

# ROAD-EM'25

November 20-21, 2025

ENSA EL JADIDA- Morocco

## 2<sup>nd</sup> International Conference of the Moroccan Association of Operational Research and Decision Support

*Operational Research and Decision Support for Industry 4.0 Transformation: Towards Sustainable and Resilient Competitiveness*

## Conference Program

<https://roadem25.sciencesconf.org/> [roadem25@sciencconf.org](mailto:roadem25@sciencconf.org) +212 6 66 14 63 65 / +212 5 23 39 56 79

TECHNICAL PROGRAM

Day 1 — Thursday, 20 November 2025

|               |             |                                                                                                                                                               |                                                     |                                                |                                                                      |
|---------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------|
| 08:30 – 09:30 |             | Welcome & Registration                                                                                                                                        |                                                     |                                                |                                                                      |
| 09:30 – 10:30 | OPENING     | Opening Ceremony                                                                                                                                              |                                                     |                                                |                                                                      |
| 10:30 – 11:00 | BREAK       | Coffee Break & Posters                                                                                                                                        |                                                     |                                                |                                                                      |
| 11:00 – 12:00 | PLENARY     | Conference I (Pr. Mark SEVAUX, <i>University of South Brittany, Lorient, France</i> )                                                                         |                                                     |                                                |                                                                      |
| 12:00 – 13:00 | PLENARY     | Conference II (Pr. Abdelatif EL AFIA, <i>ENSIAS, University Mohammed V, Rabat, Morocco</i> )                                                                  |                                                     |                                                |                                                                      |
| 13:00 – 14:30 | LUNCH BREAK | Lunch                                                                                                                                                         |                                                     |                                                |                                                                      |
| 14:30 – 16:00 | SESSIONS    | Session I — Supply Chain, Logistics & Transport                                                                                                               | Session II — Advanced Technologies & Digitalization | Session III — Engineering & Industrial Systems | Session IV — Energy, Environment, Materials & Advanced Manufacturing |
| 16:00 – 16:30 | BREAK       | Coffee Break & Posters                                                                                                                                        |                                                     |                                                |                                                                      |
| 16:30 – 17:30 | ROUND TABLE | Roundtable moderated by: Prof. Ahmed EL HILALI ALAOUI ( <i>Director, School of Digital Engineering and Artificial Intelligence, Euromed University, Fez</i> ) |                                                     |                                                |                                                                      |
| 17:30         | CLOSING     | Closing of the day                                                                                                                                            |                                                     |                                                |                                                                      |
| 19:00         | GALA DINNER | Gala Dinner                                                                                                                                                   |                                                     |                                                |                                                                      |

Day 2 — Friday, 21 November 2025

|               |             |                                                                                              |                                                     |                                                |                                                                      |
|---------------|-------------|----------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------------------------------|----------------------------------------------------------------------|
| 08:30 – 09:00 | OPENING     | Welcome & Registration                                                                       |                                                     |                                                |                                                                      |
| 09:00 – 10:00 | PLENARY     | Conference I (Pr. M.-Lounes BENTAHA, <i>Lumière University Lyon II, France</i> )             |                                                     |                                                |                                                                      |
| 10:00 – 11:00 | PLENARY     | Conference II (Pr. Karim ZKIK, <i>Rennes School of Business / Rennes, Brittany, France</i> ) |                                                     |                                                |                                                                      |
| 11:00 – 11:30 | BREAK       | Coffee Break & Posters                                                                       |                                                     |                                                |                                                                      |
| 11:30 – 13:30 | SESSIONS    | Session I — Supply Chain, Logistics & Transport                                              | Session II — Advanced Technologies & Digitalization | Session III — Engineering & Industrial Systems | Session IV — Energy, Environment, Materials & Advanced Manufacturing |
| 13:30 – 15:30 | LUNCH BREAK | Lunch                                                                                        |                                                     |                                                |                                                                      |
| 15:30         | CLOSING     | Closing Session and Acknowledgments                                                          |                                                     |                                                |                                                                      |
| 16:00         | VISIT       | Visit to the Portuguese City of ElJadida                                                     |                                                     |                                                |                                                                      |

