



2nd African International Conference on
**Industrial Engineering and
Operations Management**
December 7-10, 2020, Harare, Zimbabwe
Host: University of Zimbabwe
A Virtual Conference



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IEOM Society is organizing 2nd African International Conference on Industrial Engineering and Operations Management in Harare, Zimbabwe during December 7–10, 2020. The conference aims to provide a forum for academics, researchers and practitioners to exchange ideas and recent developments in the field of Industrial Engineering and Operations Management. The conference is also expected to foster networking, collaboration and joint effort among the conference participants to advance the theory and practice as well as to identify major trends in Industrial Engineering and Operations Management. Due to the global pandemic, the event will be virtual. If situation permits, some events will be held locally.

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Authors can submit full paper(s) or abstract(s) only. [Authors MUST use the conference template to prepare papers or abstracts](#). IEOM Society encourages to submit full paper(s). All full papers will be subjected to double peer review. Accepted papers will be published in the Proceedings and indexed in **SCOPUS**. Any submission implies that an author will deliver a virtual or an oral presentation of the

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Keynote Speakers

December 9, 4:00 pm, Tuesday



Dr. Robert Van Til
Chair and Pawley Professor of Learning
Studies, Department of Industrial
and Systems Engineering
Oakland University, Michigan, USA

December 9, 4:00 pm Wednesday



Professor Paul Mapfumo
Vice Chancellor
University of Zimbabwe

December 10, 4:00 pm, Thursday



Professor Thong Ngee GOH
Emeritus Prof., Dept. of ISE
Former Head & Dean of Engineering
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- Artificial Intelligence
- Automation and Robotics
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- Case Studies
- Computers and Computing

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Data Analytics
Decision Sciences
Defense Management Science
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E-Business and E-Commerce
Energy
Engineering Economy
Engineering Education
Engineering Management
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Human Factors and Ergonomics
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Operations Research
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Project Management
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Quality Control and Management
Reliability and Maintenance
Robotics
Sensors and Sensing Systems
Service Systems and Service Management
Six Sigma
Software Testing and Quality Assurance
Statistics and Optimization
Supply Chain Management
Sustainability and Green Systems
Sustainability in Supply Chain, Enterprise Operations and Strategies including Food Supply Chain
Sustainable Manufacturing
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- International Federation of Engineering Education Societies (IFEES)
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- Robofest
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COMPETITIONS – Submission Deadline on October 30, 2020

- Undergraduate Student Paper Competition Sponsored by SIEMENS

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- Lean Six Sigma Competition sponsored by Tooling Tech Group
- Simulation Competition
- Supply Chain and Logistics Competition
- Undergraduate and Graduate Poster Competition

Deadlines

Abstract/Paper Submission: **September 30, 2020**

Review Feedback: October 15, 2020

Final Paper: November 15, 2020

Conference: December 8–10, 2020

Attendance Certificates will be provided for conference participants. Continuous Education Unit (CEU) is available. IEOM Society International will provide some awards and recognition at the 2020 Harare event.

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Ajibo Chinenye Augustine, Chinaeke-Ogbuka Ifeanyi Maryrose, Dept. of Systems Innovation Graduate School of Engineering Science, Osaka University, Japan. Dept. of Electronic Engineering, University of Nigeria Nsukka, Nigeria
Eustace M. Dogo, Dept. of Computer Engineering, Federal University of Technology Minna, Niger State Nigeria
Ogbuka Cosmas Uchenna, Dept. of Electrical Engineering/ACE-SPED, University of Nigeria, Nsukka, Nigeria

ID 004 The Impact Of Workspace Design On Office Managers/Secretaries Satisfaction And Productivity: A Case Study Of Federal Polytechnic Kaura Namoda, Zamfara State

Maikudi Shehu Musawa, Department of Office Technology and Management, Federal Polytechnic, Kaura Namoda, Zamfara State, Malaysia

Kamilah Ahmad, Faculty of Technology Management and Business, Universiti Tunn Hussein Onn Malaysia

ID 005 A Study on Tea Industry and Areca Nut Market – A Case Study On Enhancing The Possible Strategies To Increase Sales And Spread Brand Awareness For Areca Market In Karnataka, India

Divya Bharathi, Research Scholar, Dept. of Management Studies, Ballari Institute of Technology And Management, Visveswaraya Technological University – Karnataka, India
Dr G. P. Dinesh, Professor & Chairman, DOMS, Vijayanagara Sri Krishnadevaraya University – Karnataka, India

ID 006 Applying Project and Programme Management Principles to the Manufacturing Competitiveness Enhancement Programme

Pule Kholopane and Thakaramahlaha Lehohla, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa

ID 007 Modeling of an Industrial Ecosystem at Traditional Shipyards in Indonesia for the Sustainability of the Material Supply Chain

Yugowati Praharsi, Business Management Department, Shipbuilding Institute of Polytechnic Surabaya, Surabaya, Indonesia

Muhammad Abu Jami'in, Electrical Engineering Department, Shipbuilding Institute of Polytechnic Surabaya, Surabaya, Indonesia

Gaguk Suhardjito, Business Management Department, Shipbuilding Institute of Polytechnic Surabaya, Surabaya, Indonesia

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ID 008 Life Cycle Assessment of Ordinary Portland Cement (OPC) using Problem Oriented (Midpoint) Approach

Busola Dorcas Olagunju and Oludolapo Akanni Olanrewaju, Department of Industrial Engineering, Faculty of Engineering and the Built Environment, Durban university of Technology, Durban, South Africa

ID 009 Use of Lean Six sigma (DMAIC) methodology to address down time in a paper company

Adefemi O. Adeodu, Mukondeleli G. Kanakana-Katumba, Rendani Maladzhi, Department of Mechanical and Industrial Engineering, University of South Africa, Florida, South Africa

ID 010 Improvement of Hospital Airborne Infectious Isolation Rooms using IoT technology

L.A. Roy, F.K Tekweme, Department of Mechanical Engineering, University Johannesburg, Johannesburg, South Africa

ID 011 Thermal Modelling and Simulation of a Screw Extruder for Additive Manufacturing Technology

Ilesanmi Daniyana, Moses Oyesola, Khumbulani Mpofua and Adefemi Adeodub, Department of Industrial Engineering, Tshwane University of Technology, Pretoria 0001, South Africa and Department of Mechanical & Mechatronics Engineering, Afe Babalola University, Ado Ekiti, Nigeria

ID 012 System Approach of Production System Safety

Anouar Hallioui, Industrial Techniques Laboratory, Center for Doctoral Studies in Engineering Sciences and Techniques – Faculty of Sciences and Techniques of Fez, SIDI MOHAMED BEN ABDELLAH University, Fez

Brahim Herrou, Superior School of Technology, BP. 2427 Route d’Imouzzer, Fez

ID 013 Evaluating the Benefits of Project Alliance Formation among Contractors in Nigerian Construction Industry

Akinrata Ebunoluwa Bimbola, Department of Quantity surveying, Ahmadu Bello University Zaria, Nigeria

Bodunde Funmilayo Iyabo, Department of Quantity surveying, Federal University of Technology Akure, Nigeria

Ayotunde Anthony Babalola, Department of Quantity Surveying, Federal Polytechnic Ado-Ekiti, Nigeria

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ID 014 Evaluating the Effect of Strategic Alliance Procurement Method on Construction Financial Performance in Nigeria

Akinrata Ebunoluwa Bimbola, Department of Quantity surveying, Ahmadu Bello University Zaria, Nigeria

Ayo Lahanmi, Estimating Department, Mears Group, Inc., Lenexa, Kansas, USA

Ayotunde Anthony Babalola, Department of Quantity Surveying, Federal Polytechnic Ado-Ekiti, Nigeria

Bodunde Funmilayo Iyabo, Akinrata Ebunoluwa Bimbola and Ayotunde Anthony Babalola, Department of Quantity Surveying, Federal Polytechnic Ado-Ekiti, Nigeria

ID 015 Visual Project Management Tools and Practices: Supplier Company Case Study

Md Irfan Uzzaman, Industrial Engineering and Management, University of Oulu, Pentti Kaiteran katu 1, 90570 Oulu, Finland

Tasminur Mannan Adnan, Industrial Engineering and Management, University of Oulu, Pentti Kaiteran katu 1, 90570 Oulu, Finland

ID 016 System Approach of Production System Reliability and Maintainability

Anouar Hallioui, Industrial Techniques Laboratory, Center for Doctoral Studies in Engineering Sciences and Techniques – Faculty of Sciences and Techniques of Fez, SIDI MOHAMED BEN ABDELLAH University, Fez

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ID 048 Benefits of functions interdependence between and autonomy of organization structure units: Case of small scale sandstones processing

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ID 049 Possible impact of adequate organizational structure on the bottom line of artisanal and small-scale mineral business: case of sandstone processing.

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ID 050 Real-Time Simulation of Actual Systems for Live Continuous Research

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ID 052 Quantum Computing Philosophy in the Extraction of Cobalt from Cobalt-Copper Complex Ore

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ID 057 Optimization of Electricity Consumption for a Galvanising Plant through Comparative Analysis of Regression Analysis And Genetic Algorithm

Mendon Dewa, Department of Industrial Engineering, Durban University of Technology, Durban, South Africa
Bloodless Dzweiro, Durban University of Technology, Imbali, Pietermaritzburg, South Africa

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Bathusi Letsholo, Boksburg, Gauteng, South Africa

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ID 079 Critical Assessment of Cobalt (Co) and Copper (Cu) Extraction from Co–Cu Complex Ores

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ID 080 A Phenomenological Study of Cobalt and Copper from the African Copperbelt Deposits

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Gidion P. Adirinekso, Department of Management Faculty Economics and Business, Universitas Kristen Krida Wacana, Jakarta, 11470 Indonesia

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John Tampil Purba and Sidik Budiono, Department of Management Faculty of Economics and Business, Universitas Pelita Harapan, Tangerang–15811, Indonesia

Gidion P. Adirinekso, Department of Management Faculty of Economics and Business, Universitas Kristen Krida Wacana, Jakarta, Indonesia

ID 112 Robust Least Squares Estimation Model for Fighting Poverty in Indonesia Case

Sidik Budiono, Department of Management Faculty of Economics and Business, Universitas Pelita Harapan, Tangerang 15811, Indonesia

John Tampil Purba, Department of Management Faculty of Economics and Business, Universitas Pelita Harapan, Tangerang 15811, Indonesia

Gidion P. Adirinekso, Department of Management Faculty of Economics and Business, Universitas Kristen Krida Wacana, Jakarta, Indonesia

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Mitchell Phiri, Simon H. Connell, and Pathmanathan Naidoo, Department of Mechanical Engineering Science, University of Johannesburg, Johannesburg – 2006, South Africa

Mikel E. Pozo Astigarragay, ATLAS Trigger and Data Acquisition, European Organisation for Nuclear Research, Meyrin – 1217, Switzerland

Dave Nicholls, NESCA Board, South African Nuclear Energy Corporation, North West Province – 0240, South Africa

ID 114 A Literature Review on Coal Gasification as Part Transition in SA Thermal Coal Power Generation

P. Rannditsheni, P. Naidoo, and S.H. Connell, Department of Mechanical Engineering Science, University of Johannesburg, Johannesburg, , South Africa

D. Nicholls, Chairman, Nuclear Chapter, South African Institute of Electrical Engineers, Observatory, Johannesburg, South Africa

ID 115 Understanding South Africa's Independent Power Producer Programme

Naidoo and S.H. Connell, Department of Mechanical Engineering Science, University of Johannesburg, Auckland Park, Johannesburg, , South Africa

Nicholls, Chairman, Nuclear Chapter, South African Institute of Electrical Engineers, Observatory, Johannesburg, , South Africa

ID 116 A3 Problem Solving: A Case of Assembly Line Downtime

K. Kanyinda, Department of Industrial Engineering, Durban University of Technology, Durban, South Africa

I. J. Lazarus, Department of Physics, Durban University of Technology, Durban, South Africa

O. A. Olanrewaju, Department of Industrial Engineering, Durban University of Technology, Durban, South Africa

ID 117 Development of an Asset Criticality Assessment Tool, the Case of a Fertiliser Manufacturing Company

Milton Masukume, Samson Mhlana, and Tinashe Mubvirwi, Department of Industrial and Manufacturing Engineering, National University of Science and Technology, PO Box AC 939, Ascot, Bulawayo, Zimbabwe

Tawanda Mushiri, Industrial and Mechatronics Engineering Department, Faculty of Engineering and the Built Environment, University of Zimbabwe, 630 Churchill Avenue, Harare, Zimbabwe

ID 118 Analysis of a Rectangular Activflo Clarifier under Hydrostatic Pressure via FEA

P. Maqina, D.V.V Kallon, F. Tekweme and R. Mutyavavire, Department of Mechanical Engineering Technology, University of Johannesburg, Johannesburg, South Africa

ID 119 Investigating the Optimal Stiffener Locations of an Activflo Clarifier under Hydrostatic Pressure

P. Maqina, Department of Mechanical Engineering Technology, University of Johannesburg, Johannesburg, South Africa

D.V.V Kallon, Department of Mechanical Engineering Technology, University of Johannesburg, Johannesburg, South Africa

ID 120 An Appraisal of Innovative Approach to Plastic Waste Disposal Using Recycling Technique in Nigeria

Olowosile J. Sanmi, Olowosile O. Ruth, Adeleke E. Olubunmi, Odiase E. Titus, Adedokun A. Victoria, Ogunsola A. Oluwatosin, Makinwa Olusegun, and Orisabinone Toluwalase, Research and Development Team, Sustainable Green Environment (SGE) Initiative, Lagos, Nigeria

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ID 123 Design of Electro-Hydraulic Circuits of Tri-adjustable Automated Heavy-Duty Industrial Handling System

S.Z. Mafokwane, Department of Mechanical Engineering Technology, University of Johannesburg, Johannesburg, South Africa

D.V.V. Kallon, Department of Mechanical Engineering Technology, University of Johannesburg, Johannesburg, South Africa

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ID 125 Improvement in the manufacturing process

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ID 132 Finite Element Analysis on Multiple Axes of 3D Designs

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D.V.V. Kallon, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, Johannesburg, South Africa

ID 133 Finite Element Analysis of a Simulated Object vs 3D Printed Object

D.W. Abbot, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, Johannesburg, South Africa

D.V.V. Kallon, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, Johannesburg, South Africa

ID 134 Investigation of Radial Expansion of Hollow Tubular Devices for Support of Underground Mining Excavations

N. Tshitema, D. V. V. Kallon and O. T. Laseinde, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, Johannesburg, South Africa

ID 136 A sustainable conceptual model for pyrolysis to power project using lignocellulosic waste

Gratitude Charis, Gwiranai Danha and Edison Muzenda, Department of Chemical, Materials and Metallurgical Engineering, Botswana International University of Science and Technology, P Bag 016 Palapye, Botswana

Edison Muzenda, Metallurgy and Chemical Engineering, University of Johannesburg, School of Mining, Doornfontein, Johannesburg, South Africa

ID 146 Inventory Management Impact on Demand Uncertainty and Forecasting in Fast Moving Consumer Goods

Ndivhuwo Nemtajela, Department of Operations Management, University of South Africa, 1 Preller Street, Pretoria, South Africa

ID 147 Analysis of Factors Affecting Behavior of Students Online Shopping (Case: Diponegoro University)

Zainal Fanani Rosyada, Naniek Utami Handayani, Manik Mahacandra, Ega Rizkiyah. Department of Industrial Engineering, Diponegoro University, Semarang, 50275, Indonesia

ID 148 Enhancing nanocrystalline material yield strength during ARB process by using Solute atoms as reinforcement

P.B. Sob, Department of Mechanical Engineering, Faculty of Engineering and Technology, Vaal University of Technology, Vanderbijlpark, South Africa

ID 149 The effects of the different approaches of measuring size of nanocrystalline materials on their thermodynamic properties

B. SOB, Department of Mechanical Engineering, Faculty of Engineering and Technology, Vaal University of Technology, Vanderbijlpark, South Africa

ID 150 Implementation of a Cloud-Based ERP System at a South African Public Entity

B.M.B Cebekhulu ¹, P.A. Ozor ^{1, 2}, and C. Mbohwa ¹

¹ Department of Quality and Operations Management, Faculty of Engineering and the Built Environment, University of Johannesburg, Auckland Park, Johannesburg, South Africa

² Department of Mechanical Engineering, Faculty of Engineering, University of Nigeria Nsukka

ID 151 A Framework for a Reconfigurable Welding Jig for Sheet Metal Panel Component of a Railcar

Ilesanmi Daniyana, Makinde Olasumbob, Boitumelo Ramatsetsea and Khumbulani Mpofua

Department of Industrial Engineering, Tshwane University of Technology, Pretoria, 0001, South Africa

Department of Operations Management, Tshwane University of Technology, Pretoria, 0001, South Africa

ID 152 Smart sustainable manufacturing: From Literature review to a green framework

Imane Benkhati, Casablanca, Grand Casablanca, Morocco

ID 153 2DOF flexible Link Manipulator Model Simulation Inventor: Finite Element Analysis with varying payloads at the tip

XS Nyathi and FK Tekweme, Department of Mechanical and Industrial Engineering, University of Johannesburg, 55 Beit St, Doornfontein, Johannesburg 2028, South Africa

ID 154 A Case Study on Teesta Water Conflict: A Game Theory Approach

Faisal Mahmud, Esrat Farhana Dulia and Anindya Sen, Department of Industrial and Production Engineering, Bangladesh University of Engineering and Technology, Dhaka-1000, Bangladesh

ID 155 Pre and Post Privatisation Assessment of Transcorp Power Gas Turbine Plants using Standard Key Performance Indicators

Okoye, Arinze. E., Department of Mechanical Engineering, University of Benin, Benin City, Nigeria

ID 166 The Relationship between Kaizen Philosophy and Organizational Performance Empirical Investigation: A Case of Ethiopian Manufacturing Industries

Haftu Hailu, Fasil Taddese and Kinfu Tsegay, Department of Industrial Engineering, Ethiopian Institute of Technology, Mekelle University, Mekelle, Tigray, Ethiopia

Kassu Jilcha, Industrial Engineering Department, Addis Ababa Institute of Technology (AAiT), Addis Ababa University, Addis Ababa, Ethiopia

Tewodros Hailu, Mechanical Engineering Department, Axum University (AU), Axum, Tigray, Ethiopia

ID 167 An Overview of Nanomanufacturing with Bibliometric Indicators

A. Almarfadi, Fawaz M. Abdullah and Abdulrahman M. Al-Ahmari, Industrial Engineering Department, College of Engineering, King Saud University, P. O. Box 800, Riyadh 11421, Saudi Arabia

Wadea Ameen, Industrial Engineering Department, College of Engineering and Architecture, Al Yamamah University, Riyadh-11512, Saudi Arabia

Galal M. Muthanna, Business Administration Department, Faculty of Social and Applied Sciences, The University of Aden, Aden – 6312, Yemen

