

**Universitatea Tehnică din Cluj-Napoca**

**Facultatea de Inginerie Industrială, Robotică și Managementul Producției**

**Departamentul:** Ingineria Proiectării și Robotică

**Concurs pentru ocuparea postului de:** Profesor, poziția 9

**Disciplinele postului:** Fiabilitatea, mentenanța și siguranța în exploatarea sistemelor robotizate industriale (eng.); Fiabilitatea, mentenanța și siguranța în exploatarea sistemelor robotizate industriale; Mașini unelte și echipamente de fabricație (eng.).

**Post publicat în Monitorul Oficial al României nr. 438 din 29.11.2023**

## LISTA DE LUCRĂRI

**Conf.dr.ing. Bogdan MOCAN**

### Publicațiile cele mai relevante în contextul concursului (max.10)

- 1 Brevet: **Mocan B.**, Bintintan, V., Instrument Laparoscopic pentru Localizarea Extralumenală Precisă a Unei Tumori Colorectale, Nr. brevet: RO 131186 B1/29.04.2021.
- 2 Brevet: **Mocan B.**, Mocan, M., Dispozitiv pentru Realizarea Puncției Arteriale în Vederea Prelevării Unei Probe de Sânge din Artera Radială, Nr. brevet: RO 133031 B1/30.06.2023.
- 3 Fulea M, **Mocan B.**, Dragomir M, Murar M. On Increasing Service Organizations' Agility: An Artifact-Based Framework to Elicit Improvement Initiatives. *Sustainability*. 2023; 15(13):10189. <https://doi.org/10.3390/su151310189> (IF: 2023 3.889, Q2)
- 4 **Mocan, B.**; Schonstein, C.; Murar, M.; Neamtu, C.; Fulea, M.; Mocan, M.; Dragan, S.; Feier, H. Upper-Limb Robotic Exoskeleton for Early Cardiac Rehabilitation Following an Open-Heart Surgery - Mathematical Modelling and Empirical Validation. *Mathematics* 2023, 11(7), 1598; <https://doi.org/10.3390/math11071598>. (IF: 2023 2,59, Q1) <https://www.mdpi.com/2227-7390/11/7/1598>
- 5 **Mocan, B.**, Mocan, M., Fulea, M., Murar, M., Feier, H. Home-Based Robotic Upper Limbs Cardiac Telerehabilitation System. *International Journal of Environmental Research and Public Health*. 2022; 19 (18):11628 <https://doi.org/10.3390/ijerph191811628> (IF 2022 4,614, Q1).
- 6 Calborean, A., Macavei, S., **Mocan, B.** et al. Non-invasive laparoscopic detection of small tumors of the digestive tract using inductive sensors of proximity. *Sci Rep* 12, issue 1, 760 (2022). <https://doi.org/10.1038/s41598-022-04822-x> **ISSN: 2045-2322**; Nature-Scientific Reports, IF 2021 4.996, Q1; CiteScore: 5.134, Q1).
- 7 **Mocan, B.**; Schonstein, C.; Neamtu, C.; Murar, M.; Fulea, M.; Comes, R.; Mocan, M. CardioVR-ReTone—Robotic Exoskeleton for Upper Limb Rehabilitation following Open Heart Surgery: Design, Modelling, and Control. *Symmetry* 2022, 14, 81. <https://doi.org/10.3390/sym14010081> **ISSN: 2073-8994**; (IF 2021 2,940, Q2; CiteScore: 3.4, Q1).
- 8 Mocan, M., Vlaicu, S.I., Farcaș, A.D., Feier, H., Dragan, S., and **Mocan, B.**, Cardiac Rehabilitation Early after Sternotomy Using New Assistive VR-Enhanced Robotic Exoskeleton—Study Protocol for a Randomised Controlled Trial, *Int. J. Environ. Res. Public Health* 2021, 18, no 22, 11922. <https://doi.org/10.3390/ijerph182211922>, 2021, EISSN 1660-4601 (IF 2021 3.390, Q1).
- 9 Bințișan, V., Calborean, A., Mocan, M., Macavei, S., Cordoș, A., Ciuce, C., Bințișan, A., Chira, R., Nagy, G., Surlin, V., Timofte, D., Nickel, F., Mueller, B., Dindelegan, G., Ciuce, C., Brad, S., Murar, M., **Mocan, B.**, New inductive proximity sensor platform for precise localization of small colorectal tumors, *Materials Science and Engineering: C - MATERIALS FOR BIOLOGICAL APPLICATIONS*, Volume 106, Article 110146, 2020, ISSN 0928-4931, (<https://doi.org/10.1016/j.msec.2019.110146>), (IF 2020 7.328, CiteScore 11.5, Q1)
- 10 Calborean, A., Macavei, S., Mocan, M., Ciuce, C., Cords, A., Bintintan, A., Chira, R., Pestean, C., Pop, O., Barbu-Tudoran, L., Dindelegan, G., Surlin, V., Nickel, F., **Mocan, B.**, Bintintan, V., Laparoscopic compatible device incorporating inductive proximity sensors for precise detection of gastric and colorectal small

