

## Table of Content

9<sup>th</sup> North American Conference on Industrial Engineering and Operations Management, Bogota,  
Colombia, May 7-9, 2024

<b>Title</b>	<b>Page</b>
Title	ii
Masthead	iii
Welcome	v
Committee	vi
Table of Content	xxii

<b>ID</b>	<b>Title</b>	<b>Page</b>
12	Exploratory research study on key performance systems used to improve efficiency of brick artisansâ€™™ within the brick construction industry in South Africa	1
15	Remanufacturing planning with uncertain parameters	10
16	Cost Estimation for Healthcare Service Delivery	11
19	Exploring the Critical Success Factors in Agile Project Management: A Comprehensive Survey Analysis	12
22	Towards Adopting Digital Twins for Enhancing Circular Economy in the UK Construction Industry: Benefits and Enablers	26
24	A Proposed Ergonomic Memory Foam Cervical Curve Pillow Made with Alternative Organic Wool Material Designed Specifically for Patients with Scoliosis	36
25	Improving Operational Efficiency and Reducing Downtime: Applying Lean Six Sigma in Material Recovery Facilities	49
26	Human Resources Analytics: Determining Possible Turnovers with Feature Engineering Approach	55
37	Development and Characterization of PI and PI-Based Composites for Industrial and Advanced Engineering Applications Using SPS Technique: A Mini Review	66
42	Prerequisite Knowledge based Automated Course Planning with Hierarchical Knowledge Relationship	75
45	An overview on 3D modeling techniques of human bodies	77
46	Influence of Industry 4.0 on the Service Sector: A Scoping Review	78
47	Business-Driven Digital Transformation in Industry 4.0	89

49	The Role of Generative AI in Supply Chain Resilience: A Fuzzy AHP Approach	91
52	Exploring the Impact of Telemedicine and Referral Service on Carbon Emissions from Healthcare Organizations	103
53	Profit Prediction Using Machine Learning and Regression Models: A Comparative Study	105
54	Robotic Process Automation (RPA) Implementation Challenges: A Literature Review	117
57	An Evaluation of E-Banking Services among Filipino Senior Citizen Population in the National Capital Region	129
59	A Strategic Framework to Investigate Potential of Prescriptive Maintenance Paradigms in Shipping Industry	131
62	Resilience-Driven Scheduling in Critical Infrastructure Network - A Multi Agent Reinforcement Learning Approach	141
64	Maintenance Strategy Production Best Practices – Pragmatic Case Studies and Operations Improvement	142
65	Operational Reliability- Production Best Practice Pragmatic Case Studies & Improvement	152
66	Investigating the Mechanical Properties of Spark Plasma-Sintered Refractory Nitride-Reinforced Titanium Alloy Matrix Composites for Energy-Saving High-Temperature Aerospace Application	164
67	An Interactive Approach to Backward Compatible Modular System Configuration	177
68	Factors Affecting Consumer Acceptance of Digital Payments in E-Commerce Segment	178
70	Hydrodynamic Bearings Lubricated with Ferrofluids	187
71	Lightweight Robotic Arm for Flexible Manufacturing	195
72	Designing Strategies to Improve Digital Maturity in BAPETEN Licensing and Inspection System Online (BALIS Online)	206
73	Sensor Control of Portable Robotic Arms	219
74	Link Failure in Bucket Chains	231
75	Feasibility Restoration in Heuristic Scheduling Problems	241
77	A New Look at Money Demand in the United States	253
79	Lean Thinking in Healthcare 5.0 Technologies: An Exploratory Review	255
81	Advancements and Future Directions in the Application of Digital Twins in Machining Processes	267
82	An Ergonomic Evaluation of Working Posture among Palletizing Workers Based on the Digital Human Modeling Using CATIA	279
86	The effectiveness of teaching systematic problem-solving based on the Revised Bloom’s Taxonomy in Lean Manufacturing training	289