ID 170 Ergonomic Assessment for a Convenience Store Assistant

Nor Suhada Abdullah, Koay Mei Hyie, Siti Nur Amalina Mohd Halidi, Hamid Yusoff, Ahmad Sufian Abdullah, Halim Ghafar, Aliff Farhan Mohd Yamin, Faculty of Mechanical Engineering, Universiti Teknologi MARA, Cawangan Pulau Pinang, Kampus Permatang Pauh, Pulau Pinang, Malaysia

ID 172 A Review of Logistics 4.0 Literature for Curriculum Development for Vocational High Schools

Kerem Elibal, BCS Metal Co., Gaziantep, Turkey

Eren Özceylan, Industrial Engineering Department, Gaziantep University, Gaziantep, Turkey

ID 173 A Rapid Decision Model of Disaster Relief Logistic, based on Internet of Things (IoT) Data Analytics and Case-Based Reasoning

M. Dachyar, Yadrifill, Maulana Ihsan Al Ghifari, Industrial Engineering Department, Universitas Indonesia, Indonesia

ID 174 Comparative Experimental Performance Evaluation of Longitudinal and Transverse Four-Pass Soda Can Solar Air Heaters

Ifeanyi O. Jacobs, Chigbo A. Mgbemene, Agwu Ndukwe, Anthony O. Okoani and Ndudim H. Ononiwu, Mechanical Engineering Department, University of Nigeria Nsukka, Nigeria

ID 175 Optimizing the Weight of Crawler Chain System at Quarry during Cement Manufacturing Process

A. O. ANIKI, Department of Mechanical Engineering, Vaal University of Technology, P.M.B X021, Vanderbijlpark, 1900. Gauteng, South Africa

O. A. OLANREWAJU, Department of Industrial Engineering, Durban University of Technology: Durban, Kwa-Zulu Natal, South Africa

C. MBORHWA, Department of Industrial Engineering, University of Johannesburg: Auckland Park Bunting Road Campus, Johannesburg, South Africa

ID 178 Automated Waste Characterization and Sorting for Large Institutions through Conceptualization, Design and Simulation

Sudhir S. Zhuwawu, Department of Mechanical Engineering, University of Zimbabwe, P O Box MP 167, Mount Pleasant, Harare, Zimbabwe

Wilson R. Nyemba and Simon Chinguwa, Department of Mechanical Engineering, University of Zimbabwe, P O Box MP 167, Mount Pleasant, Harare, Zimbabwe and Department of Quality and Operations Management, University of Johannesburg, Auckland Park 2006, Auckland Park Campus, South Africa

ID 179 The Lighter the Better: Weight Reduction in the Automotive Industry and its Impact on Fuel Consumption and Climate Change

Gibson P Chirinda, Department of Industrial Engineering, University of Stellenbosch, Stellenbosch, South Africa

Stephen Matope, Department of Industrial Engineering, University of Stellenbosch, Stellenbosch, South Africa

ID 180 Electrification through Renewable Resources in a Rural Area in Nigeria: Design, Optimization and Techno-Economic Evaluation

Aliyu Adamu Baba^{1,2}, Md Mizanur Rahman¹, Aminuddin Saat¹ and Mazlan Abdul Wahid¹

¹ School of Mechanical Engineering, Faculty of Engineering Universiti Teknologi Malaysia 81310 Johor Bahru, Johor, Malaysia
mizanur@mail.fkm.utm.my

² Department of Mechanical Engineering Federal Polytechnic Mubi Adamawa State, Nigeria

ID 183 Proposed Roadmap for Product and Process Redesign in the Migration from Joining Processes to Monolithic parts Production for Sheet-metal Components

Blessed Sarema, Stephen Matope Industrial Engineering Department Stellenbosch University Cape Town, South Africa

ID 184 Application of Small Modular Reactors in Sub Saharan Africa

D. Nicholls, Chairman, Nuclear Chapter, South African Institute of Electrical Engineers, Observatory, Johannesburg, RSA

P. Naidoo and S.H.Connell, Department of Mechanical Engineering Science, University of Johannesburg, Auckland Park, Johannesburg, RSA

ID 187 The Impact of COVID-19 on the Pharmaceutical Supply Chain

Sydney Strong, Prescott Delzell, Walter Trygstad, Garrett Fitzpatrick, Piper Haley-Hyer, Ashley Bates and Mohamed Awwad, Industrial and Manufacturing Engineering Department, California Polytechnic State University, USA

ID 196 The Relation between Renewable Energy Consumption and Economic Growth: The Case of 3 Mediterranean Countries

Majd ALLAM, PhD Energy and Environment, Sapienza – University of Rome, Italy

Domenico Borello, Associate Professor in Mechanical and Industrial Aerospace Department, Sapienza – University of Rome, Italy

Raymond Bou Nader, PhD in mathematics, USJ – Beirut, Lebanon

ID 197 Contradictions and Complements of Lean Administration and Digitalization

Christoph Szedlak, Kristin Wagner, and Bert Leyendecker, University of Applied Sciences Koblenz, Faculty of Operations Management, Konrad-Zuse-Str. 1, 56075 Koblenz, Germany

ID 198 Optimization of Cutting Parameters in Turning of AISI 201 Stainless Steel to Reduce Chip Reduction Coefficient in both Dry and Wet Condition

Tareq Ahmad and Toukir Ahmed, Md. Didarul Alam, and Md. Ariful Islam, Department of Industrial & Production Engineering, Rajshahi University of Engineering & Technology, Rajshahi-6204, Bangladesh

ID 199 SMART Performance Management of SA's UN Climate Change Commitments

S. Zuma, Eskom SOC Limited RSA, Generation Division, South Africa

p. Naidoo and N. Sukdeo, Faculty of Engineering and the Built Environment, University of Johannesburg, Auckland Park, Johannesburg, South Africa

ID 200 The Role of Entrepreneurship Study In Developing The Abilities of Students To Be Young Entrepreneurs: Empirical Study In Universitas Negeri Medan, Indonesia

Haikal Rahman, Department of Business Digital, Universitas Negeri Medan, Medan, Indonesia

Rahmatsyah, Department of Physics, Universitas Negeri Medan, Medan, Indonesia

Ali Fikri Hasibuan, Department of Entrepreneurship, Universitas Negeri Medan, Medan, Indonesia,

Rangga Restu Prayogo, Department of Entrepreneurship, Universitas Negeri Medan, Medan, Indonesia

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P. Khoza, P. Naidoo and S.H.Connell, Department of Mechanical Engineering Science, University of Johannesburg, Auckland Park, Johannesburg, South Africa

ID 202 Role of Industry 4.0 in Supplier Selection

Priyanka Verma, and G S Sagar, NITIE – National Institute of Industrial Engineering, Mumbai, India

Vijaya Dixit, Indian Institute of Management, Ranchi, India

ID 203 Application of Lean Tools in Planned Maintenance: Case Study of a Coal Handling Plant at a Thermal Power Station

Isaac Chinhengo, William M. Goriwondo, and Blessed Sarema, Department of Industrial and Manufacturing Engineering, National University of Science and Technology, Bulawayo, Zimbabwe

ID 204 Computational Fluid Dynamics and Simulation of a Mixing Mould Unit of a Mini Foam Batch Production Plant

Oluwayomi J. Oyejide and Joseph I. Achebo, Department of Mechanical Engineering, Federal University of Petroleum Resources Effurun, Delta State, Nigeria

Modestus O. Okwu and Lagouge K. Tartibu, Department of Mechanical and Industrial Engineering, University of Johannesburg, South Africa

ID 205 Development of a Mixing and Mould Unit for Mini Foam Batch Production Plant

Oluwayomi J. Oyejide and Joseph I. Achebo, Department of Production Engineering, University of Benin, Nigeria and Department of Mechanical Eng., Federal University of Petroleum Resources Effurun, Nigeria

Modestus O. Okwu and Lagouge Tartibu, Department of Mechanical and Industrial Engineering, University of Johannesburg, South Africa

ID 206 The State of Rail and Road Route Transport Networks Integratedness in the City of Johannesburg: An expose

Brightnes Risimati, Urban and Regional Planning Department, University of Johannesburg, City of Johannesburg, South Africa

Trynos Gumbo, Urban and Regional Planning Department, University of Johannesburg, City of Johannesburg, South Africa

James Chakwizira, Urban and Regional Planning Department, University of Venda, Venda, South Africa

ID 207 Flagging Appropriate Relay Alarms in SCADA Relay Alarm Monitoring & Analysis Systems

Judy Finny and Aldo McLean, Engineering Management & Technology Department, University of Tennessee at Chattanooga, Chattanooga, TN 37403, USA

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Gumbo. M, Musakwa. W, Ingwani. E, Gumbo.T, Johannesburg, Gauteng, South Africa

ID 209 Challenges and Strategies in NPOs' Operations during Covid-19

Hilda Kundai Chikwanda, Graduate School of Technology Management, University of Pretoria, Hatfield, 0028, South Africa

ID 210 Effective Conversion of Waste Cotton Textile by Acid Hydrolysis to Produce Ethanol Using *Saccharomyces Cerevisiae*.

Maud Gracious Fuko and Itai Mutadza, School of Engineering and Technology, Department of Chemical and Process Systems Engineering, Harare Institute of Technology, Belvedere, Harare, Zimbabwe

ID 211 An Analysis of the Inventory Management Challenges: The Case of Gypsum Plasterboard Manufacturing Company in South Africa

Madzivhandila Ntendeleni Lawrence and Forbes Chiromo, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, Johannesburg, South Africa

ID 213 Multifactor Algorithm for Evaluating Applicability of Preventive Maintenance: Case of ABInBev NamibiaGeser

Hityasha Okahandja, Otjozondjupa, Master of Industrial Engineering, Department of Mechanical and Marine Engineering, School of Engineering, Namibia University of Science and Technology, Namibia

ID 214 Factors affecting the Level of ICT innovation in Tanzania

Edison Wazoel Lubua, Senior Lecturer and Certified Information Systems Auditor, Department of Informatics, Institute of Accountancy Arusha, Njiro Hill, Arusha–Tanzania

ID 215 Conceptualization of the Lecture ‘Digitalization and Digital Transformation in Metal Forming’ based on Implications from Contemporary Teaching and Learning Theories

Benjamin J. Ralph, Chair of Metal Forming, Montanuniversitaet Leoben, Franz Josef–Strasse 18, 8700 Leoben, Austria

Corina Pacher, Resources Innovation Center, Montanuniversitaet Leoben, Franz Josef–Strasse 18, 8700 Leoben, Austria

Manuel Woschank, Chair of Industrial Logistics, Montanuniversitaet Leoben, Erzherzog Johann–Strasse 3/1, 8700 Leoben, Austria

ID 216 Challenges of Logistics and Supply Chain Management during COVID –19

Piya Ghosh and RRK Sharma, Industrial and Management Engineering, Indian Institute of Technology, Kanpur, India

ID 217 Automotive assembly industry’s Supply chain in the delocalization context: A critical review and an algorithm approach for modeling at a tactical level

Noredine Sadki and Zoubir El Felsoufi, Laboratory of Mathematical Modeling and Control, Faculty of Sciences and Technologies of Tangier, Tangier, Morocco

Sanae Larioui, ENSIT engineering school Morocco

ID 218 Implementation Barriers in the Establishment and Management of Bumdesa in Deli Serdang City, Indonesia

Nelly Armayanti, Department of Office Adminsitration, Universitas Negeri Medan, Medan, Indonesia

Dodi Pramana, Department of Office Adminsitration, Universitas Negeri Medan, Medan, Indonesia

Indra Maipita, Department of Business Education, Universitas Negeri Medan, Medan, Indonesia

Rangga Restu Prayogo, Department of Entrepreneurship, Universitas Negeri Medan, Medan, Indonesia

ID 219 Plastic waste management in South Africa

Unatshilidzi Benedictus Khangale, Department of Quality and Operations Management, Faculty of Engineering and the Built Environment, University of Johannesburg, Doornfontein Campus, 2092, South Africa

Paul Amaechi Ozor, Department of Quality and Operations Management, Faculty of Engineering and the Built Environment, University of Johannesburg, Doornfontein Campus, 2092, South Africa and Department of Mechanical Engineering, Faculty of Engineering, University of Nigeria, 410001, Nsukka Enugu State, Nigeria

Charles Mbohwa, Department of Quality and Operations Management, Faculty of Engineering and the Built Environment, University of Johannesburg, Doornfontein Campus, 2092, South Africa

ID 220 Exploring the Dimensions using Exploratory Factor Analysis of Disruptive Factors and Inventory Control

Aamir Rashid Hashmi, Noor Aina Amirah and Yusnita Yusof, Faculty of Business and Management, Universiti Sultan Zainal Abidin, Kuala Terengganu, Malaysia

ID 221 Management of Innovation in a Weapon Manufacturing Company

Pfarelo Precilla Nelufule and Hilda Kundai Chikwanda, Graduate School of Technology Management, University of Pretoria, Hatfield, South Africa

ID 222 Modal and Stress analysis of Centrifugal pump impeller produced with Al-3.7%Cu-1.4%Mg-1.5%wtRice husk ash nanoparticles composite

Paul. A Ozor, Faculty of Engineering and Built Environment, University of Johannesburg, Auckland Park, 2006, South Africa and Department of Mechanical Engineering, University of Nigeria, Nsukka, Nigeria

Victor .S Aigbodion¹, Energy materials research group, Department of Metallurgical and Materials Engineering, University of Nigeria, Nsukka, Nigeria

ID 223 Rice Husk Waste: As Potential Coating Materials of Mild Steel for Engineering Application

Victor S. Aigbodion, Energy materials research group, Department of Metallurgical and Materials Engineering, University of Nigeria, Nsukka, Nigeria and Faculty of Engineering and Built Environment, University of Johannesburg, Auckland Park, 2006, South Africa

Paul. A Ozor, Faculty of Engineering and Built Environment, University of Johannesburg, Auckland Park, 2006, South Africa and Department of Mechanical Engineering, University of Nigeria, Nsukka, Nigeria

ID 224 Intelligent Traffic Light Control

Mohammed A. Khasawneh and Anjali Awasthi, Concordia Institute for Information Systems Engineering, Concordia University, Canada, Montreal

ID 225 Minimization of Yarn Breakage Rate in Looming Process Using Parameter Optimization Techniques

Muluken Abebe, M.Sc., Faculty of Mechanical and Industrial Engineering, Bahir Dar Institute of Technology, Bahir Dar, Ethiopia

ID 226 Assessments of the Internet of Things and Security

Farid El Ghaoual, Assad CHAHBOUN and Naoufal RAISSOUNI, National School of Applied Science, Abdelmalek Essaâdi University, Tetouan B.P. 2117, Morocco

ID 227 Energy Transition and Environmental Benefit of Fuel Cell Electric Vehicles

Muhammad Nadeem Akram and Walid Abdul-Kader, Mechanical, Automotive, and Materials Engineering Department, University of Windsor, Windsor, Ontario, Canada

ID 228 Evaluating the Factors Contributing to Unethical Practices by Quantity Surveyors in Nigerian Construction Industry

Akinrata Ebinoluwa Bimbola, Department of Quantity surveying, Ahmadu Bello University Zaria, Nigeria

Ayotunde Anthony Babalola, Department of Quantity Surveying, Federal Polytechnic Ado-Ekiti, Nigeria

Ayo Lahanmi, Estimating Department, Mears Group, Inc., Lenexa, Kansas, USA

Ayodeji Oke and Bodunde Funmilayo Iyabo, Department of Quantity surveying, Federal University of Technology Akure, Nigeria

ID 229 Application of Ant Colony Optimizer (ACO) for effective path planning in a big-box store or retail facility

Modestus O. Okwu, Tartibu K. Lagouge, Department of Mechanical and Industrial Engineering, University of Johannesburg, South Africa

Justice Afenogho, Department of mechanical Engineering, Federal University of Petroleum Resources Effurun, Delta State, Nigeria

ID 230 Application of Value Stream Mapping in the Improvement of Lead Time, Takt Time and Over Flowing Labour in Paper Manufacturing Company: A Lean Six Sigma Approach

Adefemi Omowole Adeodu, Department of Mechanical and Industrial Engineering, University of South Africa, Florida, South Africa

Mukondeleli Grace Kanakana–Katumba, Department of Mechanical and Industrial Engineering, University of South Africa, Florida, South Africa

Rendani Maladzhi, Department of Mechanical and Industrial Engineering, University of South Africa, Florida, South Africa

ID 231 The Decision Model of Internet of Things (IoT) Solutions for Healthcare based on Risk and Challenge Factors

M Dachyar and Nabila Alya Zahra, Industrial Engineering Dept, Universitas Indonesia, Depok, Indonesia

ID 232 Optimization of Plantation and Forestry Management in Various Countries Using a Dynamic Model Approach: A Review

Nurhayati Sembiring, Humala Lodewijk Napitupulu, Meilita Tryana Sembiring, Aulia Ishak Sipahutar, and Rhyval Radot R, Department of Industrial Engineering, Faculty of Engineering, Universitas Sumatera Utara, Medan, Indonesia

ID 233 The Impact Of Customer Focused Innovative Technologies On Passenger Growth For A Domestic Low-cost Carrier Airline

Modisha Maribe, School of Mechanical, Industrial and Aeronautical Engineering, University of the Witwatersrand, Johannesburg, South Africa

Bernadette Sunjka, School of Mechanical, Industrial and Aeronautical Engineering, University of the Witwatersrand, Johannesburg, South Africa

ID 234 E-Procurement Process Reengineering for Prohibiting the Corruption Initiatives by Proposing a Real-Time and Integrated Bidding Solution

Dachyar and Frisly Karenina, Industrial Engineering Department, Universitas Indonesia, Indonesia

ID 235 Hospital Pharmaceutical Vendor Managed Inventory Supported by Internet of Things

M. Dachyar and Rebecca Yolanda, Department of Industrial Engineering, Universitas Indonesia, Depok, Indonesia

ID 250 Understanding industrial energy sources: A comparison between Electricity and Natural Gas using LMDI

Rofhiwa Tevin Machivha Department of Industrial engineering Durban University of Technology P.O Box 1334, Durban, 4000 South Africa

Oludolapo Akanni Olanrewaju Department of Industrial engineering Durban University of Technology P.O Box 1334, Durban, 4000 South Africa

ID 251 Utilization of Cornstalk Fiber into the Styrofoam Matrix as a Preliminary Study for Earthquake Resistant Particleboard

Flora Elvistia Firdaus and Rico Andreansyah, Department of Chemical Engineering, Jayabaya University, Jakarta Timur– 13210, Indonesia

ID 252 Study of Electromyography Sensor Attachment Locations for Designing of Smart-fitness Clothing

Yong-Ku Kong, Kyeong-Hee Choi, Chae-Won Park, Seoung-Yeon Kim, Min-Jung Kim and Min-uk Cho, Department of Industrial Engineering, Sungkyunkwan University, 2066, Seobu-ro, Jangan-gu, Suwon-si, Gyeonggi-do 16419, Korea

ID 253 A numerical analysis of airflow efficiency of a mine ventilation aircrossing

Johannes Selwana, Thokozani Justin Kunene, and Lagouge Kwanda Tartibu, Mechanical and Industrial Engineering Technology Department, University of Johannesburg, Doornfontein Campus, Johannesburg 2028, South Africa