DETAILED PROGRAM

Day 1 — Thursday, 20 November 2025

|               |                                                                                                                                                                                                                                                                              |                                                     |                                                                                                                                                                                                                                                          |                                                                      |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| 08:30 – 09:30 | Welcome & Registration                                                                                                                                                                                                                                                       |                                                     |                                                                                                                                                                                                                                                          |                                                                      |
| 09:30 – 10:30 | Opening Ceremony                                                                                                                                                                                                                                                             |                                                     |                                                                                                                                                                                                                                                          |                                                                      |
| 10:30 – 11:00 | Coffee Break & Posters                                                                                                                                                                                                                                                       |                                                     |                                                                                                                                                                                                                                                          |                                                                      |
| 11:00 – 12:00 | Conference                                                                                                                                                                                                                                                                   |                                                     |                                                                                                                                                                                                                                                          |                                                                      |
|               |  <b>Pr. Mark SEVAUX</b> (Université de Bretagne-Sud, Lorient, France)<br><b>Title:</b> Machine-Learning and Matheuristics for Urban Transportation<br><b>Moderator:</b> Pr. Fatima BOUYAHIA | Conference Room: C11                                |                                                                                                                                                                                                                                                          |                                                                      |
| 12:00 – 13:00 | Conference                                                                                                                                                                                                                                                                   |                                                     |                                                                                                                                                                                                                                                          |                                                                      |
|               |  <b>Pr. Abdellatif EL AFIA</b> (ENSIAS, University Mohammed V, Rabat, Morocco)<br><b>Title:</b> Intelligent Metaheuristics in Logistics<br><b>Moderator:</b> Pr. Hanaa HACHIMI              | Conference Room: C11                                |                                                                                                                                                                                                                                                          |                                                                      |
| 13:00 – 14:30 | Lunch                                                                                                                                                                                                                                                                        |                                                     |                                                                                                                                                                                                                                                          |                                                                      |
| 14:30 – 16:00 | Sessions 1/ Session 2                                                                                                                                                                                                                                                        |                                                     | Sessions 3 / Session 4                                                                                                                                                                                                                                   |                                                                      |
|               | Session I — Supply Chain, Logistics & Transportation                                                                                                                                                                                                                         | Session II — Advanced Technologies & Digitalization | Session III — Engineering & Industrial Systems                                                                                                                                                                                                           | Session IV — Energy, Environment, Materials & Advanced Manufacturing |
|               | Session Chairs: Pr.Hassania MESSAOUAD / Pr.Nouafal ROUKY<br>Session Room: C11                                                                                                                                                                                                |                                                     | Session Chairs: Pr.Morad BOUZIDI / Pr.Hasnae RAHMANI<br>Session Room: C4                                                                                                                                                                                 |                                                                      |
|               | <ul style="list-style-type: none"><li>Designing Scalable and Sustainable Hydrogen Supply Chains.<br/><i>Mounir Battaoui, Adiba EL BOUZEKRI EL IDRISSE, Amine alaoui belghiti</i></li></ul>                                                                                   |                                                     | <ul style="list-style-type: none"><li>Assessment of Power Harvesting Influenced by Vehicle Suspension Dynamics Through Numerical Simulation.<br/><i>YOUSSEF MAZIANE, SAFA ASSIF, chouaib ennawaoui, Abdelowahed Hajjaji</i></li></ul>                    |                                                                      |
|               | <ul style="list-style-type: none"><li>Enhancing Supply Chain Traceability through Blockchain Technology: Bibliometric Analysis.<br/><i>Meryem RHOMRI, HASNA HAJJI, Youness ZERHOUNI LAQRIB, ABDELLAH ZAMMA, MOHAMMED ELKHAILI</i></li></ul>                                  |                                                     | <ul style="list-style-type: none"><li>Active Perception Using Multimodal Data and Deep Learning for Autonomous Vehicles: Case of Accident Prediction.<br/><i>Ghita Layoune, ASMAA EI HANNANI</i></li></ul>                                               |                                                                      |
|               | <ul style="list-style-type: none"><li>Les stratégies de chaînes logistique résilientes et durables à l'ère de l'intelligence artificielle : une réflexion théorique.<br/><i>Ihssane El Hajjaji, Hasnae Rahmani</i></li></ul>                                                 |                                                     | <ul style="list-style-type: none"><li>Brain-to-Speech AI for Communication Recovery in Paralysis: A Neural Signal Decoding Approach.<br/><i>Sanae BELFROUH, Fatima Zahra Salmam, RAHHAL ERRATTAHI</i></li></ul>                                          |                                                                      |
|               | <ul style="list-style-type: none"><li>MDP-Based Resource Allocation for Sustainable Industry 4.0 SMEs.<br/><i>Yasser BOUNNITE, Mohammed ABBA</i></li></ul>                                                                                                                   |                                                     | <ul style="list-style-type: none"><li>Études des propriétés électronique des matériaux 2D utilisant la dft.<br/><i>Fouzia El Hafiane, Khalid Sbiaai</i></li></ul>                                                                                        |                                                                      |
|               | <ul style="list-style-type: none"><li>Design of a Micro Methanizer for Biogas and Hydrogen Production from Mixed Organic Waste.<br/><i>Badr Errabyiy</i></li></ul>                                                                                                           |                                                     | <ul style="list-style-type: none"><li>Environmental Impact of Earplugs Composed of Porous Polymers.<br/><i>Lucrece Barbara PENPEN KOMGUE, Assif SAFA, Adil Faiz, Joël Ducourneau, Abdelowahed Hajjaji</i></li></ul>                                      |                                                                      |
|               | <ul style="list-style-type: none"><li>Natural Language Interface Models for Evaluating Ergonomics: A Systematic Literature Review<br/><i>Lamiaa bouriche, Hicham Srir , Raja EL Boq</i></li></ul>                                                                            |                                                     | <ul style="list-style-type: none"><li>Atomistic Insights into the Structural and Mechanical Properties of Cu–Al Metallic Glasses.<br/><i>Hajar Boutnala, Hayat Haouas, Abdellatif Hasnaoui</i></li></ul>                                                 |                                                                      |
|               | <ul style="list-style-type: none"><li>Optimization and quantification of uncertainties associated with the implementation of the reverse logistics process.<br/><i>SOUKAINA DNAYA, Adiba EL BOUZEKRI EL IDRISSE, Amina El Yaagoubi</i></li></ul>                             |                                                     | <ul style="list-style-type: none"><li>Bridging Interpretability and Performance in Multi-Agent Reinforcement Learning for Adaptive Traffic Signal Control in Mixed Urban Environments.<br/><i>EL KAIM BILLAH MOHAMMED, Abdelfettah Mabrouk</i></li></ul> |                                                                      |