## Teza doctorat

- 1 **Cercetări și Contribuții privind Proiectarea Orientată și Îmbunătățirea Performanțelor Sistemelor Robotizate de Sudare cu Arc Electric**

Data susținerii publice: **13.01.2012**

Ordinul Ministrului Educației, Cercetării, Tineretului și Sportului: **3639 din 27.03.2012**

## Brevete

1. **Mocan B.**, Bintintan, V., Instrument Laparoscopic pentru Localizarea Extralumenală Precisă a Unei Tumori Colorectale, Nr. brevet: RO 131186 B1/29.04.2021.
2. **Mocan B.**, Mocan, M., Dispozitiv pentru Realizarea Puncției Arteriale în Vederea Prelevării Unei Probe de Sânge din Artera Radială, Nr. brevet: RO 133031 B1/30.06.2023.

## CĂRȚI

### A. Cărți/ capitole publicate în edituri naționale recunoscute CNCIS

- 1 Murar, M., **Mocan, B.**, s.a., Automate programabile logice și interfețe om-mașină, Editura UTPress, ISBN 978-606-737-246-5, 120 pg., Cluj-Napoca, 2023.
- 2 **Mocan, B.**, Brad, S., Fulea, M., Murar, M., Stan, A., Timoftei, S., *Multidisciplinary Design of Industrial Robotic Automation Solutions - Practical Guide For Students* - Editura UTPress, ISBN 978-606-737-246-5, 240 pg., Cluj-Napoca, 2018.
- 3 **Mocan, B.**, Timoftei, S., Stan, A., Fulea, M., RobotStudio® - Simulation of industrial automation processes and offline programming of ABBs robots - Practical guide for students - Editura UTPress, ISBN 978-606-737-254-0, 140 pg., Cluj-Napoca, 2017.
- 4 **Mocan, B.**, Brad, S., Fulea, M., *Automatizarea și Robotizarea Fabricației Structurilor Sudate*, Editura UTPress, ISBN 978-606-737-052-2, 290 pg., Cluj-Napoca, 2015.
- 5 Fulea, M., Brad, S., **Mocan, B.**, *Evaluarea excelenței organizaționale*, Editura UTPress, ISBN 978-606-737-065-2, 174 pg., Cluj-Napoca, 2015.
- 6 Brad, S., Brad, E., **Mocan, B.**, Fulea, M., *Tools and Methods of Competitive Design in Robotics*, Editura UT Press, ISBN 978-606-737-067-6, 183 pg., Cluj-Napoca, 2015.
- 7 Fulea, M., Brad, S., **Mocan, B.**, Murar, M., *Ingineria Dezvoltării Competitive a Produselor și Serviciilor Inovative*, Editura UT Press, ISBN 978-606-737-066-9, 52 pg., Cluj-Napoca, 2015.
- 8 Blebea, I., **Mocan, B.**, Steopan A., *Fiabilitatea, Mentenabilitatea și Siguranța Sistemelor de Producție*, Editura UT Press, ISBN 978-973-662-842-9, 292 pg., Cluj-Napoca, 2013.
- 9 **Mocan, B.**, *Sisteme Robotizate de Sudare cu Arc Electric – Proiectarea orientată și îmbunătățirea performanțelor sistemelor robotizate de sudare cu arc electric*, Editura UT Press, ISBN 978-973-662-881-8, 308 pg., Cluj-Napoca, 2013.
- 10 Brad, S., **Mocan, B.**; Duca, A., Brad, E., *Robotizarea Asistată de Calculator a Fabricației. Fundamentele Utilizării Mediului Workspace de Simulare și Programare Off-Line a Sistemelor de Fabricație Robotizate*, Editura UT Press, ISBN 978-973-662-361-5, 213 pg., Cluj-Napoca, 2008.
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- 12 Brad, S., Brad, E., **Mocan, B.**, *Basic Tools of Competitive Design in Robotics – Student Guide for Practical Application*, Editura UT Pres, ISBN 973-662-161-8, 112 pg., Cluj-Napoca, 2005.