ID 254 Numerical analysis of Vertical Axis Wind Turbine performance at varied Angle-of-Attack

Thokozani Justin Kunene, Mossa Maculove and Lagouge Kwanda Tartibu, Mechanical & Industrial Engineering Technology Department, University of Johannesburg, Doornfontein Campus, Johannesburg, South Africa

ID 255 Critical Risk Factors of Outsourcing in Supply Chains

Viktoria Barany, Julia Galus, Franca Hiemisch and Shahryar Sorooshian, Department of Business Administration, University of Gothenburg, Gothenburg, Sweden

ID 257 Blockchain-Enabled Campus Wine Supply Chain

Hannah Casper, Allison Jung, Aria Saberi and Mohamed Awwad, Department of Industrial and Manufacturing Engineering, California Polytechnic State University, San Luis Obispo, CA 93407, USA

ID 258 Enhancement of Supply Chain Performance by Data Analytics

Himadri Sen Gupta, A.I.M Johurul Islam, MD. Mushfiquzzaman and B M Adnan Rahman, Department of Industrial and Production Engineering, Military Institute of Science and Technology (MIST), Dhaka – 1216, Bangladesh

ID 259 Determinant Factors of Consumer Preferences on Electronic Wallet Users in Bandung

Imanuddin Hasbi, Romat Saragih, Benny Kurnia, Mahendra Fakhri, and Alisha Gustiana Aini, School of Communication and Business Telkom University, Indonesia

ID 260 A Bi-Objective Lot Sizing and Scheduling Problem Dealing with Reworking the Perishable Items in a Parallel Machine System

Elham Taghizadeh, Department of Industrial and System Engineering, Wayne State University, Detroit, MI 48035, USA
Setareh Torabzadeh and Abdollah Mohammadi, Systems Engineering and Engineering Management Department, University of North Carolina at Charlotte, Charlotte, NC, 29223, USA
Farshid Evazabadian School of Electrical Engineering and Computing University of Newcastle Callaghan, NSW 2308, Australia

ID 261 Green Brand Awareness Factors on the Body Shop Product

Nadya Moeliono, Devilia Sari, Benny Kurnia, Mahendra Fakhri, and Diaz Adia Anindita, School of Communication and Business Telkom University, Indonesia

ID 262 Validation of the Lean Six Sigma Model for Higher Education Institutions through Implementation of Improvement Projects

David Guerrero, Cali, Valle del cauca, Colombia

David Rodrigo Guerrero Moreno

Juan Camilo García Jiménez

ID 263 Lifetime Extension of Distributed Power Networks by Evaluating the Joint Gaussian Probabilities of the Power Coverage of Generators to Load Centers Demand

Amir J. Majid, Ph.D., College of Engineering and Information Technology, University of Science and Technology of Fujairah, Fujairah, 2202, UAE

ID 264 Impact of Virtual Clustering of Organizations on Organization's Competitive Advantage: A Supply Chain Point of View

Robert Monageng, Mechanical Engineering Department, University Botswana, Gaborone, Botswana and Department of Industrial and Systems Engineering, University of Pretoria, Pretoria, South Africa

Olufemi Adetunji, Department of Industrial and Systems Engineering, University of Pretoria, Pretoria, South Africa

ID 265 DMAIC Six–Sigma Application in Management Productivity ‘Gap’ Reduction in Manufacturing Production Line

Jean–Claude Munyaka Baraka and Venkata Seshachala Sarma Yadavalli, Department of Industrial and System Engineering, University of Pretoria, Pretoria, 0002, South Africa

ID 266 Adaptation of Hybrid Strategy in Healthcare Supply Chain

Himadri Sen Gupta, Azraf Shahriar Sami, Md. Istiak Habib and Hasib Ur Rahman, Department of Industrial and Production Engineering, Military Institute of Science and Technology (MIST), Dhaka – 1216, Bangladesh

ID 267 Monitoring and Air Quality Control for Occupational Safety and Health in Fertilizer Production Companies in Zimbabwe

Itai Mutadza Tawanda W. Nhando and Perkins Muredzi, School of Engineering and Technology, Department of Chemical and Process Systems Engineering, Harare Institute of Technology, Belvedere, Harare, Zimbabwe

ID 268 Analysis of a Two–Stage Variable Leg Geometry Solar Thermoelectric generator

Chika Maduabuchi, Kevwe Ejenakevwe, Ifeanyi Jacobs, Agwu Ndukwe, and Chigbo Mgbemene, Department of Mechanical Engineering, University of Nigeria, Nsukka, Nsukka, Nigeria

ID 269 Optimal Siting of Interconnected Mini–Grid in Electricity Distribution Network Using Interval Type–2 Fuzzy Analytic Hierarchy Process

Akintunde K. Akinlabi, Department of Industrial and Production Engineering, University of Ibadan, Ibadan Nigeria

Victor O. Oladokun, Department of Industrial and Production Engineering, University of Ibadan, Ibadan Nigeria

ID 270 The Effect of Easy Perception and Risk of Users of Financial Technology Services in SMEs of Bandung, Indonesia

Budi Rustandi Kartawinata and Mahir Pradana, Telkom University, Jalan Terusan Buah Batu, Bandung 40257, Indonesia

Aldi Akbar, Politeknik Piksi Ganesha Bandung, Jalan Jend. Gatot Subroto No. 301, Bandung 40274

Arlin Ferlina Mochamad Trenggana, Telkom University, Jalan Terusan Buah Batu, Bandung 40257, Indonesia

Synthia Dewi Cahyaningrum, Telkom University, Jalan Terusan Buah Batu, Bandung 40257, Indonesia

ID 271 The Effect Of Green Human Resources Management On Service Quality In The Pandemic Time Of Covid–19 On State–Owned Enterprise Hospitals The Republic Of Indonesia

Asep Saifudin, Student of the Mercu Buana University Doctoral Program, Jakarta, Indonesia

Havidz Aima, Professor and Head of the Doctoral Program at Mercu Buana University, Jakarta, Indonesia

Achmad Hidayat Sutawidjaya and Sugiyono, Postgraduate Lecturer at Mercu Buana University, Jakarta Indonesia

ID 279 The Effect of E–Service Quality on E–Satisfaction: Case Study of Lazada Users in Pekanbaru, Indonesia

Aditya Wardhana, Telkom University, Jalan Terusan Buah Batu, Bandung 40257, Indonesia

Budi Rustandi Kartawinata, Telkom University

Jalan Terusan Buah Batu, Bandung 40257, Indonesia

Diki Wahyu Nugraha, Prodi/Jurusan D4 Teknik Informatika Politeknik Pos Indonesia, Jln. Sari Asih No. 54, 40151 Bandung, Jawa Barat, Indonesia

Iqbal Firmansyah, Trisakti School of Transportation Management, Indonesia, Jakarta, Indonesia

Galang Tegar Prahara, Telkom University, Jalan Terusan Buah Batu, Bandung 40257, Indonesia

ID 284 Innovation as Part of the Strategy for Businesses during COVID-19

Yara A. Elkhailil, Department of Management and International Management, Colorado State University – Global Campus, Greenwood Village, USA

ID 285 Reflection of the Virtual Learning Environment in the Covid-19 Pandemic Period

Haerul, Andoyo Sastramiharjo, Vismaia S. Damaianti and Yeti Mulyati, Universitas Pendidikan Indonesia, Bandung, Indonesia

ID 286 The Use Of E-Learning In Maritime English Learning Can Improve The Vocabulary Skill Of Cadets Majoring In Electro-Technical Officer Shipping

Tekat Sukomardojo, Politeknik Pelayaran Surabaya, East Java, Indonesia

ID 287 Curriculum and learning;

Gunawan Santoso Student from Education University Indonesian (UPI), Bandung, and Lecturer Muhammadiyah of Jakarta University (UMJ), Jakarta, Indonesia

Pay LPDP KemenKeu RI

ID 288 The Effect of Compensation and Transformational Leadership on Job Satisfaction mediated with Job Motivation

Umar Yeni Suyanto¹, Mu'ah ², Ika Purwanti ³, Muhammad Dzikri Abadi ⁴, Agung Hirmantono ⁵, and Mokhtar Sayyid ⁶

¹ Taxation Department, STIE KH. Ahmad Dahlan, Lamongan. 62218

² Management Department, STIE KH. Ahmad Dahlan Lamongan, 62218

³ Management Department, STIE KH. Ahmad Dahlan Lamongan, 62218

⁴ Management Department, STIE KH. Ahmad Dahlan Lamongan, 62218

⁵ Accountancy Department, STIE KH. Ahmad Dahlan Lamongan, 62218

⁶ Taxation Department, STIE KH. Ahmad Dahlan, Lamongan. 62218

ID 289 Distribution of Day Fish in Ternate City Water Based on Chlorophyll-a

Syahnul Sardi Titaheluw, Umar Tangke, Aisyah Bafagih, Department of Fisheries Product Technology, Faculty of Agriculture Muhammadiyah University North Maluku, Ternate City, North Maluku Province, Indonesia

Raismin Kotta, Faculty of MIPA, Muhammadiyah University North Maluku. Ternate City, North Maluku Province, Indonesia

Ruslan Iaisow, Departement of Fisheries Resources Utilization, Faculty of Marine Science and Fisheries, University of Pattimura, Ambon, Indonesia

Frentje Dusyan Silooy, Department of Fisheries Resources Utilization, Faculty of Agriculture, University of Khairun, Ternate, Indonesia

Fikri Rizky Malik Ternate Field Research Station, Center for Oceanographic Research Indonesian Institute of Sciences, Ternate City, North Maluku Province, Indonesia

Arson Batilambu Student of the Department of Fisheries Product Technology, Faculty of Agriculture. Muhammadiyah University North Maluku, Ternate City, North Maluku Province, Indonesia

ID 290 An investigative study of mentoring programs for new entry graduates employees in the South African construction industry

Morena William Nkomo and Wellington Didibhuku Thwala, Department of Construction Management and Quantity Surveying, University of Johannesburg, Johannesburg. RSA

Clinton Ohis Aigbavboa, Department of Construction Management and Quantity Surveying, University of Johannesburg, Johannesburg. RSA

ID 291 Drivers and Barriers of Supply Chain 4.0 Implementation

Stella Nwakuchi Ngwaba Adare and Shahryar Sorooshian, Department of Business Administration, University of Gothenburg, Gothenburg, Sweden

ID 292 Blockchain and the Internet of Things: A Literature Review

Ashutosh Devulkar and Mohammed Awwad, Industrial and Manufacturing Engineering Department, California Polytechnic State University, San Luis Obispo, CA 93407, USA

ID 293 Optimation the Process and Production of Polyurethane Foam from Soybean Oil

Flora Elvistia Firdaus, Department of Chemical Engineering, Jayabaya University, Jl.Pulomas Selatan Kav 23, Jakarta Timur-13210, Indonesia

Muhammad Dachyar, Department of Industrial Engineering, Universitas Indonesia, Kampus UI Depok – 16424, Indonesia

ID 295 Development and Implementation of a Semi–Automated Model to Accelerate the Rate of Kaizen in Film Packaging Industry

Matshidiso Moso, Oludolapo A. Olanrewaju and Mendon Dewa, Department of Industrial Engineering, Durban University of Technology, Durban, South Africa

ID 296 An Investigation On The Level Of Use Of Lean Principles In The Small And Medium Enterprises; The Case Of The South African Construction Industry: Literature Review

Davison Makondo and Forbes Chiromo, Department of Industrial Engineering, University of Johannesburg, Doornfontein, 2028, South Africa

ID 297 Era of Digital Technology: Analysis of factors contributing to economic growth and sustainability

Ayandah Tovhowani Ndou and Nelson Sizwe Madonsela, Department of Quality and Operations Management, University of Johannesburg, Corner Kingsway and University Road, Auckland Park, South Africa

Bhekisipho Twala, Faculty of Engineering and Built Environment, Durban University of Technology, South Africa, Greyville, Durban, RSA

ID 298 A Review on Improving Performance Through Digital Transformation: A study of Best Technologies and Key Success Factors

M. F. M. Fairoos, Department of Industrial Management, University of Kelaniya, Kelaniya 11600, Sri Lanka

W. A. M. Niranga, Lecturer, Department of Industrial Management, University of Kelaniya, Kelaniya 11600, Sri Lanka

R. Wickramarachchi, Senior lecturer, Department of Industrial Management, University of Kelaniya, Kelaniya 11600, Sri Lanka

ID 299 Analysis of Critical Determinants of Supply Chain Resilience for Perishable Foods Using Fuzzy TOPSISCRITIC method: An Overview of the Poultry Industry

Md. Galib An-Noor Amio and Naquib Mahmud Chowdhury, Department of Industrial and Production Engineering, Bangladesh University of Engineering and Technology, Dhaka-1000, Bangladesh

ID 300 Design, Modelling and Analysis of an App Controlled Smart Waiter

Md. Galib An-Noor Amio, Department of Industrial and Production Engineering, Bangladesh University of Engineering and Technology, Dhaka-1000, Bangladesh

ID 301 An Analysis of the Problems Encountered in Implementing and Maintaining Lean Six Sigma at a Manufacturing Company in Namibia

David Meke Shikulo and Forbes Chiromo, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, Johannesburg, South Africa

ID 303 A Cost Analysis of a Biomass Supply Chain for Sustainable Aviation Fuel in South Africa

Shivani Sooklal, School of Mechanical, Industrial and Aeronautical Engineering, University of the Witwatersrand, Johannesburg, South Africa

Bernadette Sunjka, School of Mechanical, Industrial and Aeronautical Engineering, University of the Witwatersrand, Johannesburg, South Africa

ID 304 Automatic Detection of Surface Defects in Fused Deposition Modeling (FDM) using Computer Vision and Deep Learning

Naquib Mahmud Chowdhury and Md. Galib An-Noor Amio, Department of Industrial and Production Engineering, Bangladesh University of Engineering and Technology, Dhaka-1000, Bangladesh

ID 305 An Investigation on The Level of Use of Lean Principles in The Small and Medium Enterprises; The Case of The South African Construction Industry: Literature Review

Davison Makondo and Forbes Chiromo, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, Johannesburg, South Africa

ID 306 Addressing Covid-19 in Higher Learning Institutions through Implementing Cryptocurrency Payments Based on Blockchain Technologies

Chimuka Moonde, Jackson Phiri, Computer Science Department, University of Zambia, Lusaka, P.O. Box 32379, Zambia

ID 307 Assessment of mentoring on retention of workers and Human Resource Management in the construction sector: A Literature review

Morena William Nkomo and Wellington Didibhuku Thwala, Department of Construction Management and Quantity Surveying, University of Johannesburg, Johannesburg. RSA

Clinton Ohis Aigbavboa, Department of Construction Management and Quantity Surveying, University of Johannesburg, Johannesburg. RSA

ID 308 Designing e-Commerce Supply Chains

Tri Pujadi, Yosafati Hulu, and Tumar, Information Systems Departments – School of Information Systems, Bina Nusantara University, Jakarta, Indonesia

Vikas Kumar, Bristol Business School, University of the West of England, Bristol, BS16 1QY, UK

Bachtiar H. Simamora, Department of Management Binus Business School, Bina Nusantara University, Jakarta, Indonesia

ID 309 The Applications of ordering materials using Time Series Forecasting with CB Predictor

Tri Pujadi, Yosafati Hulu, and Tumar, Information Systems Departments – School of Information Systems, Bina Nusantara University, Jakarta, Indonesia

ID 310 Analysis of Automotive Product Selection in Indonesia: Factors of Brand Image Using Analytical Hierarchy Process

Aditya Wardhana, Telkom University Jalan Terusan Buah Batu, Bandung 40257, Indonesia Jasrial Jasrial, Program Studi D3 Perpajakan, Fakultas Hukum, Ilmu Sosial, dan Ilmu Politik, Universitas Terbuka Jl. Pondok Cabe Raya, Tangerang Selatan

Mahir Pradana, Telkom University Jalan Terusan Buah Batu, Bandung 40257, Indonesia
Diki Wahyu Nugraha, Prodi/Jurusan D4 Teknik Informatika Politeknik Pos Indonesia Jln. Sari Asih No. 54, 40151 Bandung, Jawa Barat, Indonesia
Iqbal Firmansyah, Trisakti School of Transportation Management, Indonesia Jakarta, Indonesia
Nuslih Jamiat, Telkom University Jalan Terusan Buah Batu, Bandung 40257, Indonesia

ID 318 A Predictive Model For The Management Of Digital Marketing Within Social Media.