87	Data Driven Generative Design of Soft Robot Digital Twin: Intuitional Evolutionary Algorithm	305
88	Exploring the Influence of Bank Capital on Liquidity Creation and Income Diversification During Severe Recession Using Multi-Regression: Case Study Iranian Banks	317
89	Top surface Quality Analysis of Aluminum Structured: Lean Six Sigma Methodology	328
90	Development and Implementation of a Standardized Supplier Certification and Validation Framework for Enhanced Pricing, Lead Time, and On-Time Delivery Performance	337
91	Application of Materiality Assessment to improve sustainability of processes in used product retail stores	353
94	Fundamentals of Smart In-process Inspection in Advanced Manufacturing Systems	354
95	Benefits and challenges of productivity management systems within the masonry brick production small and medium scale enterprises in Gauteng: A theoretical review of literature	366
96	AUTOBVM: Automated Bag-Valve-Mask A Senior Design Manufacturing Case	377
97	Designing an Arm Angle Trainer to Facilitate Ballet for All Kids	389
98	Cargo Craft Senior Design Manufacturing Case	401
99	Torque Tactician: A Senior Design Manufacturing Case	415
100	Smart Manufacturing Nudging Design with Conjoint Prospect Theoretic Modeling of Nudging Behavior	422
102	Impact of ISO 14001:2015 on the Carbon Footprint of the Instituto Tecnol3gico Superior de Amilamo Temapache, Veracruz, Mexico	434
103	Rise in Workforce and Internal Migration Towards the State of Nuevo Le3n, M3xico	444
104	Enhancing Organizational Evaluation with the Optimum Service Excellence Model	445
105	Developing a Heuristic for a Multi-Source Fund Allocation Model for Food Procurement	454
106	Computational Model for Re-Routing and Assigning ESBs	456
107	Techno-economic and environmental assessments of distributed Waste-to-Hydrogen Refueling Station in Gauteng Province of South Africa	464
125	Parcel Consolidation In Last Mile Delivery by Vehicle and Drone	479
127	Impact of Patient Assignment Policy on Hospitalist Workloads	480
129	Drive Your Future, Motorsports is more than entertainment; A case study of Donk Racing	492
130	Quality 5.0 Architecting: A Techno-Human-Centric Integrated Framework	493

131	Power Consumption Optimization for Sustainable Subtractive Manufacturing Operation	514
135	Increase Reliability: Improve OTC Boilers Cycle	525
137	Machining Variables Optimization for Sustainability Manufacturing	539
138	Optimal Inventory Management Policies When Supply Is Bundled	548
139	Green Building Design Surrogate Optimization: Exploring Off the Shelf Machine Learning and Mixed Integer Programming Integrations	558
140	Predicting Rheology of UV- Curable Nanoparticle Ink Components and Compositions for Inkjet Additive Manufacturing	569
141	Energy-Aware Optimization of Distributed Flexible Job Shop Scheduling Problems with Deterministic Setup and Processing Time	570
142	Predictive and prescriptive analytics models to strengthen the internal audit capacity planning system of an IT company	582
143	A Comprehensive Analysis of Factors Influencing Biogas Plant Location	594
157	A Sustainable Product Design Approach to Improving Self-administered Medication	608
160	Optimizing Timber Supply Chains: A Game Theory Approach to Timber Production and Environmental Objectives	619
161	Navigating Complexity in Mega Construction Projects: Integrating FRAM with PMBOK for Enhanced Project Management – A Case Study of the Channel Tunnel Project	621
162	Proposing a New Dynamic Safety Stock Adjustment System: Balancing Service Level Targets and Financial Constraints	631
167	Identifying Gaps and Issues Between Critical Points of SNI 0036:2014 and Existing Quality Control Conditions in the SME Shuttlecock Value Chain (Case Study: Sumengko Village Small Industry Center, Nganjuk)	643
168	A Study of Wind Patterns As a Function of Ventilator Geometry	657
169	USE OF THE SUGAR CANE BAGASSE (SACCHARUM OFFICINARUM) FOR THE PREPARATION OF BIODEGRADABLE FOOD PACKAGES	668
174	A Study of Peak Day Operations at Jaya's Kitchen – A South Indian Restaurant	681
179	Improvement Proposal for Inventory Management Based on DDMRP in Supply Warehouse of a Metal mechanical Company	682
183	Servitization as a Strategic Complement to Production and/or Servuction Systems: A Systematic Review	693

184	Implementation of an Agile Receivables Management Model Using Kanban to Reduce Delinquency Rates in Digital Transformation Consultancies	705
185	ABC-FSN Analysis for Inventory Management Policy: A Case Study in Retail Industry	716
186	VA/VE Approach in Production Operation of a Shoe Manufacturing Company: A Case Study Utilizing Pro Model Simulation	724
187	Simulation Optimization: A Case Study of Lean Six Sigma and U-Shaped Production Principle in a Footwear Manufacturing Company in the Philippines	736
188	Productivity Enhancement using ProModel Simulation: A Case Study in the Book Manufacturing Company	746
189	Strategic Cost Management and Process Improvement in Hat Manufacturing Industry using Pro Model Simulation: A VA/VE Analysis Approach	759
190	A Scheduling Textile Industry-Based Problem Utilizing Priority Rules and Promodel in the Philippines	771
191	A Techno-Economic Optimization Model Proposal for BESS Sizing and Operation Scheduling of a Wind Farm Participating in Turkish Electricity Market	785
193	Most Frequent Chiller's Faults: An Empirical Predictive Maintenance Study	795
194	Application of Lean Manufacturing in the Energy Sectors	805
195	Navigating Risks: The Imperative of Research in CIT and Hazmat Transport Security	813
206	Enhancing Production Efficiency and Quality in the Carbonated Beverage Industry: A Lean Manufacturing Approach	820
211	ECONOMIC EFFICIENCY AND PROFITABILITY OF ORGANIZING A SMALL ENTERPRISE FOR THE RECYCLING OF PLASTIC PACKAGING IN IBADAN PROVINCE, SOUTHWEST NIGERIA	828
219	ANALYSIS OF OPERATIONAL DELAYS IN DUMPER CYCLE TIME IN OPEN PIT MINES	842
220	Visualization of Real-time Solutions of Routing Problems on Dynamic Networks	849
221	A Systematic Review of the Internet of Things Contribution to Obtain Supply Chain Integration	855
223	Extension of COPRAS with Spherical Fuzzy Sets and Its Application to Hazardous Waste Management	870
224	Digital Service Quality Analysis in Aviation Industry with Aviation 4.0 Perspective using Fuzzy Analytic Hierarchy Process Methodology	877
227	Application of Augmented Reality in Printed Products as an Innovation Alternative for the Printing Industry in Brazil	887