DETAILED PROGRAM

Day 1 — Thursday, 20 November 2025

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16:00 – 16:30 | Coffee Break & Posters                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 16:30 – 17:30 | <div><div>Round Table Discussion</div><div><div><div><div>Pr. Ahmed EL HILALI ALAOUI</div><div>Director, School of Digital Engineering &amp; Artificial Intelligence — Euromed University, Fès</div></div></div><div><div>Title:</div><div>Intelligent Optimization: How OR and AI Are Transforming Industry 4.0</div></div></div><div><div>Discussants :</div><div><div><div><div>Pr. Rahhal ERRATAHI</div><div>University Chouaib Doukkali - ENSA EL JADIDA</div></div></div><div><div><div>M. Nordine EL KINANI</div><div>Founder &amp; CEO at Digital House</div></div></div><div><div><div>Pr. Karim ZKIK</div><div>Rennes School of Business / Rennes, Bretagne, France</div></div></div><div><div><div>Pr. Riad HASSIANE</div><div>Head of department Energy at TAQA Morocco</div></div></div><div><div><div>Pr. Fatima BOUYAHYA</div><div>Cadi Ayyad University - ENSA de Marrakech</div></div></div><div><div>Moderator : Pr. Abdellatif EL AFIA</div><div>Conference Room: C11</div></div></div></div></div> |
| 17:30         | Closing of the day                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 19:00         | Gala Dîner                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