Lynda Salem and Mohamed Tayeb Laskri, Computer Science Department, Badji Mokhtar University, Annaba, 23000, Algeria

ID 319 Developing an Analytical Framework for Assessing the Relationship between Quality Management Practices and Organisational Performance in the Namibian Shipping Sector

Paulus Andela and Dr. Michael Sony, Department of Mechanical & Marine Engineering, Namibia University of Science & Technology, Windhoek, Namibia

ID 320 Competencies in the Digitalized Working Environment: A Concept for Engineering Education in Higher Education Institutions

Corina Pacher, Resources Innovation Center, Montanuniversitaet Leoben, Franz Josef-Strasse 18, 8700 Leoben, Austria

Manuel Woschank, Chair of Industrial Logistics, Montanuniversitaet Leoben, Erzherzog Johann-Strasse 3/1, 8700 Leoben, Austria

ID 321 Ant Colony Optimization for Solving Capacitated Vehicle Routing Problem in a Carton Manufacturing Company

Basit Mahmud Shahriar, Department of Industrial & Production Engineering, Bangladesh University of Engineering & Technology, Dhaka, Bangladesh

ID 322 The Effect of Transportation Infrastructure on Economic Development

Ejiogu, Emmanuel Okechukwu, Nelson Sizwe Madonsela & Adedotun Adetunla, Department of Quality and Operations Management

University of Johannesburg, Corner Kingsway and University Road, Auckland Park, South Africa

ID 323 Impact of the integrated management system on business strategy: Critical success and failure factors, and implementation framework

Zithobile Patrick Toyo and Nelson Sizwe Madonsela Department of Quality and Operations Management University of Johannesburg Corner Kingsway and University Road, Auckland Park, South Africa

ID 324 Sustainability Assessment in Aviation Industry: A Mini- Review on the Tools, Models and Methods of Assessment

Eman R. Elhmoud, Engineering Management Program, College of Engineering, Qatar University, Doha, Qatar

Adeeb A. Kutty, Mechanical and Industrial Engineering Department, College of Engineering, Qatar University, Doha, Qatar

ID 325 Modeling of the logistical processes of a hospital supply chain: The case of HUC of BENGUERIR

Fatima OUZAYD, Smart System Laboratory (SSLab), ENSIAS Mohamed V University Rabat, Morocco

Kawtar RETMI, Center of Biological and Medical Sciences, CIAM, Mohamed VI Polytechnic University (UM6P), 43 150 Ben-Guerir, Morocco

ID 326 Ambidexterity in Industrial Engineering Technology Education

Ngaka Mosia, Department of Mechanical and Industrial Engineering, University of South Africa, Gauteng, Johannesburg, SA

ID 327 The Dilemma of Productivity Improvement Initiatives

Ngaka Mosia, Department of Mechanical and Industrial Engineering, University of South Africa, Gauteng, Johannesburg, South Africa

ID 329 Application of big data strategies for process optimization in a Healthcare environment [A case of patient data management in Hospital]

Ngaka Mosia, Department of Mechanical Engineering and Industrial, University of South Africa, Gauteng, Johannesburg, SA

ID 330 Harnessing Engineering Talent through Application Oriented Teaching and Learning In Universities of Technology

Ngaka Mosia, Department of Mechanical and Industrial Engineering, University of South Africa, Gauteng, Johannesburg, SA

ID 331 Incorporation and Design of a New Facility in a Country-wide Logistics Network

Oscar E. Ricaño, Héctor A. Lozano, José C. Moreno, and Jenny Díaz-Ramírez, Universidad de Monterrey, San Pedro Garza García, Nuevo León, 66238, Mexico

ID 332 Accessing Production Machine Technology Flexibility Potential

Ngaka Mosia, Department of Mechanical and Industrial Engineering, University of South Africa, Gauteng, Johannesburg, SA

ID 333 Analyzing Human Errors Responsible for a Pressure Vessel Failure

Mfundo Nkosi, University of Johannesburg, Johannesburg, Gauteng, South Africa

ID 334 Agent-Based Modeling for Internet of Things (IoT) Application in a Retail Pharmacy Industry

Mohammed Basingab, Usamah Balamesh, Rayan Bafaqih, Osama Alamoudi, Abdulbari Hesiki, and Abdulrhman Alghefari, Industrial Engineering Department, King Abdulaziz University, Jeddah, 22252, Saudi Arabia

ID 335 Potential Role of Sugar Mills in the Peruvian Development

Maximiliano Arroyo Ulloa, Industrial Engineering Department, Santo Toribio of Mogrovejo Catholic University, Chiclayo, Peru
Maira Arroyo Lujan, Management Department, Decorlux SAC Enterprises, Lima, Peru
Javier Beltran Reyes, Business Intelligence Department, Comercio Group, Lima, Peru

ID 336 Strategic Integrated Transport for growth and development strategy in South Africa: A case of Rea Vaya BRT

Mamogege Desiree Sekgale and Nelson Sizwe Madonsela, Department of Quality and Operations Management, University of Johannesburg, Corner Kingsway and University Road, Auckland Park, South Africa

ID 337 Selection Criteria for a Tobacco Curing Solar Thermal Collector Energy System in Zimbabwe

Nelson Shati, Ignatio Madanhire and Tawanda Mushiri, Department of Mechanical Engineering, University of Zimbabwe, Mount Pleasant, Harare, Zimbabwe

Emmanuel Mashonjowa, Department of Physics, University of Zimbabwe, P. O. Box MP167, Mount Pleasant, Harare, Zimbabwe

ID 344 Communication Model in Blended Learning Using Telegram Applications

Kawakibul Qamar and Erik Teguh Prakoso, University of Kanjuruhan, Malang, Indonesia
Veronika Nugraheni Sri Lestari, University of Dr. Soetomo, Surabaya, Indonesia
Ifit Novita Sari, University of Islam Malang, Indonesia

ID 345 Start Up E-Business 'COFFEE FOR SALE' Mobile Base Application

Tri Pujadi, Faisal Fahmi, and Surianto, Information Systems Departments – School of Information Systems, Bina Nusantara University, Jakarta, Indonesia

ID 346 Development of Green Maintenance Strategy of Coal-Fired Power Plants in the Philippines

Marvin I. Noroña, School of Industrial Engineering and Engineering Management, Mapua University, Manila, Intramuros, Manila 1002, Philippines.

A.J.D. Alamag – Rosales, School of Industrial Engineering-Engineering Management (EI-EMG), Mapua University, 658 Muralla St., Intramuros, Manila 1002, Philippines

ID 347 Evolution of Strategic Indian Defence

PARUL MEHTA, India

ID 348 E-procurement Application for a Distributor Company

Tri Pujadi, Yosafati Hulu, and Tumar, Information Systems Departments – School of Information Systems, Bina Nusantara University, Jakarta, Indonesia

ID 349 Integration and Analysis of Heat Exchangers and Refrigeration Units for Outdoor Drinking Water through Industrial Secondment at Pretoria Portland Cement

Roy N Mushonga, Tinotenda F Madoro, Loice Gudukeya, Tauyanashe Chikuku, Hilton Chingosho Department of Mechanical Engineering University Of Zimbabwe P.O. box 167 Mount Pleasant, Harare

ID 351 A situational Analysis of Transport Usage in Zambia: A Modal Perspective of Railway Freight Services from 1960's to 2018

Chikusela Sikazwe, Graduate School of Business, University of Zambia, Lusaka, Zambia

Erastus Mishengu Mwanaumo, Department of Civil and Environmental Engineering, School of Engineering, University of Zambia, Great East Road, Lusaka, Zambia

Mwewa Mambwe, Department of Construction Management and Quantity Surveying, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa

Richard Kasongo Mwale, Graduate School of Business, University of Zambia, Lusaka, Zambia

ID 352 An Investigation of Factors Causing Schedule Overrun in Telecommunication Projects in Zambia

Mwewa Mambwe, Department of Construction Management and Quantity Surveying, Faculty of Engineering and the Built Environment, University of Johannesburg, Johannesburg, South Africa

Erastus Mishengu Mwanaumo, Department of Civil and Environmental Engineering, School of Engineering, University of Zambia, Lusaka, Zambia

Bupe Getrude Mwanza, Graduate School of Business, University of Zambia, Great East Road, Lusaka, Zambia

Epheso Sibalwa, Nokia Zambia Limited, Lusaka Zambia

ID 353 Effectiveness in the Contract Management Performance within the Lusaka Provincial Administration – A Balanced Scorecard Application

Erastus Mishengu Mwanaumo, Department of Civil and Environmental Engineering, School of Engineering, University of Zambia, Great East Road, Lusaka, Zambia

Mwewa Mambwe, Department of Construction Management and Quantity Surveying, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa

Micheal Kalumbu Nsefu, Zambia Weights and Measures Agency, Lusaka, Zambia

Jacqueline Daka, University of Lusaka, Lusaka, Zambia

Bupe Getrude Mwanza, Graduate School of Business, University of Zambia, Great East Road, Lusaka, Zambia

ID 354 Risk Analysis and Management in Public Private Partnerships of Urban Markets in Lusaka, Zambia

Erastus Mishengu Mwanaumo, Department of Civil and Environmental Engineering, School of Engineering, University of Zambia, Lusaka, Zambia

Mwewa Mambwe, Department of Construction Management and Quantity Surveying, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa

Micheal Kalumbu Nsefu, Zambia Weights and Measures Agency, Lusaka, Zambia

Muntanga Mfula Lindunda, University of Lusaka, Lusaka, Zambia

ID 355 Impact of Stakeholder Engagement on Performance of Construction Projects in Lusaka District

Micheal Kalumbu Nsefu, Zambia Weights and Measures Agency, Lusaka, Zambia

Mwewa Mambwe, Department of Construction Management and Quantity Surveying, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa

Erastus Mishengu Mwanaumo, Department of Civil and Environmental Engineering, School of Engineering, University of Zambia, Lusaka, Zambia

Nicholas Sakala, University of Lusaka, Lusaka, Zambia

ID 356 Disposal of Used Fumigant Containers in Zambia

Ziwa Tisah, Department of Civil and Environmental Engineering, School of Engineering, University of Zambia, Great East Road, Lusaka, Zambia

Erastus Mishengu Mwanaumo, Department of Civil and Environmental Engineering, School of Engineering, University of Zambia, Great East Road, Lusaka, Zambia

James Nyirenda, Department of Chemistry, School of Natural Sciences, University of Zambia, Lusaka, Zambia

Bupe Getrude Mwanza, Graduate School of Business, University of Zambia, Great East Road, Lusaka, Zambia

ID 357 A Stochastic Programming Model for Production Planning and Sequencing of multi-grade petrochemicals

Ahmed M. Ghaithan, King Fahd University of Petroleum & Minerals, Construction Engineering and Management Department, Dhahran 31261, Saudi Arabia

ID 358 Minimizing Shopping Mall Business Functions' Costs for Profit Maximization using Mathematical Programing Model

1, 2 Michael C. Agarana

1 Department of Mathematics, Covenant University, Ota, Nigeria

2 Department of Quality and Operations Management, University of Johannesburg, Johannesburg, South Africa

Lawrence C. Obi, Department of Mathematics, Covenant University, Ota, Nigeria

Chioma O. Agubo, Department of Political Science and International Relations, Covenant University, Ota, Nigeria

Tolulope O. Oladimeji, Department of Computer Science and Information System, Covenant University, Ota, Nigeria

ID 359 Mathematical Programming Modeling and Analysis of Covenant University Supermarkets System for Profit Optimization

Michael C. Agarana, Department of Mathematics, Covenant University, Ota, Nigeria and Department of Quality and Operations Management, University of Johannesburg, Johannesburg, South Africa

Ezinne C. Erondy, Department of Industrial and applied mathematics, Université Grenoble Alpes

Lawrence C. Obi, Department of Mathematics, Covenant University, Ota, Nigeria

Onajiyoma C. Agubo, Department of Political Science and International Relations, Covenant University, Ota, Nigeria

Tolulope O. Oladimeji, Department of Computer Science and Information System, Covenant University, Ota, Nigeria

ID 360 Designing Innovative Stove for Traveler: A Green Product Approach

Zakka Ugih Rizqi, Adinda Khairunisa, Dwi Anggarini, and Ali Parkhan, Department of Industrial Engineering, Universitas Islam Indonesia, Yogyakarta, Indonesia

ID 361 On Suitable Solid Waste Characterization Method for Nigerian University Campuses

Collins O. Ugwu, Department of Mechanical Engineering, University of Nigeria, Nsukka

Paul A. Ozor, Department of Mechanical Engineering, University of Nigeria, Nsukka and Department of Quality and Operations Management University of Johannesburg, South Africa

ID 362 A Cross Sectional Pilot Study on Quality Management System in the Small and Medium Enterprise (SME) In South Africa

A.Y Magodi, I. A. Daniyan and K. Mpofu, Department of Industrial Engineering, Tshwane University of Technology, South Africa

ID 365 FEA of a Lab-Scale IC Engine Connecting Rod

Daramy Vandi Von Kallon, Department of Mechanical Engineering Technology, University of Johannesburg, Johannesburg, South Africa

Bai Kamara, Department of Mechanical Engineering Technology, University of Johannesburg, Johannesburg, South Africa

ID 366 Simulating and Optimizing the Stress Distribution on a Centrifugal Pump Shaft due to Varying Backpressure Intensity

P. B. Sob, Department of Mechanical Engineering, Faculty of Engineering and Technology, Vaal University of Technology, Vanderbijlpark 1900, Private Bag X021, South Africa

M. Pita, Department of Mechanical Engineering, Faculty of Engineering and Technology, University of South Africa

ID 367 User Identity Preservation and Data Protection in the Internet of Things

Tambudzai Perpetua Chimeura, National Social Security Authority of Zimbabwe, Zimbabwe

Mohammed Kaosar, Murdoch University, Australia

ID 368 Designing and Simulation a Centrifugal Pump Shaft with Enhanced Mechanical Properties During Backpressure

P. B. Sob, Department of Mechanical Engineering, Faculty of Engineering and Technology, Vaal University of Technology, Vanderbijlpark 1900, Private Bag X021, South Africa

M. Pita, Department of Mechanical Engineering, Faculty of Engineering and Technology, University of South Africa

ID 369 Human Factors Concern in Multicultural Classroom Dynamics

ID 370 Deriving Value From Waste: Cupola Furnace Slag As A Solid Lubricant In Drilling Processes

Loice Gudukeya, and Charles Mbohwa, Faculty of Engineering and the Built Environment, University of Zimbabwe, Harare, Zimbabwe and Faculty of Engineering and the Built Environment, University of Johannesburg, Johannesburg, South Africa

Roy Mushonga, and Ignatio Madanhire, Faculty of Engineering and the Built Environment, University of Zimbabwe, Harare, Zimbabwe

ID 371 Social Sciences, Services and Industrialisation in Zimbabwe: Shaping the Debate and Practice

Innocent Chirisa, Dean of the Faculty of Social and Behavioural Sciences, Department of Demography, Settlement and Development, Department of Architecture and Real Estate, University of Zimbabwe, Harare, Zimbabwe

Patience Mazanhi, Department of Demography, Settlement and Development, Department of Architecture and Real Estate, University of Zimbabwe, Harare, Zimbabwe

ID 372 Investigating the Role of Industrial Engineering in Process Improvement in the Banking Industry: A Case Study of Bank Y

Babedi Kufigwa 1, Norman Gwangwava2, and 3 Bathusi Makopo

1,2 Department of Mechanical, Energy and Industrial Engineering, Botswana International University of Science and Technology, Palapye, Botswana

3 Business Process Analyst, First National Bank of Botswana, First Place,(CBD), Gaborone, Botswana

ID 373 Impact of procurement practices on organizational performance on Small to Medium Enterprises: Case Study

Ignatio Madanhire, Kumbi Mugwindiri and Nyasha Mudefi, Department of Mechanical Engineering, University of Zimbabwe, P O Box MP167, Mount Pleasant, Zimbabwe

ID 374 Implementation of Predictive Maintenance in a Thermal Power Plant: Case of Thermal Power Plant

Ignatio Madanhire, Kumbi Mugwindiri and Zorodzai Tota, University of Zimbabwe, Department of Mechanical Engineering, P.O Box MP167, Mt Pleasant, Harare, Zimbabwe

ID 382 The Design Of Spray Nozzle For Washing Aggregates In Mining Industry

T.J Muhanelwa, P. B. Sob and A. A. Alugongo, Department of Mechanical Engineering, Faculty of Engineering and Technology, Vaal University of Technology, Vanderbijlpark 1900, Private Bag X021, South Africa

T. B. Tengen, Department of Industrial Engineering and Operations Management, Faculty of Engineering and Technology, Vaal University of Technology, Vanderbijlpark 1900, Private Bag X021, South Africa,

ID 383 Design of a real time performance monitoring and evaluation system of students during lectures

Gamuchirai Mutubuki and Clayton Kamengo, Department of Industrial and Manufacturing Engineering, National University of Science and Technology, Bulawayo, Zimbabwe

ID 384 Opportunities for Energy Savings Based on Behavioural Patterns of Residents in Freetown Sierra Leone

B. Kamara, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, South Africa

S. Kamara, Department of Mechanical Engineering, Fourah Bay College, University of Sierra Leone, Sierra Leone

J.A.S. Redwood-Sawyer, Department of Electrical Engineering, Fourah Bay College, University of Sierra Leone, Sierra Leone

D.V.V Kallon, Department of Mechanical and Industrial Engineering Technology, University of Johannesburg, South Africa

ID 385 Potential, Future Prospects and Challenges associated with the Implementation of Photovoltaic Based Solar Energy Systems in Zimbabwe

Takawira Cuthbert Njenda, Munyaradzi Munochiveyi, Todd Marufu and Jennifer Ruvimbo Chiroodza Electrical Engineering Department University of Zimbabwe Harare, Zimbabwe

ID 386 The Effect of Emotional Intelligence Toward Decision-Making at Family Planning Officer

Ida Nurnida, Mahendra Fakhri, Benny Kurnia, Alex Winarno, and Rahmi Aulia, School of Communication and Business, Telkom University, Bandung, West Java, Indonesia

ID 387 Energy productions using combined cycle gas and vapor at Maputo Thermal Power Plant

Miguel Meque Uamusse, and Alberto Júlio Tsamba, Faculdade de Engenharia, Universidade Eduardo Mondlane, P.O.Box 257, Av de Mocambique, km 1.5, Maputo, Mozambique

ID 389 Optimising the Velocity and Discharge Produced by a Spray Nozzle for Efficient Washing of Aggregates in a Mining Industry

p. B. Sob, Department of Mechanical Engineering, Faculty of Engineering and Technology, Vaal University of Technology, Vanderbijlpark 1900, Private Bag X021, South Africa

ID 390 Application of Machine Learning techniques to study readmission of patients with cardio vascular diseases

Venkat Lellapalli, Mississippi State University, USA

ID 391 The Differences in Spatial Memory between 2D and 3D Maze Environments

Siddhant Karmali, Stanford Online High School, Redwood City, CA 94063, USA

ID 392 Design an Innovative Poker AKQJ Game and Study Players' Psychological Characters

Mason Chen, Saloni Patel, Arhan Surapaneni, Siddhant Karmali, Stanford OHS, Academy Hall Floor 2 8853 415 Broadway, Redwood City, CA 94063, USA

ID 393 Developing a Lean Value Chain for Botswana's Grain Milling Industry – A Case Study Of a Wheat Milling Company

Leaname Thaolang, Trainee Miller – Operations Department, Bolux Group (Pty) Ltd, Ramotswa Station, Botswana

Norman Gwangwava, Mechanical and Industrial Engineering Department, Botswana International University of Science and Technology, Palapye, Botswana

ID 394 Security and Privacy Preserving in Precision Agriculture

Munyaradzi Magomelo, Bindura University of Science Education, Zimbabwe

Mohammed Kaosar, Murdoch University, Australia

ID 395 Improving the efficiency and stability of centrifugal pump filtration system using membrane system

T.S. Lekalakala 1, P. B. Sob 2, A. A. Alugongo 3 and T. B. Tengen 4

1,2,3 Department of Mechanical Engineering, Faculty of Engineering and Technology, Vaal University of Technology, Vanderbijlpark 1900, Private Bag X021, South Africa

4 Department of Industrial Engineering and Operations Management, Faculty of Engineering and Technology, Vaal University of Technology, Vanderbijlpark 1900, Private Bag X021, South Africa

ID 396 Impact of Accounting Methods on Supply Chain Contracts: Analysis Based on E-tailer Supply Chain Costs

Sahani Rathnasiri, and Sardar Islam, Sustainable Industries and Livable Cities, Victoria University, Melbourne, Australia

Pritee Ray, Department of Operations Management, Indian Institute of Management Ranchi, Jharkhand, India

ID 397 Recent advances in sustainable machining technologies

Ali Bastas, Mechanical Engineering Program, Middle East Technical University – Northern Cyprus Campus, Guzelyurt via Mersin 10, Turkey

ID 398 Feasibility and Optimization of Plastic Waste Energy Recovery Process as a Plastic Waste Management Tool in Zimbabwe

Tafadzwa Shumba and Samson Mhlanga, Department of Industrial and Manufacturing Engineering, National University of Science and Technology, Bulawayo, Zimbabwe

Mufaro Moyo, Department of Fibre and Polymer Materials Engineering, National University of Science and Technology, Bulawayo, Zimbabwe

ID 399 The Influence of Democratic Leadership Style on Clan Organizational Culture in Family Companies

Mahendra Fakhri, Ida Nurnida, Alex Winarno, Anita Silvianita, Benny Kurnia, Syarifa Hanum

School of Communication and Business Telkom University Bandung West Java Indonesia

ID 400 A Case Study of Service Firm to Optimize the Cycle Time – Advanced Lean Techniques to Design Plant Layout

Tarani Kanth Kamma, Assistant Professor, Department of Mechanical Engineering, Vignan Institute of information Technology, Duvvada, Visakhapatnam, India

Dr. N V S Shankar, Associate Professor, Department of Mechanical Engineering Vignan Institute of information Technology, Duvvada, Visakhapatnam, India

Dr. Sarojini Jajimogala, Associate Professor, Department of Mechanical Engineering GITAM, Rushikonda, Visakhapatnam, India

Ch. Siva Rama Krishna, Associate Professor, Department of Mechanical Engineering Vignan Institute of information Technology, Duvvada, Visakhapatnam–17

Dr. Shabana Assistant Professor, Department of Mechanical Engineering GITAM, Rushikonda, Visakhapatnam–45

ID 401 Bioenergy Efficiency Evaluation for Sustainable Optimization in Sub-Saharan Africa

Katundu Imasiku, Africa Centre of Excellence in Energy for Sustainable Development, College of Sciences and Technology, University of Rwanda,

Nyarugenge, 1109, Kigali, Rwanda

Valerie M. Thomas, School of Industrial and Systems Engineering, Georgia Institute of Technology, 755 Ferst Drive NW, Atlanta, GA 30332-0205, USA and School of Public Policy, Georgia Institute of Technology, 685 Cherry Street, Atlanta, GA 30332-0345, USA

ID 402 Towards Decentralised Water Access, A Primer Solar PWS Design Solution to Aid The COVID-19 Fight.