### A. Cărți/ capitole publicate în edituri internaționale recunoscute CNCIS (ISI Book)

- 1 Steopan M., **Mocan B.**, Florin P., Bucur M., Ispas V. (2021) Design and Development of a Robotic Hexapod Platform for Educational Purposes. In: Lovasz EC., Maniu I., Doroftei I., Ivanescu M., Gruescu CM. (eds) *New Advances in Mechanisms, Mechanical Transmissions and Robotics*. MTM&Robotics 2020. Mechanisms and Machine Science, vol 88. Springer, Cham. <https://doi.org/10.1007/978-3->

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- 2 **Mocan B.**, Fulea M., Murar M., Steopan M., Mocan M. (2021) Automatic Arterial Puncture Sensorial Device for Fast Arterial Blood Gas Sampling from Radial Artery During Covid-19 Pandemic. In: Lovasz EC., Maniu I., Doroftei I., Ivanescu M., Gruescu CM. (eds) *New Advances in Mechanisms, Mechanical Transmissions and Robotics*. MTM&Robotics 2020. Mechanisms and Machine Science, vol 88 Springer, Cham. [https://doi.org/10.1007/978-3-030-60076-1\\_48](https://doi.org/10.1007/978-3-030-60076-1_48)  
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- 3 Patcas R., **Mocan B.**, Fulea M., Murar M., Steopan M. (2020) Design and Development of a Mobile Robot Equipped with Perception Systems for Autonomous Navigation. In: Pislă D., Corves B., Vaida C. (eds) *New Trends in Mechanism and Machine Science*. EuCoMeS 2020. Mechanisms and Machine Science, vol 89. Springer, Cham. [https://doi.org/10.1007/978-3-030-55061-5\\_10](https://doi.org/10.1007/978-3-030-55061-5_10)  
Print ISBN 978-3-030-60075-4; Online ISBN 978-3-030-60076-1; pp. 78-85.

## ARTICOLE

### A1. Articole în reviste ISI (Q1 sau Q2)

- 1 Fulea M, **Mocan B**, Dragomir M, Murar M. On Increasing Service Organizations' Agility: An Artifact-Based Framework to Elicit Improvement Initiatives. *Sustainability*. 2023; 15(13):10189. <https://doi.org/10.3390/su151310189> (IF: 2023 3.889, Q2)
- 2 **Mocan, B.**; Schonstein, C.; Murar, M.; Neamtu, C.; Fulea, M.; Mocan, M.; Dragan, S.; Feier, H. Upper-Limb Robotic Exoskeleton for Early Cardiac Rehabilitation Following an Open-Heart Surgery - Mathematical Modelling and Empirical Validation. *Mathematics* 2023, 11(7), 1598; <https://doi.org/10.3390/math11071598>. (IF: 2023 2,59, Q1)  
<https://www.mdpi.com/2227-7390/11/7/1598>
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- 5 **Mocan, B.**; Schonstein, C.; Neamtu, C.; Murar, M.; Fulea, M.; Comes, R.; Mocan, M. CardioVR-ReTone—Robotic Exoskeleton for Upper Limb Rehabilitation following Open Heart Surgery: Design, Modelling, and Control. *Symmetry* 2022, 14, 81. <https://doi.org/10.3390/sym14010081>  
**ISSN: 2073-8994**; (IF 2021 2,940, Q2; CiteScore: 3.4, Q1)
- 6 Mocan, M., Vlaicu, S.I., Farcaș, A.D., Feier, H., Dragan, S., and **Mocan, B.**, Cardiac Rehabilitation Early after Sternotomy Using New Assistive VR-Enhanced Robotic Exoskeleton—Study Protocol for a Randomised Controlled Trial, *Int. J. Environ. Res. Public Health* 2021, 18, no 22, 11922. <https://doi.org/10.3390/ijerph182211922>, 2021, EISSN 1660-4601 (IF 2021 3.390, Q1)
- 7 Bințișan, V., Calborean, A., Mocan, M., Macavei, S., Cordoș, A., Ciuce, C., Bințișan, A., Chira, R., Nagy, G., Surlin, V., Timofte, D., Nickel, F., Mueller, B., Dindelegan, G., Ciuce, C., Brad, S., Murar, M., Mocan, B., New inductive proximity sensor platform for precise localization of small colorectal tumors, *Materials Science and Engineering: C - MATERIALS FOR BIOLOGICAL APPLICATIONS*, Volume 106, Article 110146, 2020, ISSN 0928-4931, (<https://doi.org/10.1016/j.msec.2019.110146>), (IF 2020 7.328, CiteScore 11.5, Q1)
- 8 Calborean, A., Macavei, S., Mocan, M., Ciuce, C., Cordos, A., Bintintan, A., Chira, R., Pestean, C., Pop, O., Barbu-Tudoran, L., Dindelegan, G., Surlin, V., Nickel, F., Mocan, B., Bintintan, V., Laparoscopic compatible device incorporating inductive proximity sensors for precise detection of gastric and colorectal small tumors, *Surgical Oncology*, V. 35, pp. 504-514, (<https://doi.org/10.1016/j.suronc.2020.10.012>), December 2020, ISSN 0960-7404 (IF 2020 3.4, CiteScore 3.4, Q2).

