 2015. године. Првопласиран на ранг листи.
7. Добитник је престижне стипендије Фонд др Милан Јелић (Министарство науке и технологије Републике Српске) 2017. године. Првопласиран на ранг листи.
8. Првопласирани на конкурсу за суфинансирање израде докторске дисертације у 2018. години (Министарство науке и технологије Републике Српске).
9. Добитник подстицајних средстава на конкурсу за подстицање научне продуктивности 2018. године расписаног од стране Министарства за научнотехнолошки развој, високо образовање и информационо друштво – Истраживач I категорија.
10. Добитник подстицајних средстава на конкурсу за подстицање научне продуктивности 2019. године расписаног од стране Министарства за научнотехнолошки развој, високо образовање и информационо друштво Истраживач I категорија.
11. Добитник подстицајних средстава на конкурсу за подстицање научне продуктивности 2020. године расписаног од стране Министарства за научнотехнолошки развој, високо образовање и информационо друштво Истраживач I категорија.
12. Добитник подстицајних средстава на конкурсу за подстицање научне продуктивности 2021. године расписаног од стране Министарства за научнотехнолошки развој, високо образовање и информационо друштво Истраживач I категорија.
13. Најбољи рад на међународној конференцији - Април 2021. најбољи рад на *International Conference on Recent Trends in Engineering and Technology (RTET 2021) India, section (Multidiciplinary & Optimization)*
14. **Рангиран у првих 5 научника у БиХ**, AD scientific index Top 5 ranked in Bosnia and Herzegovina https://www.adscientificindex.com/?country_code=ba

Цитати и друге метрике:

1. **ResearchGate (Research Interest Score: 4,091),** (Research Interest Score is higher than 98% of ResearchGate members)
2. **Google Scholar - 5163 (h-index 38, i10-index 81)**
3. **SCOPUS 3261 (h-index 29)**
4. **Web of Science 2276 (h-index 24)**
5. Број извршених рецензија - **Web of Science – 669 reviews.**

Други кандидат и сваки наредни ако их има (све поновљено као за првог кандидата).

6. РЕЗУЛТАТ ИНТЕРВЈУА СА КАНДИДАТИМА[9]

Интервју са пријављеним кандидатом обављен је 07.04.2023. године, у 14 часова у просторијама Саобраћајног факултета Добој. Интервју је обављен уз присуство свих чланова комисије, професора др Илије Танацкова, професора др Ратка Ђуричића и професорице др Снежане Тадић.

Кандидат је одговарајући на постављена питања чланова комисије исказао и указао на даље правце развоја свјетске науке и истраживачког рада са различитих аспеката.

На основу извршеног интервјуа са кандидатом, чланови Комисије су констатовали изузетну посвећеност кандидата настави и научно-истраживачком раду, те са задовољством закључују да кандидат доц. др Жељко Стевић својим компетенцијама испуњава опште и посебне услове конкурса за избор у звање ванредног професора.

[6] Уколико постоје менторства (магистарски/мастер рад или докторска дисертација) навести име и презиме кандидата, факултет, ужу научну област рада.
[7] Као доказ о резултатима студентске анкете кандидат прилаже сопствене оцјене штампане из базе.
[8] Кандидат за избор у научно-наставно или умјетничко-наставно звање, који није раније изводио наставу на високошколској установи, дужан је да, пред комисијом коју формира вијеће чланице Универзитета, одржи предавање из области за коју се бира.
[9] Интервју са кандидатима за изборе у академска звања обавља се у складу са чланом 4а. Правилника о поступку и условима избора академског особља Универзитета у Источном Сарајеву (Интервју подразумијева непосредан усмени разговор који комисија обавља са кандидатима у просторијама факултета/академије. Кандидатима се путем поште доставља позив за интервју у коме се наводи датум, вријеме и мјесто одржавања интервјуа).

III ЗАКЉУЧНО МИШЉЕЊЕ		
Први кандидат		
На кандидата се примјењују минимални услови за избор у звање из [10] Закона о високом образовању („Службени гласник Републике Српске“, број: 67/20).		
Минимални услови за избор у звање[11]	испуњава/не испуњава	Навести резултате рада (уколико испуњава)
1. Има проведен најмање један изборни период у настави у звању доцента.	Испуњава	Саобраћајни факултет, Универзитета у Источном Сарајеву, избор доцента од 14.09.2018. године
2. Има најмање пет научних радова из научне области за коју се бира, објављених у научним часописима и зборницима са рецензијом, од којих је један научни рад у научном часопису међународног значаја или научном скупу међународног значаја и најмање један научни рад објављен у истакнутом научном часопису међународног значаја, након избора у звање доцента.	Испуњава	Након избора у звање доцента кандидат је објавио више од 130 радова, од којих је пријавио укупно 90: - 50 радова у истакнутом научном часопису међународног значаја (SCI листа) - 15 радова у научном часопису међународног значаја (SCOPUS) - 6 радова у научном часопису националног значаја, - 5 пленарних радова на међународном научном скупу, - 12 радова на међународном научном скупу - 2 поглавља у књизи међународног значаја
3. Има најмање једну научну монографију (са ISBN бројем) из научне области за коју се бира, или универзитетски уџбеник (са ISBN бројем).	Испуњава	Кандидат је објавио два универзитетска уџбеника и једну збику ријешених задатака након избора у звање доцента.
4. Доказане наставничке способности, позитивно је оцијењен од високошколске установе или има позитивну оцјену педагошког рада у студентским анкетама током цјелокупног претходног изборног периода.	Испуњава	Кандидат има позитивне и високе оцјене педагошког рада, што је детаљно наведено у извјештају.