Hilton Chingosho, Roy N Mushonga, Tauyanashe Chikuku, Wilson R Nyemba, Loice Gudukeya

Department of Mechanical Engineering

University of Zimbabwe

Harare, P.O Box MT 167 Mount Pleasant, Zimbabwe

ID 409 Analysis of Elastic-Plastic Buckling of a Thin Rectangular Plate, Considering Nonlinear Strain Terms

Roy N Mushonga, Faculty of Engineering, Isfahan University of Technology, Iran and Faculty of Engineering, University of Zimbabwe, Harare, Zimbabwe

Mehdi Salmani-Tehrani, Faculty of Engineering, Isfahan University of Technology, Iran

Luxmore Madiye Faculty of Engineering, University of Zimbabwe, Harare, Zimbabwe

Loice Gudukeya, Faculty of Engineering, University of Zimbabwe, Harare, Zimbabwe and Faculty of Engineering and the Built Environment, University of Johannesburg, Johannesburg, South Africa

ID 410 Green Manufacturing for Waste Reduction in the Food Industry

Gamuchirai Mutubuki, Department of Industrial and Manufacturing Engineering, National University of Science and Technology, Bulawayo, Zimbabwe

Gibson P Chirinda, Department of Industrial and Manufacturing Engineering, National University of Science and Technology, Bulawayo, Zimbabwe

ID 411 Design of a system that can harvest essential oils from plants for pharmaceutical uses

Kudakwashe Kusena and Tawanda Mushiri, Industrial and Mechatronics Engineering Department, Faculty of Engineering and the Built Environment,

University of Zimbabwe, 630 Churchill Avenue, Harare, Zimbabwe

Lameck S. Chagonda, Pharmacy Department, Faculty of Medicine and Health Sciences, University of Zimbabwe, Harare, Zimbabwe

ID 412 Developing a Maturity Model and an Implementation Plan for Industry 4.0 Integration

Samantha Melnik, Michael Magnotti, Cameron Butts, Carol Putman, and Faisal Aqlan, Pennsylvania State University, The Behrend College, Erie, PA 16563, USA

ID 414 Potential pre-treatment and processing routes for recovery of gold from complex (refractory) gold ores. A review

Nancy.R. Mabwe, Department of Mining, Chemical and Metallurgical Engineering, University of Zimbabwe, Mt Pleasant, Harare, Zimbabwe

ID 415 Predicting Congenital Heart Diseases Using Machine Learning

John Tinashe Meda and Tawanda Mushiri, Department of Industrial and Mechatronics Engineering, Faculty of Engineering and the Built Environment, University of Zimbabwe, Harare, Mt Pleasant, 630 Churchill Avenue, Zimbabwe

ID 416 Design of a first aid robotic end effector for passenger car occupants

Caiphaz Svovse and Tawanda Mushiri, Department of Industrial and Mechatronics Engineering, Faculty of Engineering and the Built Environment,

University of Zimbabwe, Harare, Mt Pleasant, 630 Churchill Avenue, Zimbabwe

ID 418 A Modified Firefly Algorithm for Global Optimization of Collaborative Supply Chain Networks under Stochastic Demand

Abdulhadi Altherwi, Department of Industrial Engineering, Jazan University, Jazan, Saudi Arabia and Department of Industrial & Systems Engineering, Oakland University, Rochester, MI 48309, USA

Daw Alwerfalli, A Leon Linton Department of Mechanical, Robotics and Industrial Engineering, Lawrence Technological University, Southfield, MI 48075, USA

ID 419 Aluminium and Mercury Preservatives Accumulated In the Brain from Vaccines

Kelsey Catania and Carrieann Towne, Department of Biomedical Engineering, Lawrence Technological University, Southfield, MI 48075, USA

George Pappas, Ph.D. and Michael McGrath, OD, Electrical and Computer Engineering Department, Lawrence Technological University, Southfield, MI 48075, USA

ID 420 The Assessment and Characterization of Critical Thinking Skills of Upper Division Technology Students Using the Critical Thinking Assessment Test (CAT)

Matthew Harvey, Department of Agricultural and Biosystems Engineering, Iowa State University, Ames, IA 50011, USA

ID 422 Broadcasting Beyond: Making the Next Generation in Communication

Aaron Lindlbauer, Department of Electrical, Computer Engineering and Embedded Software Engineering, Lawrence Technological University, Southfield, MI 48075, USA

George Pappas, Ph.D. & David Newman, Department of Electrical, Computer Engineering and Embedded Software Engineering, Lawrence Technological University, Southfield, MI 48075, USA

ID 423 The Relationship between Risk Management and Safety, Health, Environment and Quality Policy Implementation Among Zambian Contractors

Bupe Mwanza, University of Zambia and University of Johannesburg, Gauteng, South Africa

ID 425 A Regression Model Upon Treatment of AMD Using Pervious Concrete.

A. L. Mafanya, Department of Industrial and Mechanical Engineering, University of Johannesburg, South Africa

B.D.V.V. Kallon, Department of Industrial Engineering, University of Johannesburg, South Africa

ID 427 Determination of Agricultural Insurance Premium Prices Based on Rainfall Index with Formula Cash-or-Nothing Put Option

Agung Prabowo, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Jenderal Soedirman, Indonesia

Zahrahtul Amani Zakaria, Faculty of Informatics and Computing, Universiti Sultan Zainal Abidin (UNISZA), Kampus Tembila, Malaysia

Mustafa Mamat, Faculty of Informatics and Computing, Universiti Sultan Zainal Abidin (UNISZA), Gong Badak Campus, Terengganu, Malaysia

Sukono, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia

Slamet Riyadi, Department of English Education, Faculty of Cultural Sciences, Universitas Jenderal Soedirman, Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 428 Sentiment Analysis of User Preferences on Learning Management System (LMS) Platform Data

Boldson Herdianto Situmorang, and Andi Chairunnas, Department of Computer Science, Faculty of Mathematics and Natural Sciences, Universitas Pakuan, Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 429 Improving the Management Quality of Research and Community Service Institute using SIMPEMAS

Deden Ardiansyah, Departement of Computer Technologies, Vocational School, Universitas Pakuan, Indonesia

Prihastuti Harsani, Department of Computer Science, Faculty of Mathematics and Natural Sciences, Universitas Pakuan, Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 430 Student Attendance Monitoring and Evaluation System Using Radio Frequency Identification

Dian Kartika Utami, Department of Information System, Pakuan University, Indonesia

Akbar Sugih Miftahul Huda, Department of Computer Technologies, Pakuan University, Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 431 Customer Cluster Model to Determine Business Opportunity by Hierarchycal Method

Eneng Tita Tosida, Cani Nur Rahmawati, and Mulyati, Department of Computer Science, Faculty of Mathematics and Natural Sciences, Universitas Pakuan, Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 432 BPJS Health Insurance Program: SME's Perspective

Fredi Andria, and Ulfa Sri Rahayu, Department of Management, Faculty of Economics Pakuan University, Bogor Indonesia

R. Muhammad Mahradi, Department of Law, Faculty of Law Pakuan University, Bogor Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 433 Optimization JKN Mobile for Informal Sector of BPJS Health Insurance Membership Growth

Fredi Andria, Meli Deranti, and Lisa Mila Sari, Department of Management, Faculty of Economics Pakuan University, Bogor Indonesia

R. Muhammad Mahradi Department of Law, Faculty of Law Pakuan University, Bogor Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia

ID 434 Reserve of Life Insurance Prospective Dwiguna Joint Life and Last Survivor With Gompertz Law

Hasriati, Tumpal Parulian Nababan, and Ihda Hasbiyati, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Riau, Indonesia

Sukono, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia.

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 435 Mitigation Efforts and Natural Disaster Insurance Schemes in Indonesia

Kalfin, Doctor Program of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia

Sukono, Sudradjat Supian, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia

Mustafa Mamat, Faculty of Informatics and Computing, Universiti Sultan Zainal Abidin, Kuala Terengganu, Malaysia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 436 E-Commerce Adoption Level in SMEs since Pandemic Covid-19 Case in Bogor, Indonesia

Kiki Oktora, Syafani Putri Lolita, Department of Management, Faculty of Economics Universitas Pakuan, Bogor Indonesia

Verni Yuliaty Ismail, and Muhammad Refki Novesar, Department of Management, Faculty of Economics Universitas Yarsi, Jakarta Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia

ID 437 Usability testing on the Drug e-Dictionary using the Think-Aloud Retrospective Method and USE Questionnaire

Halimah Tus Sadiyah and Ema Kurnia, Information System Department, Universitas Pakuan, Bogor, 16143, West Java, Indonesia

Eneng Tita Tosida, Computer Science Department, Universitas Pakuan, Jl. Pakuan, PO Box 452, Bogor, 16143, West Java, Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 438 Usability testing on the Drug e-Dictionary using the Think-Aloud Retrospective Method and USE Questionnaire

Halimah Tus Sadiyah, University of Pakuan, Bogor, Jawab Barat, Indonesia

ID 439 Determination of Earthquake Insurance Premiums Using the Bayesian Method

Sukono, Agus Supriatna, Rizky Akbar Hidayat, and Riaman, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia

Kalfin, Doctor Program of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia

Faiza Renaldi, Department of Informatics Engineering, Faculty of Science and Informatics, Universitas Jenderal Achmad Yani, Cimahi, West Java, Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 440 Inventory Simulation Modelling for Local Shoes Manufacturer

Yudhia Mulya, Department of Economics and Business, Universitas Pakuan, Indonesia

Sufiatul Maryana, Vocational School, Universitas Pakuan, Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 441 Identification of Factors Affecting the Mathematics Learning Difficulties of Students in Bandung Using a Linear Regression Model

Rahmi Wiganda Elastika, Master Study Program of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia

Sukono, Stanley Pandu Dewanto, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, INDONESIA

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 442 Estimated Value at Risk in Stock Investments in An Insurance Company using the Extreme Value Theory Method

Riaman, Sudradjat Supian, and Sukono, Department of Mathematics Faculty of Mathematics and Natural Sciences, Padjadjaran University, Jatinangor 40363, Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 443 Adomian Decomposition Method and the New Integral Transform

Ira Sumiati, Master Program of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia

Sukono, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 444 Analysis of the Factors Affecting the Money Supply in Indonesia Using the Multiple Linear Regression Model

Trisha Magdalena Adelheid Januaviani, Master Program of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia

Sukono, Eman Lesmana, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia.

Kalfin, Doctoral Program of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia.

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 445 On Line One Stop Government and Open Government from Citizens Perspective (Case: Bogor City and District, West Java, Indonesia)

Eneng Tita Tosida, and Fajar Delli Wihartiko, Department of Computer Science, Faculty of Mathematics and Natural Sciences, Universitas Pakuan, Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 447 Covid-19 Time Series Data Quality Analysis (Case study at COVID-19 Data Repository by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University)

Yuyun Hidayat, Dhika Surya Pangestu, and Titi Purwandari, Department of Statistics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia

Sukono, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia.

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 448 The Graphically Analysis of the Power of Hypothesis Parameters on Discrete (Binomial) and Continuous (Gamma) Distributions

B. Pratikno, A. Kurniasih, Mashuri and N. Azizah, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Jenderal Soedirman, Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 449 The Implementation of Tangent Control Chart for Identification of Countries that have Positive Covid-19 Cases Data Trend Similar to Indonesia

Yuyun Hidayat, Farhan Utama, and Titi Purwandari, Department of Statistics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia

Sukono, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia.

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 450 The Characteristics of Alpha Cut on Fuzzy Graphs and Its Application in Scheduling System

Triyani, S. N. Nurshiami and N. Larasati, Department of Mathematics, Faculty of Mathematics and Natural Science, Jenderal Soedirman University, Central Java, Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 451 Application of Statistical Process Monitoring and Control (SPC) for Quality Control of Front Axle Component in Truck Vehicle

Yuyun Hidayat, Neneng Sunengsih, Lusiana Leonita, and Titi Purwandari, Department of Statistics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia

Sukono, Department of Mathematics, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Indonesia.

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 452 Identity Based Cryptography: A Technical Review

Mohammed A. Khasawneh, Concordia Institute for Information Systems Engineering, Concordia University, Canada, Montreal
Ammar Abdallah Software and IT Engineering, École de Technologie Supérieure University of Québec Canada Montréal

ID 453 Simulation of an extraction system using an Internet of Things (IoT) device for automatic control and alarm management for a Hospital Airborne Infectious Hospital Isolation Rooms (AIIR)

L.A. Roy, F.K Tekweme, Department of Mechanical Engineering, University of Johannesburg, Johannesburg, South Africa

ID 454 Increasing Customer Satisfaction Index Through Integrated Restaurant Operational Systems

Faiza Renaldi, Devi Fajar Wati, and Agya Java Maulidin, Department of Informatics, Universitas Jenderal Achmad Yani, Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 455 Cloud-Based Online Ordering Platform to Reduce the Number of Queues at Local Restaurants

Faiza Renaldi, Christine Chlyw Nova, and Agya Java Maulidin, Department of Informatics, Universitas Jenderal Achmad Yani, Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 456 Increasing Online Sales through Integration of Dropship System and Social Media Platform

Faiza Renaldi, Rival Muhamad Saepuloh, and Agya Java Maulidin, Department of Informatics, Universitas Jenderal Achmad Yani, Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 457 The Use of Search Engine Optimization on Local T-Shirt eCommerce Site: A Mini Longitudinal Study

Faiza Renaldi, Angga Fantiya Hermawan, and Agya Java Maulidin, Department of Informatics, Universitas Jenderal Achmad Yani, Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 458 Integrating Travel Booking Management System Services Using Rest-API

Faiza Renaldi, Hary Suryanto, Agya Java Maulidin, and Irma Santikarama, Department of Informatics, Universitas Jenderal Achmad Yani, Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 459 Internet Presence Monitoring: Application of Heuristic Genetic Algorithm to Increase Efficiency in Work Allocation

Tricy B. Aquino, Juan Florencio C. Ferrer and Rex Aurelius C. Robielos, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines

ID 460 Internal Audit Resource Allocation Model Using Linear Programming

Frederick M. Baldo and Rex Aurelius C. Robielos, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines

ID 461 Buying Condominium Properties Made Easy using Analytic Hierarchy Process (AHP) Approach through Expert Choice

Juan Enrique C. Banal and Rex Aurelius C. Robielos, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines

ID 462 Revenue Maximization and Manpower Allocation of Internet Service Provider using Linear Programming

Eloizza T. Caldamo, Kristel Joy A. Bergantiños and Rex Aurelius C. Robielos, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines

ID 463 Utilization of Analytic Hierarchy Process (AHP) with Linear Regression for Determining Category to Maximize Potential Revenue through View Count

Kevin Joseph de Guzman and Rex Aurelius C. Robielos, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines

ID 464 Optimization of the Allocation of Production Specialist Working in a Semiconductor Company under the Compressed Skeletal Workforce Schedule Using Linear Programming

Katrina Laurain Gaspar and Rex Aurelius C. Robielos, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines

ID 465 Life Insurance Policy/Products Selection Using Analytical Hierarchy Process (AHP)

Chris Ren S. Pimentel, John Louis I. Encinas and Rex Aurelius C. Robielos, School of Industrial Engineering and Engineering Management

Mapua University, Intramuros, Manila, Philippines

ID 466 Sales Maximization through Service Tier Introduction Utilizing LP Model and AHP-based After Sales Pursuit Strategy Selection

Pebbles Quimpo, Patrick Santos, Marien Tagaban and Rex Aurelius C. Robielos, School of Industrial Engineering and Engineering Management

Mapua University, Intramuros, Manila, Philippines

ID 467 Prediction of Credit Card Status Changes using Markov Analysis

Reynald M. Rodriguez and Rex Aurelius C. Robielos, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines

ID 468 Determining Priority Export Sectors for the Philippines using Analytic Hierarchy Process (AHP)

Ronnel B. Ruanes and Rex Aurelius C. Robielos, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines

ID 469 The Moderating Effect Of Firm Characteristics On The Relationship Between Financial Sustainability And Access To Finance Among SMEs In Malaysia

Sonia Lohana and Umi Kartini Rashid, Universiti Tun Hussein Onn Malaysia, Parit Raja, 86400, Malaysia

ID 483 Naïve Bayes Classifier for Predicting Success Factors of Engineering Education: Belgian Example

Saeka Rahman, Department of Computer Science and Engineering, International Standard University, Dhaka, Bangladesh

ID 485 Analysis of the Performance of Gubeng Train Station Facilities According to Public Perceptions

Dwi Sulastri, Sri Wiwoho Mudjanarko, Atik Wahyuni and Rizal Bahaswan, Department of Civil Engineering, Narotama University, Surabaya, Indonesia

Joewono Prasetijo, Department of Jabatan Teknologi Kejuruteraan Pengangkutan, Universiti Tun Hussein Onn Malaysia, Pagoh, 84600, MALAYSIA

ID 486 Pedestrian Performance Model Analysis in the city of Surabaya

Sri Wiwoho Mudjanarko, Florianus Rooslan Edy Santosa and Rizal Bahaswan, Department of Civil Engineering, Narotama University, Surabaya, 60117, INDONESIA

Andrias Eko Adi Sutrisno, Department of Civil Engineering, Narotama University, Surabaya, 60117, INDONESIA

Mega Maharani Lestari, Department of Product Design, Institut Teknologi Sepuluh Nopember, Surabaya, 60117, INDONESIA

Firdaus Pratama Wiwoho, Department of Civil Engineering, Institut Teknologi Sepuluh Nopember, Surabaya, 60117, INDONESIA

ID 487 An Evaluation of Cyber Crime and Cyber Security Bill of Zimbabwe

Farai Francisco Madyira, Ramson Munyaradzi Nyamukondiwa and Cuthbert Tendaupenyu, University of Zimbabwe School of Technology, University of Zimbabwe, Harare, Zimbabwe

ID 488 Effectiveness of Card Banking Security in the Ethiopian Financial Sector: a Gap Analysis

Daniel Gebrehawariat, IT Infrastructure and System Department, Bunna International Bank, Addis Ababa, Ethiopia

Lemma Lessa, School of Information Science, Addis Ababa University, Addis Ababa, Ethiopia

ID 489 Design and Development of Sound Absorbing Panels using Biomass Materials

Peter Gabriel C. Buot, Rayson M. Cueto, Andrei A. Esguerra, Ron Irwin C. Pascua and Engr. Sherwin S. Magon, School of Mechanical and Manufacturing Engineering, Mapua University, Intramuros, Manila, Philippines

Ma. Janice J. Gumasing, School of Industrial and Engineering Management, Mapua University, Intramuros, Manila, Philippines

ID 490 Performance Comparison and Indoor Air Quality Exposure Assessment of a Fan-Powered Cook Stove

Dustin Mariel G. Cabangal, Daniel Joshua N. Festin, Neil Darren P. Marasigan and Mark Christian E. Manuel, PhD.