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- 1 **Mocan, B.**, Fulea, M., Murar, M., Chereches, I. A., Marian, S., Robotic Cell Customization Using Augmented Reality, Acta Technica Napocensis, Series: Applied Mathematics, Mechanics and Engineering, Vol 64, No 4s (2021), pp. 725-732, December 2021; ISSN: 1221-5872.
- 2 Fulea, M., Kis, M., Blagu, D., **Mocan, B.**, Artifact-Based Approach to Improve Internal Process Quality Using Interaction Design Principles, Acta Technica Napocensis, Series: Applied Mathematics, Mechanics and Engineering, Vol 64, No 4s (2021), pp. 697-706, December 2021; ISSN: 1221-5872.
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- 4 **Mocan, B.**, Fulea, M., A.D., FĂRCAȘ, M., Mocan, Exoskeleton Robotic Systems Used as a Tool for Cardiac Rehabilitation, Acta Technica Napocensis, Series: Applied Mathematics, Mechanics and Engineering, Vol 62, No 3 (Sept. 2019), pp. 411-416, 2019; ISSN: 1221-5872; WOS:000489767000007.
- 5 **Mocan, B.**, Fulea, M., Mocan, M., Bintintan, V., A Robotic Helping Hand to the Detection of Small Colorectal Tumours in Laparoscopic Surgery, Acta Technica Napocensis, Series: Applied Mathematics, Mechanics and Engineering, Vol 62, No 1 (March 2019), pp. 91-98, 2019.
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- 7 Mocan, M., Chiorescu, R., Banc, O.N., **Mocan, B.**, Anton, F., Stoia, M., Farcas, A.D., Cardiac rehabilitation protocols outcome in frail patients undergoing transcatheter aortic valve implantation, Balneo Research Journal, ISSN: 2069-7597/eISSN: 2069-7619, Vol.9, No.4, December 2018, pp. 401-405, 2018 (DOI: 10.12680/balneo.2018.220)
- 8 **Mocan, B.**, Brad, S., Fulea, M., Murar, M., Brad, E., Safety Management Within a Robotic Manufacturing System Through Layout Design, Acta Technica Napocensis, Series: Applied Mathematics, Mechanics and Engineering, Vol 61, No 3 Special Issue (September 2018), pp. 137-146, 2018; WOS:000451702200018
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- 10 Bartha, L., Fulea, M., **Mocan, B.**, EXPRESS-CAR-HIRE - A NEW CONCEPT FOR ELECTRIC VEHICLE HIRING WITHIN AIRPORT TERMINALS, Environmental Engineering and Management Journal, February 2018, Vol.17, No. 2, 273-283, ISI journal, (IF 1.186, Q4), 2018; eISSN: 1843-3707; WOS:000427084800004
- 11 **B. Mocan**, V. V. Bintintan, S. Brad, C. Ciuce, M. Mocan, M. Murar, Development of a Robotic Driven Handheld Laparoscopic Instrument for Non-invasive Intraoperative Detection of Small Endoluminal Digestive Tumors, New Trends in Medical and Service Robots - Human Centered Analysis, Control and Design, Springer International Publishing, V. 39, pp 197-210, 2016.
- 12 Brad, S., **Mocan, B.**, Brad, E., Fulea, M., Environmentally Sustainable Economic Growth, Amfiteatru Economic, 18(42), pp. 446-461, (IF 0,564), 2016
- 13 **Mocan, B.**, Fulea, M., Olaru, M. and Buchmüller, M., From Intuitive Programming of Robotic Systems to Business Sustainability of Manufacturing SMEs. Amfiteatru Economic, 18(41), pp. 215-231, (IF 0,564), 2016.
- 14 Fulea M., Tanaselea, C., **Mocan, B.**, Murar, M., Algorithm for Automatically Generating the Robot Program for a Reconfigurable Palletising Application, Acta Technica Napocensis, Series: Applied Mathematics, Mechanics and Engineering, vol. 58, Issue IV, pp. 579-584, 2015.
- 15 Olaru, M., Dinu V., Keppler, T., **Mocan, B.**, Mateiu, A., STUDY ON THE OPEN INNOVATION PRACTICES IN ROMANIAN SMEs, Amfiteatru Economic, 17 (Special No. 9), ISSN: 1582 – 9146, pp. 1129-1141, (IF 0,564), 2015