# DETAILED PROGRAM

Day 2 — Friday, 21 November 2025

|               |                                                                                                                                                                                                                                                                                                                                                                                                 |                                                     |                                                                                                                                                                                                                                                                                                                                   |                                                                      |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| 08:30 – 09:00 | Welcome & Registration                                                                                                                                                                                                                                                                                                                                                                          |                                                     |                                                                                                                                                                                                                                                                                                                                   |                                                                      |
| 09:00 – 10:00 | Conference                                                                                                                                                                                                                                                                                                                                                                                      |                                                     |                                                                                                                                                                                                                                                                                                                                   |                                                                      |
|               | <br><b>Pr. M.-Lounes BENTAH</b> (Associate Professor, Lecturer-Researcher, Lumière University Lyon II, France)<br><b>Title:</b> A Stochastic Programming Framework for Decision Support under Uncertainty in Disassembly System Operations<br><b>Moderator:</b> DKHISSI BTISSAM<br><b>Conference Room:</b> C11 |                                                     |                                                                                                                                                                                                                                                                                                                                   |                                                                      |
| 10:00 – 11:00 | Conference                                                                                                                                                                                                                                                                                                                                                                                      |                                                     |                                                                                                                                                                                                                                                                                                                                   |                                                                      |
|               | <br><b>Pr. Karim ZKIK</b> (HDR – Rennes School of Business / Rennes, Bretagne, France)<br><b>Title:</b> Integration of Blockchain & AI for Cyber Security & Resilience in industry<br><b>Moderator:</b> OUDANI MUSTAPHA<br><b>Conference Room:</b> C11                                                         |                                                     |                                                                                                                                                                                                                                                                                                                                   |                                                                      |
| 11:00 – 11:30 | Coffee Break & Posters                                                                                                                                                                                                                                                                                                                                                                          |                                                     |                                                                                                                                                                                                                                                                                                                                   |                                                                      |
| 11:30 – 13:30 | Sessions 1 / Session 2                                                                                                                                                                                                                                                                                                                                                                          |                                                     | Sessions 3 / Session 4                                                                                                                                                                                                                                                                                                            |                                                                      |
|               | Session I — Supply Chain, Logistics & Transport                                                                                                                                                                                                                                                                                                                                                 | Session II — Advanced Technologies & Digitalization | Session III — Engineering & Industrial Systems                                                                                                                                                                                                                                                                                    | Session IV — Energy, Environment, Materials & Advanced Manufacturing |
|               | Session Chairs: Pr. Charifa FARGANI / Pr. Imad EL HARRAKI<br>Session Room: C11                                                                                                                                                                                                                                                                                                                  |                                                     | Session Chairs : Pr. Majda FIKRI / Pr. Asmae EL HANANI<br>Session Room: C4                                                                                                                                                                                                                                                        |                                                                      |
|               | <ul style="list-style-type: none"><li>Human-Centered Artificial Intelligence for Industry 5.0: A Systematic Review Protocol.<br/>MAHA BOUCHOUM, Fatima Ezzahra Sebtaoui, Fayçal Fedouaki</li></ul>                                                                                                                                                                                              |                                                     | <ul style="list-style-type: none"><li>Eco-Sustainable Treatment of Olive Mill Wastewater via Multilayer Infiltration–Percolation Incorporating Natural Adsorbent.<br/>Nouhaila Asdiou, Sabah Elamraoui, Wafaa Boumya, Nourddine Barka, LAMY Edvina, Fatima Ezzahrae Alaoui, Younes CHHITI, Rachid Benhida, mounia achak</li></ul> |                                                                      |
|               | <ul style="list-style-type: none"><li>AI-Driven Robotics and Intelligent Logistics Systems for Next-Generation Mining Optimization.<br/>ABDELMOUNIM ED-DAMNATI, Assif SAFA, Yasmina HANI, Adiba EL BOUZEKRI EL IDRISSE</li></ul>                                                                                                                                                                |                                                     | <ul style="list-style-type: none"><li>Deep Reinforcement Learning within Adaptive Large Neighborhood Search for the Pollution Routing Problem.<br/>Yassine OULAANZI, Rachida Abounacer</li></ul>                                                                                                                                  |                                                                      |
|               | <ul style="list-style-type: none"><li>Exploring the Intersection of Artificial Intelligence and Lean in the Industry 4.0 Era: a Bibliometric Review.<br/>WAFAA BOUFAL, Fatima Ezzahra Sebtaoui, Fayçal Fedouaki</li></ul>                                                                                                                                                                       |                                                     | <ul style="list-style-type: none"><li>Simulation and reliability assessment of PV-battery-diesel hybrid systems in an african tropical context: a case study from Madagascar<br/>Salima GOLA</li></ul>                                                                                                                            |                                                                      |
|               | <ul style="list-style-type: none"><li>An Integrated MILP Framework For Minimizing CO<sub>2</sub> Emissions In Multi-Hub Pooling Logistics.<br/>Yasmine BEN OMAR, SANAE LARIOUI, IBTISSAM DKHISSI</li></ul>                                                                                                                                                                                      |                                                     | <ul style="list-style-type: none"><li>A MILP model for automatic parameterization of Demand-Driven MRP under finite capacity and multiple products with implicit prioritization.<br/>Meryem RHOMRI, HASNA HAJJI, Youness ZERHOUNI LAQRIB, ABDELLAH ZAMMA, MOHAMMED ELKHAILI</li></ul>                                             |                                                                      |
|               | <ul style="list-style-type: none"><li>The Contribution of Business Intelligence to Supplier Management in the Era of Supply Chain 4.0.<br/>BAYAD ALARBI, Omar AKOURRI, Aziz SOULHI</li></ul>                                                                                                                                                                                                    |                                                     | <ul style="list-style-type: none"><li>Secure and Interoperable Architecture for Medical Data Management Using FHIR Standard.<br/>Rachida Ait Abdelouahid, Saïd Mahmoudi, Soukaina Merzouk, Abdelaziz Marzak.</li></ul>                                                                                                            |                                                                      |