School of Mechanical and Manufacturing Engineering, Mapua University, Intramuros, Manila, Philippines

Ma. Janice J. Gumasing, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines

ID 491 Installation of Pico-Hydro System to Augment the Electricity Requirement of a Rural Community in Victoria Oriental Mindoro, Philippines

Jupete N. Diswe, Kent Andrew C. Dudas, Arvin Jan A. Padilla, Reimbert Randall A. Roca and Engr. Igmedio F. Isla, Jr., School of Mechanical and Manufacturing Engineering, Mapua University, Intramuros, Manila, Philippines

Ma. Janice J. Gumasing, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines

ID 492 Development of Portable Chiller for Carabao Milk with Independent Cooling System using Thermoelectric Effect

Christian Henry D. Escolar, Adrian Michael N. Lee, Ian M. Matibag and Mark Christian E. Manuel, PhD., School of Mechanical and Manufacturing Engineering, Mapua University, Intramuros, Manila, Philippines

Ma. Janice J. Gumasing, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines

ID 493 Ergonomic Design of Tunnel Ventilation System for Underground MRT Station using CFD Simulation

Michael N. Lagundino and Mark Cristian E. Manuel, School of Mechanical and Manufacturing Engineering, Mapua University, Intramuros, Manila, Philippines

Ma. Janice J. Gumasing, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines

ID 494 Development of Molding Machine for Petal-Shape Gum Paste

Adam F. Rombaoa and Edward B.O. Ang, School of Mechanical and Manufacturing Engineering, Mapua University, Intramuros, Manila, Philippines

Ma. Janice J. Gumasing, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines

ID 495 Battery Size Optimization Strategies for the Solar Powered Led Lights

Nkateko Mabunda, University of Johannesburg, Germiston, Gauteng, South Africa

ID 496 Embedded Data Acquisition Systems for the logging and monitoring of PV parameters

Nkateko Mabunda, University of Johannesburg, Germiston, Gauteng, South Africa

ID 497 Isolation and Identification of Potential Bacteria Specie in Petroleum Refinery Oily Sludge (PROS)

Vicky Kumar Lohana, Faculty of Civil and Environmental Engineering, Universiti Teknologi PETRONAS, Seri Iskandar, Perak, Malaysia

Shamsul Rahman B M Kutty, Faculty of Civil and Environmental Engineering, Universiti Teknologi PETRONAS, Seri Iskandar, Perak, Malaysia

Lavana A/P Baloo, Faculty of Civil and Environmental Engineering, Universiti Teknologi PETRONAS, Seri Iskandar, Perak, Malaysia

ID 499 The Behavior Study of Vehicle Users on The Availability of Public Parking Spaces

Sri Wiwoho Mudjanarko, Department of Civil Engineering, Narotama University, Surabaya, 60117, INDONESIA

Dadang Supriyatno, Department of Civil Engineering, Universitas Negeri Surabaya, Surabaya, 60231, INDONESIA

Joewono Prasetyo, Department of Jabatan Teknologi Kejuruteraan Pengangkutan, Universiti Tun Hussein Onn Malaysia

Slamet Winardi, Departement of Computer System, Narotama University, Surabaya, 60117, INDONESIA

Rizal Bahaswan, Department of Civil Engineering, Narotama University, Surabaya, 60117, INDONESIA

Firdaus Pratama Wiwoho, Department of Civil Engineering, Institut Teknologi Sepuluh Nopember, Surabaya, 60117, INDONESIA

ID 500 Human Factors Influence in Information Systems Security: Towards a Conceptual Framework

Girma Abebe, Accounting and Finance Department, Rift Valley University, Ethiopia, Addis Ababa, Ethiopia

Lemma Lessa, School of Information Science, Addis Ababa University, Addis Ababa, Ethiopia

ID 501 Modelling And Mapping University Business Process: Level 1

Bachtiar H. Simamora, Wibowo Kosasih, Natalia, Rudi and Lily Leonita, Management Department, BINUS Business School Undergraduate Program, Bina Nusantara University, Jakarta, Indonesia 11480

ID 502 Comparative Analysis of Critical Success Factors Affecting ERP Implementation in Private and Public Organizations in Ethiopia: A Pareto Approach

Sisay Msganaw, Information Science Department, Assosa University, Ethiopia, Assosa, Ethiopia

Lemma Lessa, School of Information Science, Addis Ababa University, Addis Ababa, Ethiopia

ID 513 Modelling of a liquid desiccant electrospray in an evaporative cooler dehumidifier for tertiary hospitals using Computational Fluid Dynamics

a Winnie Mutenhabundo and b Tawanda Mushiri

a,b Department of Mechanical Engineering, University of Zimbabwe, Mt Pleasant, Harare, 263, Zimbabwe

b Senior Research Associate, Quality and Operations Department, University of Johannesburg, Bunting Road Campus, Auckland Park 2006, P.O Box APB524, Johannesburg, South Africa

ID 514 Financing Model for Small–Medium Scale Contractors in Indonesian

Rizal Bahaswan, and Sri Wiwoho Mudjanarko, Department of Civil Engineering, Narotama University, Surabaya, 60117, Indonesia

Zulaicha Parastuty, Department of Sociology, Alpen–Adria University of Klagenfurt, Austria

ID 515 The Potential of IoT on the Education Sector in Zimbabwe: The Case of University of Zimbabwe

Farai Francisco Madyira, University of Zimbabwe School of Technology, University of Zimbabwe, Harare, Zimbabwe

Barend W Botha, University of Johannesburg, Johannesburg, South Africa

ID 516 Tailoring an Information Technology Governance Framework for National Bank of Ethiopia

Temesgen Asnake, Information Systems Management Directorate, National Bank of Ethiopia, Addis Ababa, Ethiopia

Lemma Lessa, School of Information Science, Addis Ababa University, Addis Ababa, Ethiopia

ID 517 ERP Pre–Implementation Readiness Assessment Framework for Ethiopian Context: A Multi Stakeholders' Perspective

Rahel Tekleselassie, Customer Service Department, Ethio Telecom, Addis Ababa, Ethiopia

Lemma Lessa, School of Information Science, Addis Ababa University, Addis Ababa, Ethiopia

ID 518 Magnetic Survey for Qualitative Interpretation of Subsurface Andesites Rocks Distribution in Kutasari, Purbalingga Regency, Indonesia

Sehah, Sukmaji Anom Raharjo, Urip Nurwijayanto Prabowo, and Dwi Setiawan Sutanto, Department of Physics, Faculty of Mathematics and Natural Sciences, Universitas Jenderal Soedirman, Purwokerto, Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 519 Blockchain–Secured Health Wearables in Smart Homes Utilising Raspberry Pi Web of Things Gateways

Solomon Hopewell Kembo, Department of Computer Engineering, University of Zimbabwe

Patience Mpofu, Department of Computer Engineering, University of Zimbabwe

Brighton Tafadzwa Mukorera, Cryptosine PBC

Saulo Jacques, Hacking Ecology

ID 520 Utilizing a Privacy–Preserving IoT Edge and Fog Architecture in Automated Household Aquaponics

Patience Mpofo and Solomon Hopewell Kembo, Computer Engineering, University of Zimbabwe
Saulo Jacques, Hacking Ecology
Nevil Chitiyo, Research and Development Department, Zimbabwe

ID 521 Synthesising Lean Construction and Building Information Modelling to improve the South African Architecture, Construction and Engineering Industries: A literature review.

Temitope Olaniran and Nischolan Pillay, Department of Architecture, Faculty of Engineering and the Built Environment, Durban University of Technology, Durban, 4001, Republic of South Africa

ID 522 Android-Based Information Technology Design for Easy Parking

Sri Wiwoho Mudjanarko, Department of Civil Engineering, Narotama University, Surabaya, 60117, INDONESIA

Made Kamisutara, Departement of Informatic Engineering, Narotama University, Surabaya, 60117, INDONESIA

Tubagus Purworusmiardi, Departement of Economics and Business, Narotama University, Surabaya, 60117, INDONESIA

Achmad Muchayan, Departement of Information System, Narotama University, Surabaya, 60117, INDONESIA

Slamet Winardi, Departement of Computer System, Narotama University, Surabaya, 60117, INDONESIA

Rizal Bahaswan, Department of Civil Engineering, Narotama University, Surabaya, 60117, INDONESIA

Firdaus Pratama Wiwoho, Department of Civil Engineering, Institut Teknologi Sepuluh Nopember, Surabaya, 60117, INDONESIA

ID 523 Improvement of Mathematical Communication Skills and Learning Independence Students Who Get Quantum Teaching Models and Discovery Learning Models

Basuki, Ega Dwi Utami, Mathematics Education Study Program, Institut Pendidikan Indonesia, Garut, West Java, Indonesia

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 531 Identifying factors that contribute to poor performance of junior coal miners in South Africa

Zanele Mpanza, Department of Mechanical and Industrial Engineering, University of South Africa, Johannesburg, South Africa

ID 533 Geospatial Dashboards for Mapping and Tracking of Novel Coronavirus Pandemic

Noralfishah Sulaiman, Sheikh Kamran Abid, Shiau Wei Chan, Umber Nazir, Nur Putri Najwa Mahmud, Siti Kursiah Kamalia Abdul Latib, Haridzah Fathini Muhammad Hafidz, Syamimi Afiqah Binti Shahlal, and Siti Hawa Mat Sapuan, KANZU Research: Resilient Built Environment (RBE), Faculty of Technology Management and Business (FPTP), Universiti Tun Hussein Onn Malaysia (UTHM), 86400 Parit Raja Batu Pahat Johor, Malaysia

Terrence Fernando, THINKlab, University of Salford, United Kingdom

ID 536 Need for Resilience Healthcare Facilities Management (RHFM) In Malaysia's Public Hospitals. A Critical Literature Review

Noralfishah Sulaiman, Sheikh Kamran Abid, Umber Nazir, Nur Putri Najwa Mahmud, Siti Kursiah Kamalia Abdul Latib, Haridzah Fathini Muhammad Hafidz, KANZU Research: Resilient Built Environment (RBE), Department of Real Estate, Faculty of Technology Management & Business, Universiti Tun Hussein Onn Malaysia (UTHM), 86400, Johor, Malaysia

Ahmed Farhan Roslan, Construction Research Institute of Malaysia (CREAM), Malaysia

Norbaya Ab Rahim, Department of Estate Management, Faculty of Architecture, Planning & Surveying, Universiti of Teknologi Mara (UiTM)

ID 537 Predict 2020 USA Presidential Election COVID-19 Correlation

Saloni Patel, Stanford Online High School, Redwood City, CA 94063, USA

Mason Chen, Stanford Online High School, Redwood City, CA 94063, USA

Patrick Giuliano, Abbott Structural Heart, Menlo Park, CA 94025, USA

ID 538 Bio Printing and Micronutrient Supplements

Kennedy Barnes, Department of Life Science, Ecoteck Laboratory, Detroit, MI 48202, USA

ID 542 Emotion and Correlations to Time (Applications of EEG)

Arhan Surapaneni, Stanford University Online High School, Redwood City, CA94063, USA

ID 543 Design an Innovative Poker AKQJ Game and Study Players' Psychological Characters

Mason Chen and Saloni Patel, Stanford OHS, Academy Hall Floor 2 8853 415 Broadway, Redwood City, CA 94063, USA

ID 544 "STEAMS" Methodology of NBA Draft Player Position

Mason Chen, Stanford OHS, Academy Hall Floor 2 8853 415 Broadway, Redwood City, CA 94063, USA

ID 545 Towards achieving a 3D print Zimbabwean traditional time telling clock

Joyleen Sagandira, Innovation Hub Graduate trainee in Archaeology, University of Zimbabwe, Mt Pleasant, Harare, Zimbabwe

Ancilla Nhamo, Research and Innovation Specialist, Office of the Vice Chancellor, University of Zimbabwe, MT Pleasant, Harare, Zimbabwe

Tawanda Mushiri, Senior Lecturer and Deputy Dean, Researcher on Robotics, AI and Health 4.0, Faculty of Engineering and Built Environment ,University of Zimbabwe, 630 Churchill Avenue ,Mt Pleasant, Harare, Zimbabwe and Industrial and Mechatronics Engineering Department, Faculty of Engineering and the Built Environment, University of Zimbabwe, 630 Churchill Avenue, Harare, Zimbabwe

ID 546 Political polarisation on internet platforms: A case of Zimbabwean news portal chatrooms

Susan Makore and Sam Takavarasha Jr, Women's University in Africa, Harare, Zimbabwe

ID 547 Search Space Restriction for UCSP in Genetic Algorithms via a Novel Random-Key Decoder

Ian Smith, Computer Science Department, Cranbrook Kingswood Upper School, Bloomfield Hills, MI 48303, USA

George Pappas, Electrical and Computer Engineering Department, Lawrence Technological University, Southfield, MI 48075, USA

ID 548 Strategic Integrated Transport for growth and development strategy in South Africa, a focus on Rea Vaya BRT

Mamogege Desiree Sekgale and Nelson Madonsela, Department of Operations Management University of Johannesburg, Doornfontein, RSA

ID 549 Collision Avoidance Technology The use of Fourth Industrial Revolution (4IR) for Safe Mining

Olehile J. Kaelo, Daniel M. Madyira, Department of Mechanical Engineering Science & Technology, Faculty of Engineering and the Built Environment, University of Johannesburg, South Africa, 524 Auckland Park, 2006

Wilson R. Nyemba, Department of Quality and Operations Management, University of Johannesburg, Auckland Park Bunting Road Campus, Johannesburg, South Africa and Department of Mechanical Engineering, University of Zimbabwe, P O Box MP 167, Mount Pleasant, Harare, Zimbabwe

ID 550 Adoption of E-Commerce by Zimbabwean Hotels: An Empirical Study

Nyasha Caroline Moyo, Women's University in Africa, Harare, Zimbabwe

Sam Takavarasha Jr, Women's University in Africa, Harare, Zimbabwe

ID 552 Design of an Intelligent Robotic Tool for Intracranial Haemorrhage Detection at Road Traffic Accident Scenes

Tinotenda Joram and Tawanda Mushiri, Department of Industrial and Mechatronics Engineering, Faculty of Engineering and the Built Environment,

University of Zimbabwe, Harare, Mt Pleasant, 630 Churchill Avenue, Zimbabwe

ID 553 A Literature Review on the Impact of Municipal Density-Related Strategies on the Feasibility of Real Estate Developments

Zara Marais, Michelle Burger and Benita Zulch, Department of Construction Economics, EBIT Faculty, University of Pretoria, Pretoria, South Africa

ID 555 Majority Voting Ensemble Learning for Intrusion Detection using Recursive Feature Elimination

Kudakwashe Zvarevashe, Prudence Kadebu, Addlight Mukwazvure and Fungai Mukora, Faculty of Computer Engineering, Informatics and Communication, University of Zimbabwe, Harare, MI 48075, Zimbabwe

Tatenda Trust Gatora, Computer Science Department, Midlands State University, Gweru, Zimbabwe

ID 556 An Evaluation of the Importance of E-commerce Adoption to the Growth of SMEs in Zimbabwe

Belinda Gurure and Sam Takavarasha Jr, Women's University in Africa, Harare, Zimbabwe

ID 558 Creation of Artisanal Cigars through the Design of a Fermentation Chamber

Yocelyn Torres Cepeda, Daniela Balderas Aldape, Alberto Andrés González Hernández, Alejandro López Castaldi, Ernesto Cangas, Rolando Marcelo Ochoa Aguilar and José Andrés González Martínez

Industrial and Systems Engineering Department, Instituto Tecnológico de Estudios Superiores de Monterrey, Monterrey, México

Marian Lozano Rubio, Innovation and Development Engineering Department, Instituto Tecnológico de Estudios Superiores de Monterrey, Monterrey, México

ID 559 Real Time Gesture-Controlled Mobile Robot using a Myo Armband

Khalid H. Tantawi¹, Enass Mohamed, Erkan Kaplanoglu², Austin Pemberton, Navar Pickard, Mike Dyer, Ethan Hickman, and Kaleb Thompson, Department of Engineering Management and Technology, University of Tennessee at Chattanooga, Chattanooga, TN 37403, USA

ID 567 Packaging Process Optimization Using Six Sigma

Sobhi Mejjaoui and Sarah Algublan, Industrial Engineering Department Alfaisal University, Riyadh, KSA

ID 568 Branch Network Optimization Model following Two Banks Merger

Sobhi Mejjaoui and Sara Qanaq, Industrial Engineering Department, Alfaisal University, Riyadh, KSA

ID 569 Towards Cyber Security: An Evaluation of methods for Malware Analysis

Prudence Kadebu, Kudakwashe Zvarevashe, Addlight Mukwazvure, and Fungai N Mukora, Faculty of Computer Engineering, Informatic and Communications, University of Zimbabwe, 630 Churchill Avenue, Mount Pleasant, Harare, Zimbabwe

Innocent Mapanga, Southern Business Solutions, Caramba Park, Phakalane, Gaborone Botswana

Tatenda T Gatora, Midlands State University, Senga, Gweru, Zimbabwe

ID 570 Industry 4.0: Implementation and Research Trends

Nourredine Boubekri, Professor, Department of Mechanical Engineering, College of Engineering, University of North Texas, Denton, Texas, USA

ID 571 Lessons Learned Integrating Industry 4.0 into an Educational Program

Robert Van Til, Chair and Pawley Professor of Lean Studies, Department of Industrial and Systems Engineering, Oakland University, Rochester, Michigan, USA

ID 573 An investigation into the synergy of the root cause analysis and Poka Yoke at suppliers of Toyota South Africa Manufacturing (TSAM) and a cable manufacturing company in South Africa

John Zvidzayi Mangosuthu University of Technology, Department of Mechanical Engineering, P.O Box 4026, Jacobs, Durban, South Africa

ID 574 Flexible Manufacturing System evolving with IPPS processing system and Production Order

Gideon Halevi, retired – Director of CAD/CAM R&D Center at IMI Corporation, Technion Haifa, Israel

Rakesh Kumar Phanden, Department of Mechanical Engineering, Amity School of Engineering and Technology, Amity University Uttar Pradesh, Sector – 125, Noida, UP, India

ID 575 Digitalization of Production Processes

Corrado Felice la Forgia, Vice President Engineering and Manufacturing, VHIT S.p.A. – Società, Unipersonale, Strada Vicinale delle Sabbione, 5, 26010 OFFANENGO, (Cremona) | ITALIA

ID 580 Towards a New philosophy for Repositioning, and Repurposing Technical Vocational Education and Training for Industrial Engineering and Operations Management Systems and Development in Africa: A Case of Zimbabwe

Tafadzwa Mudondo, Principal, Harare Polytechnic, Zimbabwe

ID 581 Genetic Purity Solutions and Associated Algorithms for Conforming Seed Lots or (Any Industrial Blend) to Stipulated Certification Standards of Quality

Ephrame Kudzaishe Havazvidi, SeedCo Rattray Arnold Research Station Hub, Chisipite, Harare, Zimbabwe

ID 583 Does Gender Identification at Birth Correlate with Empathy Level?