229	INTEGRATION OF GEOGRAPHIC INFORMATION SYSTEM (GIS), GULLY EROSION, AND WATER QUALITY DATA IN PROMOTING SUSTAINABLE PRACTICES; A CASE STUDY OF EBENATO, NNEWI SOUTH, ANAMBRA STATE, NIGERIA.	900
231	Prospect and Opportunities for ISO Standards in Bangladesh	912
234	EFFICIENCY ANALYSIS OF MUNICIPAL SOLID WASTES (MSW) AND THEIR ENVIRONMENTAL INFLUENCES ON GROUNDWATER RESOURCES IN ONITSHA, ANAMBRA STATE, SOUTH-EASTERN NIGERIA	925
235	Analysis of a Model Structure that uses the Venturi Effect For Wind Speed Amplification	937
236	A SOLAR ENERGY FRAMEWORK: SOLAR SYSTEM DESIGN FOR THERMAL APPLICATIONS WITH IMPLEMENTATION OF FPGA	939
237	Machine learning approach to predict the Laurenty index in wine bottling process	941
238	Leveraging AI for Enhanced Equipment Data Collection and Assimilation in Asset Monitoring	943
239	Improving the Productivity of an MYPE in the Province of Palpa Applying 5S and SLP Methodology	955
240	Evaluation of Artificial Intelligence Requirements in Aviation Industry using Fuzzy Cognitive Map Approach	967
241	A Systematic Literature Review of Performance Management of University Holding Company	979
256	MBSE Benefits & Systematic Approach for Managing Complex System Models	995
257	Detection of Soiling Events in Solar Photovoltaic Systems Using In-situ Optical Sensing and Machine Learning	1002
259	Improvement Model to Increase the Service Level of a SME Coffee Producing Company with the Application of Centroid Method, ABC Analysis and Kanban	1011
260	Integration of sequence stratigraphic and structural analysis in identifying the petroleum system in the Odigba Field, Offshore Niger Delta Basin	1022
261	Can the "Art" of Mathematical Modeling in Industrial Engineering be Automated by AI?	1030
262	Implementation of ISO 14298:2013 in a Valuable Document Printing Company in Lima, Peru	1042
263	Small Data and Sparse Bayesian Learning for Sequential Inference of Network Connectivity	1054
264	THE OVERVIEW OF HEATING SYSTEMS IN THE HOUSING SECTOR AND THEIR ROLES IN GREENHOUSE GAS EMISSION IN THE RUSSIAN FEDERATION	1063

265	Strategic Forecasting for Electric Vehicle Sales and Battery Returns: Integrating Statistical Methods and Monte Carlo Simulation	1075
276	Industry 4.0 Technologies Applications in Digital Construction	1087
277	Optimization of Machinery Repair Processes in the Mining and Construction Sectors through Lean Service Methodologies: An Integrated Case Study	1088
278	Optimizing Logistics and Inventory Management in SMEs: Integrating Economic Order Quantity and Systematic Layout Planning in a Peruvian Distribution Company	1104
284	Enhancing Operational Efficiency in Hydrocarbon Supply Chains through Engineering Methods: A Case Study in Fuel Dispatch Optimization	1117
285	Industry 5.0 Perspectives on the Trustworthiness of Novel Multimodal Language Models	1131
286	Production Process Model Based on Lean Manufacturing, TPM and SLP to Increase the Service Level in Companies in the Textile Sector	1143
287	Optimization of Service Times in Fast-Food Restaurants in Lima: Application of Continuous Improvement Tools and Process Simulation	1152
292	Ahead of Industry 4.0, An Assessment of Corporate Readiness to Accommodate Industry 5.0	1164
302	Projects in Mechatronics Engineering Education for Industry 4.0	1166
306	Improving Surgical Outcomes: Developing a Machine Learning Spine MRI Triage Tool	1176