## DETAILED PROGRAM

### Day 2 — Friday, 21 November 2025

|               |                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                      |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11:30 – 13:30 | <ul style="list-style-type: none"><li>• Scheduling Electric Vehicle Charging to Minimize Total Tardiness.<br/>Wissal IAROCHEN, Mustapha Oudani, Ammar Oulamara, Mohamed Ouzineb</li></ul>                                                         | <ul style="list-style-type: none"><li>• A Fuzzy Logic Approach for Optimizing Container Storage Location in Terminals.<br/>Sanaa Aidi</li></ul>                                                                                                      |
|               | <ul style="list-style-type: none"><li>• Optimal supply chain financing strategies for ESG performance in capital-constrained low-carbon supply chains: Stackelberg equilibrium analysis.<br/>AMINE BELHADI, Afaf Camel, Imad El Harraki</li></ul> | <ul style="list-style-type: none"><li>• Evaluation of a Modified Solar Distiller for Phosphate Sludge Drying.<br/>MOHAMMED REZKI, KHAOULA KHALES, Nouredine ABOURICH, Sabah EL AMRAOUI, Nouhaila ASDIOU, Ali FADDOULI, Mounia ACHAK</li></ul>        |
|               | <ul style="list-style-type: none"><li>• Intelligent Forecasting for Emergency Services: Enhancing Resource Management State of art.<br/>Lahmoudi Sara; IBTISSAM DKHISSI</li></ul>                                                                 | <ul style="list-style-type: none"><li>• Metamodel Proposal for the IOT Methodology: A Model-Driven Approach for IoT Project Management.<br/>Soukaina Merzouk , Hind Merzouk , Rachida Ait Abdelouahid , Roukaya Gandoul, Abdelaziz Marzak.</li></ul> |
|               | <ul style="list-style-type: none"><li>• A Framework for Handling Hospital Emergency Department Occupancy Rates: Integrating Deep Q-Network with Model Predictive Control.<br/>Soulaïman Louah ; Hicham Sarir</li></ul>                            | <ul style="list-style-type: none"><li>• Ethical Artificial Intelligence and Organizational Trust: Toward Enhanced Internal Communication.<br/>Hind Merzouk , Soukaina Merzouk , Roukaya Gandoul , Jaouad Zerrad</li></ul>                            |
| 14:00 – 15:30 | Lunch                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                      |
| 15:30         | Closing Session and Acknowledgemnts                                                                                                                                                                                                               |                                                                                                                                                                                                                                                      |
| 16:00         | Visit to the Portuguese City of ElTadjida                                                                                                                                                                                                         |                                                                                                                                                                                                                                                      |