Sophia M. Panigrahi, Stanford Online High School, USA

ID 584 Ocean Acidification, Simulated Statistical Investigation

Emersen Panigrahi, Stanford Online High School, CA, USA

ID 585 Democracy In Indonesia Constitution

Layyin Mahfiana, Lukman Harahap, and M. Roesli, Universitas Merdeka East Java Surabaya Indonesia

Kholil Lur Rochman, IAIN Purwokerto Indonesia

Muh. Barid Nizarudin Wajdi, STAI Miftahul Ula Nganjuk, East Java Indonesia

ID 588 The Effectiveness of Group Mentoring Services in Reducing the Communication Anxiety of Students

Lukman Harahap, Layyin Mahfiana, IAIN Surakarta Middle Java, Indonesia

Devit Etika Sari, STAI Miftahul Ula Nganjuk, East Java Indonesia

Muzayyanah Yuliasih, STP Aviassi, Jakarta Indonesia

Rika Istianingrum, Universitas Balikpapan Indonesia

ID 589 The Effectiveness of Group Mentoring Services in Reducing the Communicational Anxiety of Students

Lukman Harahap, Layyin Mahfiana, IAIN Surakarta Middle Java, Indonesia
Devit Etika Sari, STAI Miftahul Ula Nganjuk, East Java Indonesia
Muzayyanah Yuliasih, STP Aviassi, Jakarta Indonesia
Rika Istianingrum, Universitas Balikpapan Indonesia

ID 590 Improving the students of the EFL speaking class

Mukhlisin, STAI Miftahul Ula Nganjuk, East Java, Indonesia
Syihaabul Huda, Institut Teknologi dan Bisnis Ahmad Dahlan Jakarta Indonesia
Yogi Purnama, Universitas Indraprasta PGRI, Indonesia
Desy Riana Pratiwi, Universitas Padjadjaran Indonesia
Feny Martina, IAIN Bengkulu Indonesia

ID 591 The Impact of CIRC (Cooperative Integrated Reading Composition) In Reading Comprehension Ability by Using the Cooperative Approach

Muh. Barid Nizarudin Wajdi, STAI Miftahul Ula Nganjuk, East Java, Indonesia

Zelvia Liska Afriani, Heny Friantary, IAIN Bengkulu, Indonesia

Yunita Suryani, Universitas PGRI Ronggolawe Tuban, East Java, Indonesia

Rika Istianingrum, Universitas Balikpapan, Indonesia

ID 592 Information Access, Energy Demand, Supply, Access, Conversion and Trading

Francis Masawi, Energy and Information Logistics Group Limited (EIL), Harare, Zimbabwe

ID 593 Automotive assembly industry's Supply chain in the delocalization context: A critical review and an algorithm approach for modeling at a tactical level

Noredine Sadki and Zoubir El Felsoufi, Laboratory of Mathematical Modeling and Control, Faculty of Sciences and Technologies of Tangier, Tangier, Morocco

Sanae Larioui, ENSIT Engineering School Morocco

ID 595 Capturing Voice-of-the Customer / Client – A Systematic Approach to Greater Customer / Client-Centricity Applying Lean Six Sigma Methodology

Foad Hosseinkhanli, Director of Quality Assurance, Performance and Business Improvement, Amor Health Services, Inc., Brownsville, Texas, USA

ID 596 Performance Evaluation of some selected Mediums Wind Energy Conversion system for Wind Power Generation at Anyigba, Nigeria Energy

Saleh, A. U., Electrical Engineering Department, Universiti Tun Hussein Onn Malaysia, Johor, Malaysia

Suleiman Abdulrahman, Centre for Atmospheric Research, National Space Research and Development Agency, Prince Audu Abubakar University Anyigba, Kogi, Nigeria

Haruna, Y. S., Electrical and Electronics Engineering Department, Abubakar Tafawa Balewa University Bauchi, Bauchi, Nigeria

ID 597 Develop Troop Strength Metric of Playing Empire 4 Kingdoms Video Game

Logeshwari Chandramohan, Wilcox High School, Santa Clara, CA 95051, USA
Mason Chen, Stanford University OHS Stanford University Palo Alto, CA 94305, USA

ID 599 The Islamic Working Culture of BRI Syariah and Its Influence on Employee Performance (Case Study at BRI Syariah Banyuwangi Branch)

Nurul Inayah, Institut Agama Islam Darussalam, Blokagung, Banyuwangi, Indonesia

Abdul Kholiq Syafaat, UIN Sunan Ampel Surabaya, East Java, Indonesia

Dwi Novaria Misidiawati, IAIN Pekalongan, Indonesia

Ahmad Hariyadi, IKIP PGRI Bojonegoro, East Java, Indonesia

Endah Yuliani, UNIPA Surabaya, Indonesia

ID 600 Governance and Organization Theory Crisis

Pristiwantiyasih, university 17 Agustus 1945 Banyuwangi

Murdijanto Purbangkoro, Maya Ida Kesumawatie, and Parwita Setya Wardhani, school of Economic Mahardhika Surabaya, Indonesia

Dina Novita, University Kartini, Indonesia

ID 601 The Importance of Character Education in Higher Education (University) in Building the Quality Students

Rif 'ah, IAI Ibrohimy Situbondo, East Java, Indonesia

Hosaini, Universitas Bondowoso, East Java, Indonesia

Winci Firdaus, Badan Pengembangan dan Pembinaan Bahasa, Indonesia

Ixsir Eliya, Achmad Ja'far Sodik, IAIN Bengkulu Indonesia

ID 602 Job Rotation and Work Motivation on Employee Performance with Job Satisfaction as Intervening Variable Case Study on Cement Plant Partnership in East Java

Wulandari Harjanti, School of Economic Mahardhika, Surabaya, East Java, Indonesia

Suhermin, School of Economic Mahardhika, Surabaya, East Java, Indonesia

Sri Rahayu, School of Economic Mahardhika, Surabaya, East Java, Indonesia

Roy Sumaryono, School of Economic Mahardhika, Surabaya, East Java, Indonesia

Miya Dewi Suprihandari, School of Economic Mahardhika, Surabaya, East Java, Indonesia

ID 603 The Effect of Financial Performance of Corporate Social Responsibility Disclosure in Companies in Indonesia Stock Exchange Period 2014–2016

Yulinartati, Norita Citra Yuliarti, and Gardina Aulin Nuha, University of Muhammadiyah, Jember, Indonesia

Lely Ana Ferawati Ekaningsih, Institute of Islamic Studies Darussalam, Banyuwangi, Indonesia

Febrianty, Politeknik Palcomtech, Indonesia

ID 604 The Application of Performance Appraisal on Learning the Benefits and Advantages of Test Competencies to Vocation High School Beauty Programs

Emy Indaryani, Hartati Muchtar, and Diana Nomida Musnir, Education Technology, Universitas Negeri Jakarta, Jl. Rawamangun Muka, Jakarta Timur, Indonesia

610 A Systematic Review: Nurses' Experiences the Quality of Independent Nursing Actions Entrepreneurship Muhammad Ikhsan Setiawan Narotama University Indonesia

Hani Tuasikal, Academy of Nursing, RUMKIT TK III dr. J.A.Latumeten, Ambon, Maluku, Indonesia

Moomina Siauta, Faculty Of Health, Nursing Program in Indonesian Christian University, Maluku, Indonesia

Selpina Embuai, Faculty Of Health, Nursing Program in Indonesian Christian University, Maluku, Indonesia

ID 611 The Mediating Role of Organizational Commitment in Relationship Between Organizational Communication on Knowledge Sharing

Aldino Achmad Affandie, Andrie Sulistiyono, Dewi Mayasari, Narotama University, Surabaya, Indonesia

Joko Suyono, Narotama University, Surabaya, Indonesia and Universitas Airlangga, Surabaya, Indonesia

Damarsari Ratnasahara Elisabeth, Sekolah Tinggi Ilmu Ekonomi Mahardhika, Surabaya, Indonesia

ID 612 The Mediating Role of Job Satisfaction in Relationship Between Work Discipline on Employee Performance

Andrie Sulistiyono, Tri Utoyo, and Aldino Achmad Affandie, Narotama University, Surabaya, Indonesia

Joko Suyono, Narotama University, Surabaya, Indonesia and Universitas Airlangga, Surabaya, Indonesia

Damarsari Ratnasahara Elisabeth, Sekolah Tinggi Ilmu Ekonomi Mahardhika, Surabaya, Indonesia

ID 613 Analysis of the Effect of Work Discipline and Reward on Work Performance through Work Motivation

Asrining Yushinta, Arasy Alimudin, and Eko Wahyu Purwanto, Narotama University, Surabaya, Indonesia

Joko Suyono, Narotama University, Surabaya, Indonesia and Universitas Airlangga, Surabaya, Indonesia

Damarsari Ratnasahara Elisabeth, Sekolah Tinggi Ilmu Ekonomi Mahardhika, Surabaya, Indonesia

ID 614 Designing a Modern Partial Deck AKQJ Poker Game to Aid in Reducing Gambling Disorder

Siddhant Karmali, Stanford University Online High School, United States

ID 615 Innovative Industrialisation – the Impact of Education 5.0 on University Operations in COVID-19 Times

Mqhele Dlodlo National University of Science and Technology Zimbabwe

ID 616 Maintenance Prediction by Machine learning: Study Review of some Supervised Learning Algorithms

Mouna Tarik and Khalid Jebari. Laboratory of Mathematics and Applications, University Abdelmalek Essaadi (UAE).Faculty of Sciences and Techniques.Tangier, Morocco

ID 617 The rise and rise of Financial Technology: Lessons for Industrial Engineering

Nqobile Munzara, Legal Practitioner, Conveyancer and Notary Public, Zimbabwe

ID 618 The Mediating Role of Employment Opportunities in Relationahip with Brand Image on The Decision of Selecting Business Studies

Dian Arisanti, Sekolah Tinggi Ilmu Administrasi dan Manajemen Kepelabuhan Barunawati Surabaya, Indonesia

Hermien Tridayanti, Narotama University, Surabaya, Indonesia

Joko Suyono, Narotama University, Surabaya, Indonesia and Universitas Airlangga, Surabaya, Indonesia

Damarsari Ratnasahara Elisabeth, Sekolah Tinggi Ilmu Ekonomi Mahardhika, Surabaya, Indonesia

ID 619 Strategy of Performance Development of Indonesia Aerodrome Inspector in 2020

Eko Wahyu Purwanto, Arasy Alimudin, and Abdul Wahid, Narotama University, Surabaya, Indonesia

Joko Suyono, Narotama University, Surabaya, Indonesia and Universitas Airlangga, Surabaya, Indonesia

Damarsari Ratnasahara Elisabeth, Sekolah Tinggi Ilmu Ekonomi Mahardika, Surabaya, Indonesia

ID 620 Brand Satisfaction, Brand Trust and Brand Loyalty

Fathorrahman, Sekolah Tinggi Ilmu Ekonomi Asia, Malang, Indonesia

Astrid Puspaningrum, Universitas Brawijaya, Malang, Indonesia

Joko Suyono, Narotama University, Surabaya, Indonesia

ID 621 The Mediating Role of Knowledge Sharing in Relationship Between Organizational Culture and Employee Performance

Fuji Setianto, Marlia Widjajanti, and Tri Utoyo, Narotama University, Surabaya, Indonesia

Joko Suyono, Narotama University, Surabaya, Indonesia and Universitas Airlangga, Surabaya, Indonesia

Damarsari Ratnasahara Elisabeth, Sekolah Tinggi Ilmu Ekonomi Mahardhika, Surabaya, Indonesia

ID 622 The Mediating Role of Job Satisfaction in Relationship Between Organizational Justice and Employee Performance

Marlia Widjajanti, and Fuji Setianto, Narotama University, Surabaya, Indonesia

Joko Suyono, Narotama University, Surabaya, Indonesia and Universitas Airlangga, Surabaya, Indonesia

Damarsari Ratnasahara Elisabeth, Sekolah Tinggi Ilmu Ekonomi Mahardhika, Surabaya, Indonesia

ID 623 Component Campaign against Attitudes Vote in the Elections in 2010

Himawan Sardju, Airlangga University, Faculty of Economics and Business, Airlangga 4-6 St, Surabaya, East Java 60115, Indonesia

L. Pertamina Kampus II Unkhair Gambesi South Ternate City

Mateus Ximenes, Institute of Business (IOB), Faculty of Economics and Business, Dili East Timor

Bambang Hadi Santoso Dwidjosumarno, Sekolah Tinggi Ilmu Ekonomi Indonesia Surabaya, Indonesia

ID 624 Antecedents of Job Performance at the Ship Design Company in Surabaya

Hindah Mustika, Universitas Airlangga, Surabaya, Indonesia and Sekolah Tinggi Ilmu Ekonomi Indonesia Surabaya, Indonesia

Mateus Ximenes, Institute of Business (IOB), Faculty of Economics and Business, Dili East Timor

Bambang Hadi Santoso Dwidjosumarno, Sekolah Tinggi Ilmu Ekonomi Indonesia Surabaya, Indonesia

ID 625 The Antecedent of Job Satisfaction and Employee Loyalty: Financial Rewards and Work Motivation

Dewi Mayasari, and Arasy Alimudin, Narotama University, Surabaya, Indonesia

Joko Suyono, Narotama University, Surabaya, Indonesia and Universitas Airlangga, Surabaya, Indonesia

Damarsari Ratnasahara Elisabeth, Sekolah Tinggi Ilmu Ekonomi Mahardhika, Surabaya, Indonesia

Dian Arisanti, Sekolah Tinggi Ilmu Administrasi dan Manajemen Kepelabuhan Barunawati, Surabaya, Indonesia

ID 626 The Determinant Factors of Work Life Quality and Employee Performance: Motivation and Job Satisfaction

Muktiatun, Agus Dwi Sasono, and Asrining Yushhinta, Narotama University, Surabaya Indonesia

Joko Suyono, Narotama University, Surabaya, Indonesia and Universitas Airlangga, Surabaya, Indonesia

Damarsari Ratnasahara Elisabeth, Sekolah Tinggi Ilmu Ekonomi Mahardika, Surabaya Indonesia

ID 627 Millennial Employees Performance, Transformational Leadership and Organization Communication

Nugroho Dwi Priyohadi, Universitas Airlangga, Faculty of Psychology, Surabaya, Indonesia

Sekolah Tinggi Ilmu Administrasi Dan Manajemen Kepelabuhan (Stiamak) Barunawati, Surabaya, Indonesia

Nur Widyawati, Sekolah Tinggi Ilmu Administrasi Dan Manajemen Kepelabuhan (Stiamak) Barunawati, Surabaya, Indonesia

Joko Suyono, Narotama University, Surabaya, Indonesia and Universitas Airlangga, Surabaya, Indonesia

ID 628 Implementation of Corporate Social Responsibility on Corporate Reputation Through Social Capital Strengthening and Increasing Community Welfare

Sukaris, Management Department, Faculty of Economics and Business, Universitas Muhammadiyah Gresik, Gresik Regency, East Java, Indonesia

Nadhirotul Laily, Psychology Study Program, Universitas Muhammadiyah Gresik, Gresik Regency, East Java, Indonesia

Damarsari Ratnasahara Elisabeth, Management Department Sekolah Tinggi Ilmu Ekonomi Mahardhika, Surabaya, Indonesia

Joko Suyono, Department of Management and Business, Narotama University, Surabaya, Indonesia 60117

Hendra Suwardana, Universitas PGRI Ronggolawe, Tuban, Indonesia

ID 630 A Review of Property Attributes Influence in Hedonic Pricing Model

Hamza Usman, Department of Real Estate Management, Universiti Tun Hussein Onn Malaysia and Department of Estate Management and Valuation, Abubakar Tafawa Balewa University, Bauchi, Nigeria

Mohd Lizam and Burhaida Burhan, Department of Real Estate Management, Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia

ID 631 Review of Issues in the Conventional Hedonic Property Pricing Model

Hamza Usman, Department of Real Estate Management, Universiti Tun Hussein Onn Malaysia and Department of Estate Management and Valuation, Abubakar Tafawa Balewa University, Bauchi, Nigeria

Mohd Lizam and Burhaida Burhan, Department of Real Estate Management, Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia

ID 632 An Investigation On The Level Of Use Of Lean Principles In The Small And Medium Enterprises; The Case Of The South African Construction Industry: Literature Review

Davison Makondo and Forbes Chiromo, Department of Mechanical and Industrial Engineering, University of Johannesburg, Doornfontein, 2028, South Africa

ID 633 Investigating the Role of Benchmarking as a Cost Control Measure: Lessons from Selected Restaurants in Johannesburg, South Africa

Matildah Gumbo, Department of Quality and Operations Management, University of Johannesburg, Auckland Park, Johannesburg, South Africa

Prof Walter Musakwa, Department of Urban and Regional Planning, University of Johannesburg, South Africa

Dr Emaculate Ingwani, Department of Urban and Regional Planning, University of Venda, South Africa

Prof Trynos Gumbo, Department of Urban and Regional Planning, University of Johannesburg, South Africa

ID 634 Statistical Modeling of Stock Investment during COVID-19

Chi-hong Ho, Junior, Henry M. Gunn High School, Palo Alto, CA, USA

Mason Chen, Sophomore, Stanford University OHS, Palo Alto, CA, USA

ID 635 NBA Player Aging Influence & Benchmarking Analysis

Chi-Feng Ho, Junior, Henry M. Gunn High School, Palo Alto, CA 94303, USA

Mason Chen, Sophomore, Stanford University OHS, Palo Alto, CA 95132, USA

ID 637 Monte Carlo Simulations in Poker and Gambling

Arhan Surapaneni, Stanford Online High School, United States

ID 638 Opportunistic maintenance under product-service system for usage based transportation system

Hennie Husniah, Department of Industrial Engineering, Langlangbuana University, Bandung, 40116, INDONESIA

Kusmaya Rachman, Department of Informatic, Langlangbuana University, Bandung, 40116, INDONESIA

Gun Gunawan, Department of Economic and Business, Langlangbuana University, Bandung, 40116, INDONESIA

Sutisna Abdul Rachman, Department of Electronic Engineering, Langlangbuana University, Bandung, 40116, INDONESIA

ID 641 STEAMS Methodology of Sports Science and Injury

Mason Chen and Lily Sun, Stanford OHS, San Francisco, United States

ID 649 A Preliminary Study on the Relationship between Financial Literacy and Business Performance among Entrepreneurs in Bauchi Metropolis, Nigeria

Wan Fauziah Wan Yusoff and Usama Khadijah Muhammad, Universiti Tun Hussein Onn Malaysia

ID 650 Modeling COVID-19 Cumulative Data in Indonesia using Morgan-Mercer-Flodin Growth Equation

Asep Kuswandi Supriatna, Universitas Padjadjaran, Indonesia

Hennie Husniah, Langlangbuana University, Indonesia

ID 651 Validate NBA 2015-2019 Regular Season MVP Winners

Lily Sun, Mason Chen, Stanford OHS, San Francisco, United States

ID 653 Integrated Waste Management System among College Students

Anita Dewi Moelyaningrum, Department of Environmental Health and Occupational Health and Safety, Public Health Faculty, Universitas Jember, Indonesia.