## A. Articole în volume indexate ISI Proceedings

- 1 Steopan M., **Mocan B.**, Florin P., Bucur M., Ispas V. (2021) Design and Development of a Robotic Hexapod Platform for Educational Purposes. In: Lovasz EC., Maniu I., Doroftei I., Ivanescu M., Gruescu CM. (eds) New Advances in Mechanisms, Mechanical Transmissions and Robotics. MTM&Robotics 2020. Mechanisms and Machine Science, vol 88. Springer, Cham.

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- 2 **Mocan B.**, Fulea M., Murar M., Steopan M., Mocan M. (2021) Automatic Arterial Puncture Sensorial Device for Fast Arterial Blood Gas Sampling from Radial Artery During Covid-19 Pandemic. In: Lovasz EC., Maniu I., Doroftei I., Ivanescu M., Gruescu CM. (eds) *New Advances in Mechanisms, Mechanical Transmissions and Robotics*. MTM&Robotics 2020. Mechanisms and Machine Science, vol 88 Springer, Cham. [https://doi.org/10.1007/978-3-030-60076-1\\_48](https://doi.org/10.1007/978-3-030-60076-1_48)  
Print ISBN 978-3-030-55060-8; Online ISBN 978-3-030-55061-5; pp. 533-542.
- 3 Patcas R., **Mocan B.**, Fulea M., Murar M., Steopan M. (2020) Design and Development of a Mobile Robot Equipped with Perception Systems for Autonomous Navigation. In: Pislă D., Corves B., Vaida C. (eds) *New Trends in Mechanism and Machine Science*. EuCoMeS 2020. Mechanisms and Machine Science, vol 89. Springer, Cham. [https://doi.org/10.1007/978-3-030-55061-5\\_10](https://doi.org/10.1007/978-3-030-55061-5_10)  
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- 4 **Mocan, B.**; Osan, C.; Fulea, M.; Chis, I.A.; Timoftei, S.; Sarb, A., An Integrated Model for Solving Cell Formation Problem and Robot Scheduling Using Timed Petri Nets, 2016 International Conference on Production Research - Africa, Europe and the Middle East (ICPR-AEM) / 4th International Conference on Quality and Innovation in Engineering and Management (QIEM), July 25-30, 2016, Cluj-Napoca, Romania, pp. 91-96, ISBN: 978-606-737-180-2, (2016).  
Mocan, M.; Rahaian, R.; **Mocan, B.**; Blaga, S.N.; Multi-Marker Evaluation of the Cardio-Metabolic Risk, 85th Congress of the European-Atherosclerosis-Society (EAS), Prague, CZECH REPUBLIC, APRIL 23-26, V. 263, pp. E201-E202, ISSN: 0021-9150, 2017 (DOI: 10.1016/j.atherosclerosis.2017.06.650)
- 5 Fulea, M.; **Mocan, B.**; Brad, E.; Homorodean, D., Designing the Usability of an Innovation Management Assessment Software Platform, 2016 International Conference on Production Research - Africa, Europe and the Middle East (ICPR-AEM) / 4th International Conference on Quality and Innovation in Engineering and Management (QIEM), July 25-30, 2016, Cluj-Napoca, Romania, pp. 340-345, ISBN: 978-606-737-180-2, (2016).
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- 7 **Mocan, B.**, Fulea, M., Brad, S. Designing a Multimodal Human-Robot Interaction Interface for an Industrial Robot, *Proceedings of 24th International Conference on Robotics in Alpe-Adria-Danube Region (RAAD), ADVANCES IN ROBOT DESIGN AND INTELLIGENT CONTROL*, V. 371, pp. 255-263, SPRINGER-VERLAG BERLIN, HEIDELBERGER PLATZ 3, D-14197 BERLIN, GERMANY, 2016 (DOI: 10.1007/978-3-319-21290-6\_26)