5. Да је био члан комисије за одбрану мастер или магистарског рада или докторске дисертације, или има успјешно реализовано менторство кандидата на другом или трећем циклусу студија.	Испуњава	- Био је три пута члан у комисијама за оцјену подобности кандидата, теме и ментора за израду докторске дисертације, - Четири пута члан у комисијама за оцјену и одбрану докторске дисертације, - Четири пута члан у комисијама за одбрану мастер рада и - Три пута ментор на другом циклусу студија.
Доказ да је остварио **најмање један од три елемента** из члана 80. став 2. Закона о високом образовању 67/20		
1. стручно-професионални допринос који подразумијева да је кандидат аутор/коаутор елабората или студије, руководилац или сарадник на научно-истраживачком или стручном пројекту, иноватор, аутор/коаутор патента или техничког унапређења, односно аутор/коаутор умјетничког пројекта или сарадник на умјетничком пројекту, и друго.	Испуњава	Кандидат је након избора у звање доцента био: - руководилац (координатор) националног пројекта суфинансираног од стране МНРВОИД, - локални координатор пројекта: „Interdisciplinary approach for enhancing knowledge in supply chain analytics (SCAN), у оквиру CEEPUS мреже, - члан националног пројекта суфинансираног од стране МНРВОИД, - Учесник ERASMUS+ KA107, - Учесник пројекта Успостављање и промоција менторинг услуга за мала и средња предузећа на Западном Балкану (фаза 2)

2. Допринос академској и широј заједници који подразумијева ангажовање у националним или међународним научним, односно стручним организацијама, институцијама од јавног значаја, културним институцијама и слично.	Испуњава	- Члан је International Society on MCDM. - Предсједник Neutrosophic Science International Association (NSIA) одјељка у Босни и Херцеговини. - Члан Програмског Комитета за специфичне програме из Републике Српске – програм – паметни, зелени и интегрисани транспорт (Рјешење Владе Републике Српске на 47. сједници одржаној 22.11.2019. године. - Одговорни наставник за стручну праксу, смјер Логистика, ННВ: 168-1/21. Поред тога главни је уредник три часописа, уредник или сарадник уредника у три часописа, члан уређивачког одбора у 11 часописа, гостујући уредник и организатор 18 специјалних издања у различитим часописима, члан Програмског одбора 10 међународних научних скупова.
3. Сарадња са другим високошколским, научноистраживачким, односно институцијама културе или умјетности у земљи и иностранству која подразумијева мобилност, заједничке студијске програме, интернационализацију, пленарно предавање на међународном научном скупу и друго.	Испуњава	- Одржао је шест гостујућих предавања у Србији, Индији, Словачкој и Сјеверној Македонији. - Има пет пленарних предавања на међународним научним скуповима одржаним у Србији и Ирану. - Остварена мобилност кроз ERASMUS+ KA107 и CEEPUS. - Рецензент је основног уџбеника, помоћног уџбеника и техничког рјешења у БиХ, Србији и Сјеверној Македонији. - Учесник је три комисије за избор у звања асистент, виши асистент и асистент са докторатом.
Додатно остварени резултати рада (осим минимално прописаних)		

Кандидат доц. др Жељко Стевић пријавио је 90 радова. Огроман допринос објављених радова препознат је кроз категорије R21-R23: 50 радова објављених на SCI листи, што с обзиром на период након избора у звање доцента представља енормну квантитативно-квалитативну продуктивност која је крунисана великим бројем цитата. Даље, кандидат је као аутор и коаутор одржао пет предавања по позиву на међународном скупу штампаном у цјелини, и то три у Србији и два у Ирану, те 12 радова категорије R33. Веома је битно уочити да је кандидат своју истраживачку продуктивност манифестовао кроз објављивање радова кроз категорије R10, R20, R30 и R50, што говори о широком спектру истраживања прилагођених како националним тако и међународним критеријумима.

Међународна сарадња кандидата уочљива је кроз интернационалну мрежу коаутора и публиковање радова, најчешће у сарадњи са међународним коауторима. Такође, дата сарадња се огледа и кроз одржавање предавања по позиву на међународним скуповима, гостујућа предавања, учешће у програмском одбору конференција и чланству у уредничким одборима часописа.

Кандидат доц. др Жељко Стевић остварио је значај допринос у организацији научног рада који се огледа кроз руковођење и учешће у националним и међународним пројектима, примјени знања и вјештина у пракси, чланству Програмског Комитета за специфичне програме из Републике Српске – програм – паметни, зелени и интегрисани транспорт, броју објављених радова у којима је први или кореспондентни аутор.