### Poster Session

- Impedance Spectroscopy analysis of a thin-film photovoltaic cell based on chalcopyrite-structured  $\text{CuIn}_{1-x}\text{Ga}_x\text{Se}_2$  absorber layers using numerical simulation with SCAPS-1D.  
*Mustapha Bryk, Moloudi Dardouri, Hasnaoui Abdellatif, Khalid Sbiai*
- A Review of Vehicle Routing Problems in Hydrogen Transportation Logistics.  
*Imane BAQQAL, Adiba EL BOUZEKRI EL IDRISSE, Amine Alaoui Belghiti*
- Molecular dynamics study of the structural and vibrational properties of  $\text{Ag}_x\text{Ni}_{100-x}$  ( $x = 60, 70, \text{ and } 80$ ) metallic glasses.  
*Hafsa Chafik, Abdellatif Hasnaoui*
- Enhancing Mining Safety: Global Insights into Risk Factors and Management Practices.  
*Wafaa BLADI, Adiba El Bouzekri El Idrissi, Safaa ASSIF, yasmima hani*
- Fleet operational availability estimation: an agent-based simulation approach.  
*Said El Bahloul, Maria Zrikem*
- Sustainable Short-Tour Logistics: Comparing EVs and Conventional Fleets.  
*Hanane Elhila, Touria Hassboune, Fatima Bouyahia, Jaouad Boukachour, Abdelouahed Tajer*
- Towards an effective and efficient implementation of OBEE : Developing innovative Course Outcomes.  
*AFIF Fatima-ezzahra & BOUYAHIA Fatima*
- Novel Lean-ARIZ hybrid method optimizes Systematic Preventive Maintenance (SPM).  
*Laaroussi El Ghalya, Dakkak Badr, Irhirane El Hassan*
- Optimisation of the Fidelity and Reproducibility for medical surgery solutions- cardiovascular issues.  
*Aya Abiya, Fatima Bouyahia, Mouhcine El Mardouli, Ahmed Aamouche, Drissi Boumzebra*
- Vaccine lifecycle management: data management issues and challenges.  
*Sanae Allam, Adiba El bouzekri El idrissi, Aicha Sekhari, Yacine Ouzrout*
- A Global Approach to Green Mobility in Ports and Dry Ports.  
*Rachid MELLAH, Adiba EL BOUZEKRI EL IDRISSE*
- Intelligent Risk-Based Maintenance Integrity (RBMI) Framework for Enhancing Asset Reliability in the Phosphate Industry.  
*Anas Boutraby*
- Contribution to the calculation of noise in a vehicle and proposal of tools to reduce it and ensure driving comfort.  
*Nezha CHATER, Ali BENMOUSSA, Benaissa EL FAHIME, Mohammed Radouani*

# ROADEM'25

2nd International Conference of the Moroccan Association  
of Operational Research and Decision Support

*Operational Research and Decision Support for Industry 4.0 Transformation:  
Towards Sustainable and Resilient Competitiveness*

November 20-21, 2025

EL JADIDA– Morocco

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