- 8 Mocan, M., **Mocan, B.**, Blaga, S.N., Mechanical conditions around neovessels in popliteal atherosclerotic plaques – An analysis using finite element method, *The 84th European Society of Atherosclerosis (EAS) Congress, Atherosclerosis*; 252, pp. 164–pp. 165, Innsbruck, Austria, 2016.  
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- 9 **Mocan. B.**, Fulea, M., Olaru, M., Buchmüller, M., *Paradigm Shift in Robotic Systems Programming for Increasing Business Sustainability*, BASIQ 2015 International Conference "New Trends in Sustainable Business and Consumption", Bucharest, ISSN 2457-483X ISSN-L 2457-483X, pp. 338-345, 2015
- 10 Brad, S., **Mocan, B.**, Brad, E., Fulea, M., *Vectors of Innovation for Balancing Economic Growth and Sustainable Development*, BASIQ 2015 International Conference "New Trends in Sustainable Business and Consumption", Bucharest, ISSN 2457-483X ISSN-L 2457-483X, pp. 457-464, 2015
- 11 Olaru, M., Dinu V., Keppler, T., **Mocan, B.**, Mateiu, A., *Study on the Adoption of Open Innovation Principles by the Romanian SMEs*, BASIQ 2015 International Conference "New Trends in Sustainable Business and Consumption", Bucharest, ISSN 2457-483X ISSN-L 2457-483X, pp. 400-407, 2015
- 12 **Mocan, B.**, Fulea, M., Brad, E. and Brad, S., *State-of-the-Art and Proposals on Reducing Energy Consumption in the Case of Industrial Robotic Systems*, *Proceedings of the 2014 International Conference on Production Research – Regional Conference Africa, Europe and the Middle East; 3rd International Conference on Quality and Innovation in Engineering and Management*, Cluj-Napoca, Romania, 1-5 July, ISBN: 978-973-662-978-5, pp. 328-334, 2014.
- 13 Fulea, M., Ilies, A., Brad, S., Brad, E., **Mocan, B.**, Murar, M., *An Innovative Approach on Prioritizing Internal Improvement Projects within SMEs*, *Proceedings of the 2014 International Conference on Production Research – Regional Conference Africa, Europe and the Middle East; 3rd International Conference on Quality and Innovation in Engineering and Management*, Cluj-Napoca, Romania, 1-5 July, ISBN: 978-973-662-978-5, pp. 200-206, 2014.
- 14 Brad, S., Fulea M., **Mocan, B.**, Brad, E., Systematic Innovation for Improving Competitiveness of a Master

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- 15 Fulea, M., **Mocan, B.**, Brad, S., A Formal Approach of Managing Information Related to an Integrated Management System, Proceedings of The 1st International Conference on Quality and Innovation in Engineering and Management, ISBN 978-973-662-614-2, Indexată ISI, pp. 81-84, 2011.
  - 16 Fulea, M., **Mocan, B.**, Brad, S., An Ontology-Based Approach of Guiding the Innovation Process Within SMEs, Proceedings of The 1st International Conference on Quality and Innovation in Engineering and Management, ISBN 978-973-662-614-2, Indexată ISI, pp. 281-284, 2011.
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Cluj-Napoca,  
15 decembrie 2023

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