Поред наведеног, кандидат је сертификовани ментор за мала и средња предузећа у оквиру пројекта „Успостављање и промоција менторинг услуга за мала и средња предузећа на Западном Балкану (фаза 2)“ подржаног од стране Развојне агенције Републике Српске (Министарство привреде и предузетништва) и Јапанске агенције за међународну сарадњу (JICA) чији је циљ имплементација знања и вјештине у привредном систему кроз обављање услуге менторинга.

Кроз претходно наведену метрику која се односи на цитате кандидата доц. др Жељка Стевића може се закључити да се ради о врсном истраживачу са високим коефицијентом компетенције у областима истраживања којима се бави. Ово доказује и чињеница да је у последња два извјештаја Стенфорд Универзитета сврстан у категорију 2% најцитиранијих истраживача (за 2020. и 2021. годину). Према бази SCOPUS Хиршов индекс износи 29, укупан број цитата 3261 који је постигнут кроз 1910 радова у којима је кандидат доц. др Жељко Стевић односно његов опус истраживања цитиран. Када је у питању цитатна база Google Scholar, кандидат је 5163 пута цитиран, Хиршов индекс износи 38, а Хиршов 10 индекс 81, што говори о квалитету научних радова. Још један од показатеља квалитета научних радова кандидата Жељка Стевића може се сагледати кроз чињеницу да је рад у категорији R22 у часопису у којем је објављен тренутно други најцитиранији рад свих времена тог часописа https://www.mdpi.com/journal/symmetry/most_cited.

Сагледавајући претходно наведено може се недвосмислено и концизно закључити да је кандидат остварио значајне научне доприносе у областима истраживања, те да испуњава сва три елемента из члана 80. став 2. Закона о високом образовању 67/20 (један услов довољан за ванредног професора).

Други кандидат и сваки наредни уколико их има.

Није било других пријављених кандидата.

На расписани конкурс за избор у звање ванредног професора за ужу научну област Транспортно инжењерство, јавио се један кандидат, доц. др Жељко Стевић. Полазећи од критеријума из члана 81. Закона о високом образовању („Службени Гласник Републике Српске“ бр. 67/20), Статута Универзитета у Источном Сарајеву и Правилника о поступку и условима избора академског особља на Универзитету у Источном Сарајеву, којима су прописани услови за избор ванредног професора, Комисија је детаљно прегледала достављену документацију и обавила интервју.

На основу извршеног прегледа поднете документације, интервјуа и претходно констатованих закључака, Комисија сматра да доц. др Жељко Стевић формално и суштински испуњава све услове који су прописани законским и подзаконским актима за избор у звање ванредног професора за ужу научну област Транспортно инжењерство. Анализирајући свеукупну активност кандидата са фокусом на објављене научне радове на SCI листи којих је 50, цитираност кандидата, констатан напредак из године у годину што је видљиво из метрике кандидатових научних профила, ангажованост у формирању саобраћајних инжењера и научних кадрова, међународној сарадњи, организацији научног рада, предавањима по позиву, руковођењу у учешћу у пројектима, присутности у одборима часописа и научних скупова, уређивању истих, оригиналности публикованих радова, значајном броју развоја нових метода и приступа у науци, Комисија закључује да је кандидат доц. др Жељко Стевић остварио изузетно значајне и утицајне научно-истраживачке резултате. На основу свега наведеног, оцјена и закључака, Комисија са великим задовољством предлаже Наставно–научном вијећу Саобраћајног факултета, Универзитета у Источном Сарајеву да усвоји овај извјештај и предложи Сенату Универзитета у Источном Сарајеву да кандидата доц. др Жељка Стевића изабере у звање ванредног професора за ужу научну област Транспортно инжењерство.

ЧЛАНОВИ КОМИСИЈЕ:

1. _____, предсједник
Др Илија Танацков, редовни професор

2. _____, члан
Др Ратко Ђуричић, редовни професор

3. _____, члан
Др Снежана Тадић, ванредни професор

[10] Навести „Закона о високом образовању („Службени гласник Републике Српске“, број: 73/10, 104/11, 84/12, 108/13, 44/15, 90/16, 31/18, 26/19 и 40/20)“ или „Закона о високом образовању („Службени гласник Републике Српске“, број: 67/20)“, у зависности да ли кандидат користи право на избор по условима који су важили прије ступања на снагу важећег Закона о високом образовању.

[11] У зависности у које се звање бира кандидат, навести минимално прописане услове на основу члана 81, 82, 83. и 90. Закона о високом образовању („Службени гласник Републике Српске“, број: 67/20) или на основу члана 77, 78. и 87. Закона о високом образовању („Службени гласник Републике Српске“, број: 73/10, 104/11, 84/12, 108/13, 44/15, 90/16, 31/18, 26/19 и 40/20), односно на основу члана 37, 38. и 39. Правилника о поступку и условима избора академског особља Универзитета у Источном Сарајеву