Khoirul Ngibad, Program Studi D3 Teknologi Laboratorium Medik, Fakultas Ilmu Kesehatan Universitas Maarif Hasyim Latif, Indonesia.

Dheasy Herawati, Faculty of Health Sciences, Universitas Maarif Hasyim Latif, Ngelom Megare, Sidoarjo, Indonesia.

Prayogi Sunu, Departement of Animal Science, Faculty of Animal Science, Boyolali University, Boyolali, Indonesia.
Muhammad Ikhsan Setiawan, Narotama University, Indonesia.

ID 655 Appraising Project Management Methodologies to harness effective evaluation and control

Syeda Asiya Zenab Kazmi, Industrial Mgt., Production Dept., University of Vaasa, Finland

ID 656 Proactive procurement of services; An Innovation to Small Businesses' Operational Management Dimension

Syeda Asiya Zenab Kazmi, Industrial Mgt., Production Dept., University of Vaasa, Finland

ID 657 Product Value Enhancement by Manufacturing Process Optimization & Tolerances Standardization

Vinay Kumar Singh, Devi Ahilya Vishwavidyalaya, Indore (MP), India

ID 658 Using Statistical Process Control to improve the quality in Utility plant

Marwan Al Obaidi and Jinendra Ijari, A. Leon Linton Department of Mechanical, Robotics and Industrial Engineering, Lawrence Technological University, Southfield, MI 48075, USA

ID 660 The Impact of Internet of Things on Supply Chain Performance

Maha Abdel Hamid Morssi, Hussein Magdy Elhousseiny and Dina Adel Hammad, Logistics and Supply Chain Management Department, Transport and Logistics Management Department, College of International Transport and Logistics, Arab Academy for Science, Technology and Maritime Transport, Alexandria, Egypt

ID 661 Evaluating the Connection between New Product Development (NPD) Team Climate and Organizational Trust: A Case based on Transformational Leadership

Syeda Asiya Zenab Kazmi, Asstt. Professor, Leadership and Management Studies, NDU, Islamabad

Marja Naaranoja, Associate Professor, University of Vaasa, Vaasa, 65101 Finland

ID 666 Marketplace Effectiveness In Increasing Sales Concentration Of Small Business Products During The Covid19 Pandemic

Wiwik Istyarini, Institute of Economic Science Al-Anwar Mojokerto, Indonesia

I Putu Artaya, Departement of Management, University Narotama Surabaya

Tubagus Purworusmiardi, Departement of Management, University Narotama Surabaya

Agus Sukoco, Departement of Management, University Narotama Surabaya

Made Kamisutara, Departement of Computer Science, University Narotama Surabaya

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 667 The Application Of Program Monitoring The Health Of The Baby Through The SMS-Based Immunization Activities

Made Kamisutara, Departemen of Computer Science, University Narotama Surabaya

I Putu Artaya, Departemen of Management, University Narotama Surabaya

Tubagus Purworusmiardi, Departemen of Management, University Narotama Surabaya

Agus Sukoco, Departemen of Management, University Narotama Surabaya

IGA Sri Deviyanti, Departemen of Management Industries, University WR. Supratman Surabaya

Abdul Talib Bon, Department of Production and Operations, University Tun Hussein Onn Malaysia, Malaysia

ID 668 Community Behavior, Regulation, and Reliable Waste Infrastructure in Ngawi Regency to Improve the Quality of Life

Hery Subagio, Faculty of Engineering, Civil Engineering, Masters Study Program, Narotama University, Surabaya, Indonesia

F Rooslan Edy Santosa, Faculty of Engineering, Civil Engineering, Masters Study Program, Narotama University, Surabaya, Indonesia

Muhammad Ikhsan Setiawan, Faculty of Engineering, Civil Engineering, Masters Study Program, Narotama University, Surabaya, Indonesia

ID 669 The Mediating Role of Knowledge Sharing in Relationship between Top Management Support and Employee performance

Tri Utoyo, Soebandi, and Marlia Widjajanti, Narotama University, Surabaya, Indonesia

Joko Suyono, Narotama University, Surabaya, Indonesia and Universitas Airlangga, Surabaya, Indonesia

Damarsari Ratnasahara Elisabeth, Sekolah Tinggi Ilmu Ekonomi Mahardhika, Surabaya, Indonesia

ID 670 The Determinant Factors of Job Satisfaction and Employee Performance: Direct Compensation and Work Environment

Abdul Wahid, Agus Dwi Sasono, and Fuji Setianto, Narotama University, Surabaya, Indonesia

Joko Suyono, Narotama University, Surabaya, Indonesia and Universitas Airlangga, Surabaya, Indonesia

Damarsari Ratnasahara Elisabeth, Sekolah Tinggi Ilmu Ekonomi Mahardika, Surabaya, Indonesia

ID 671 Legal Protection of Employment Relationships for Employee Relationships (Study at PT X)

Moh. Maruf and Riyan Sisiawan Putra and Inayatus Sholikhah, Department of Management, Nahdlatul Ulama University Surabaya, Indonesia

ID 672 Implementation of Surgical Patient Safety by Nurses in Hospital

Nian Afrian Nuari, Nursing Departement, STIKES Karya Husada Kediri, Kediri, Indonesia

Sony Susanto, Civil Engineering Department, Kadiri University, Kediri, Kediri, Indonesia

ID 678 Why is there a disproportion of cases and deaths for minorities in the U.S.

Takiyah Ali, Michigan Islamic Academy, Ann Arbor, USA

ID 679 Examination of Supply Chain Challenges in Large Scale Exterior Building Panels from the Perspective of an ETO Fabricator

Andrew T. Renner, President of Bouma Group, Managing Member of Centerline Prefab, LLC, Grand Rapids, MI, USA

ID 680 ERASMUS+ United CBHE Automotive International Collaboration from European to South East Asia

Noreffendy Tamaldin, Automotive Department, Faculty of Mechanical Engineering, Universiti Teknikal Malaysia Melaka, UTeM, Hang Tuah Jaya, Durian Tunggal 76100, Melaka Malaysia

Thomas Esch, Faculty of Aerospace Engineering, FH Aachen, Hohenstaufenallee 6, 52064 Aachen, Germany

Andrea Tonoli, Department of Mechanics and Aerospace Engineering, Turin Polytechnic University, Corso Duca degli Abruzzi, 24 - 10129 Turin, ITALY

Karl Heinz Reisinger and Hanna Sprenger, Institute of Automotive Engineering, FH Joanneum Gesellschaft mbH, Hohenstaufenallee 6, 8020 Graz, Austria

Hisham Razuli, Research & Development Centre (HQ), Dreamedge Sdn Bhd, Cyberjaya, Selangor, Malaysia

ID 681 Convolutional Neural Networks for Solid Waste Segregation and Prospects of Waste-to-Energy in Ghana

Ruhiya Abubakar, Electrical/Electronics Engineering, Ghana Technology University College, Accra, Ghana

K.M Sharath Kumar, Department of Management Studies, M. S., Ramaiah School of Advanced Studies, Bangalore, India

Amevi Acakpovi, Electrical/Electronics Engineering, Accra Technical University, Accra, Ghana

Ussif William Ayinga, Reform Secretariat, Ministry of Education, Accra, Ghana

Nana Agyeman Prempeh, Procurement and Marketing, Ghana Technology University College, Accra, Ghana

Jeremiah Tetteh, Ghana Technology University College, Accra, Ghana

Ethel Seyram Kumassah, Ghana Technology University College, Accra, Ghana

ID 684 The Effectiveness Working Capital Management Small and Medium Enterprises (SMEs) Surabaya

Falentino Heydi Sanda, Mohammed Fateh Alrahman Ali Rabbad, Ani Wulandari, Rizal Bahaswan, Elok Damayanti and Agus Sukoco, Faculty of Economics and Business, Narotama University Surabaya, East Java, Indonesia

Talib Bin Bon, Department of Technology Management and Business, Universiti Tun Hussein Onn Malaysia, Johor Bahru, Malaysia

ID 685 Entrepreneurial Orientation and Business Sustainability of Home Industry Leather Shoes in Surabaya

Jaya Java Putra, I Gede Arimbawa, Ani Wulandari, Agus Sukoco, Elok Damayanti, Aju Nitya Dharmani, and Osamah Faisal Mohammed Saleh, Faculty of Economics and Business, Narotama University Surabaya, East Java, Indonesia

Talib Bin Bon, Department of Technology Management and Business, Universiti Tun Hussein Onn Malaysia, Johor Bahru, Malaysia

ID 686 Determining Dividend Payout Ratio And Good Corporate Governance On Consumer Goods Companies In Southeast Asia

Ulfa Alvianti1, Agus Sukoco, Ani Wulandari, Firman Aditya, Amrun Rosyid, Mahmood Maarof Abdullah Alwan, Faculty of Economics and Business, Narotama University Surabaya, East Java, Indonesia

Talib Bin Bon, Department of Technology Management and Business, Universiti Tun Hussein Onn Malaysia, Johor Bahru, Malaysia

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Kayla Akey, Masters of Engineering Management Program, A. Leon Linton Department of Mechanical Engineering Department, Lawrence Technological University, Southfield, MI 48075, USA

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Lusy Tunik Muharlisiani, Universitas Wijaya Kusuma Surabaya, Indonesia

Amrozi Khamidi, Universitas Negeri Surabaya, Indonesia

Sugeng Susilo Adi, Universitas Brawijaya, Indonesia

Nunuk Hariyati, Universitas Negeri Surabaya, Indonesia

S. Agus Santoso, Universitas Madura, Indonesia

Johny Sugiono, Universitas Wijaya Kusuma Surabaya, Indonesia

Yenny Aman Serah, Faculty of Law, Universitas Panca Bhakti, Pontianak, Indonesia

Lathifah Nur Karimah, Student English Education in Universitas Wijaya Kusuma Surabaya, Indonesia

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E Bernard J Siepker, Department of Mechanical and Marine Engineering, Namibia University of Science and Technology, Windhoek, Namibia

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Muhammad Ali Khan, Shakeel Ahmed Shaikh, Tahir Hussain Lakho & Usama Khursheed Mughal. Department of Industrial Engineering & Management, Mehran University of Engineering & Technology, Jamshoro, 76062, Sindh, Pakistan

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Usama Khursheed Mughal, Muhammad Ali Khan, Pawan Kumar & Suneel Kumar, Department of Industrial Engineering & Management, Mehran University of Engineering & Technology, Jamshoro, 76062, Sindh, Pakistan

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Tahir Hussain Lakho, Muhammad Ali Khan, Shahryar Irfan Virk & Aamir Ali Indher, Department of Industrial Engineering & Management, Mehran University of Engineering & Technology, Jamshoro, 76062, Sindh, Pakistan

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Abdullah Sonhaji, Program Study of Mathematics, Institut Teknologi Bandung, Bandung, 40132, INDONESIA

Udjianna S. Pasaribu, Program Study of Mathematics, Institut Teknologi Bandung, Bandung, 40132, INDONESIA

Kurnia Novita Sari, Program Study of Mathematics, Institut Teknologi Bandung, Bandung, 40132, INDONESIA

Hennie Husniah, Department of Industrial Engineering, Langlangbuana University, Bandung, 40116, INDONESIA

Nisa Fadlilah Fathul Ilmi, Program Study of Mathematics, Institut Teknologi Bandung, Bandung, 40132, INDONESIA

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Hennie Husniah Department of Industrial Engineering Langlangbuana University Bandung, 40116, INDONESIA

Asep K. Supriatna Department of Mathematics Padjadjaran University Jatinangor, 45363, INDONESIA

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Asep K. Supriatna, Department of Mathematics, Padjadjaran University, Jatinangor, 45363, INDONESIA

Hennie Husniah, Department of Industrial Engineering, Langlangbuana University, Bandung, 40116, INDONESIA

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Nur F. Sa'idah, Doctoral Program in Industrial Engineering and Management, Institut Teknologi Bandung, Bandung, 40132, INDONESIA

Udjianna S. Pasaribu, Study Program of Mathematics, Institut Teknologi Bandung, Bandung, 40132, INDONESIA

Hennie Husniah, Department of Industrial Engineering, Langlangbuana University, Bandung, 40116, INDONESIA

Bermawi P. Iskandar, Study Program of Industrial Engineering, Institut Teknologi Bandung, Bandung, 40132, INDONESIA

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Maria Corazon M. Balasa, DOST – Central Office, Taguig City, Philippines

Trinmar A. Boado, DOST – MIRDC, Taguig City, Philippines

Rex Aurelius C. Robielos, School of Industrial Engineering and Engineering Management, Mapua University, Intramuros, Manila, Philippines

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Sugeng Susilo Adi, Department of Language Education, Faculty of Cultural Studies, Universitas Brawijaya, Indonesia

Tri Hadiyanti Hayuningrum Hartono, Alumnae of the Department of Language Education, Universitas Brawijaya, Indonesia

Lusy Tunik Muharlisiani, Department of English Education, Faculty of Language and Sciences, Universitas Wijaya Kusuma Surabaya, Indonesia

Johny Sugiono, Department of English Education, Faculty of Language and Sciences, Universitas Wijaya Kusuma Surabaya, Indonesia

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Aries Kurniawan, Universitas Muhammadiyah Gresik, Program Studi Kewirausahaan Gresik, Indonesia

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Ayih Sutarih and Endang Sutrisno, Lecturer of Law Departement and Magister of Law Program University of Swadaya, Gunung Jati Cirebon West Java., Indonesia

Dewi Rahayu, Student of Magister of Law Program University of Swadaya Gunung Jati Cirebon West Java, Indonesia

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Fahrudin Salim, Universitas Pancasila, Jakarta, Indonesia

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Harapin Hafid, La Ode Ba'a, Serlina Sirupang, Rahman, Inderawati, Astriana Napirah, Department of Animal Science, Halu Oleo University, Jl. HEA. Mokodompit Kampus Anduonohu 93232, Kendari, Southeast Sulawesi, Indonesia

Siti Hadranyanti Ananda, Department of Nutrition, STIKES Karya Kesehatan 93232, Kendari Southeast Sulawesi, Indonesia

Hasnudi, Departement of Animal Husbandry, Faculty of Animal Husbandry, Universitas Sumatera Utara, Kampus Padang Bulan 20155 Medan, North Sumatera, Indonesia

Midranisiah, Department of Agrotechnology, STIPER Sriwigama 30137, Palembang South Sumatera, Indonesia

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Hayati Hehamahua, University Iqra Buru, Indonesia

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Muhammad Iqra Harun¹ Lecturer at Economy Faculty UMMU–Ternate, Indonesia

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Mona Permatasari Mokodompri, Department of Accounting, Universitas Papua, Manokwari, Indonesia

Sarah Usman, Department of Management, Universitas Papua, Manokwari, Indonesia

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Sanasintani, Sekolah Tinggi Agama Kristen Negeri (STAKN) Palangka Raya Jl. Tampung Penyang, RTA, Milono Km. 6 Palangka Raya 73112, Kalimantan Tengah, Indonesia

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Santospriadi, Faculty of Engineering, University of Muhammadiyah North Maluku, Ternate 97726, Indonesia

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Sarmauli, Sekolah Tinggi Agama Kristen Negeri (STAKN) Palangka Raya/ Sekolah Tinggi Teologi Cipanas., Alamat Lembaga: Jl. Tampung Penyang – RTA Milono KM 6 Palangka Raya, Jl. Gadok No. 1 Cipanas Kab. Cianjur Jawa Barat, Indonesia

Nini Adelina Tanamal, Universitas Indraprasta PGRI (UNINDRA) Jakarta., Alamat Lembaga: Jl. Nangka No. 58 C (TB Simatupang), Tanjung Barat, Jagakarsa, Jakarta Selatan, Indonesia

R. Henry Simamora and Dewi Magdalena Rotua, Institut Injil Indonesia Kota Batu, Malang., Alamat Lembaga: Jl. Indragiri No. 5 Batu, Malang– Jawa Timur, Indonesia

Alokasih Gulo, Sekolah Tinggi Teologi BNKP Sundermann Nias., Alamat Lembaga: Jl. Pendidikan, No. 19 Gunung Sitoli., Sumatera Utara, Indonesia

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Mustafa Albahrani, 820 Building, Ras Tanura 31311, Saudi Arabia

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Rex Aurelius C. Robielos, Department of Industrial Management, National Taiwan University of Science and Technology, Taipei, Taiwan. No.43, Sec. 4, Keelung Rd., Da'an Dist., Taipei City 10607, Taiwan (R.O.C.) and School of Industrial Engineering and Engineering Management, Mapua University, Manila, Philippines. 658 Muralla St., Intramuros, Manila 1002, Philippines

Chiuhsiang Joe Lina, Department of Industrial Management, National Taiwan University of Science and Technology, Taipei, Taiwan. No.43, Sec. 4, Keelung Rd., Da'an Dist., Taipei City 10607, Taiwan (R.O.C.)

Yogi Tri Prasetyob, School of Industrial Engineering and Engineering Management, Mapua University, Manila, Philippines. 658 Muralla St., Intramuros, Manila 1002, Philippines

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Zulaiha Husen, Universitas Khairun, Indonesia

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Minsih, Primary Teacher Education, Faculty of Teacher Training and Education, Universitas Muhammadiyah Surakarta, Central Java, Indonesia

Ratna NP, Primary Teacher Education, Faculty of Teacher Training and Education, Universitas Muhammadiyah Surakarta, Central Java, Indonesia

A. Fathoni, Primary Teacher Education, Faculty of Teacher Training and Education, Universitas Muhammadiyah Surakarta, Central Java, Indonesia

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Siti Zaenab, STAHN Gde Pudja Mataram Lombok NTB, Indonesia

Abdul Hakim Maaruf' STKIP Kusuma Negara, Indonesia

Otto Fajarianto, STMIK Bina Sarana Global Tangerang. Indonesia

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Sri Sukasih, Faculty of Education, Semarang State University, Semarang 50229 Indonesia

Alfi Laila, Universitas Nusantara PGRI Kediri, Kediri, Indonesia

Gunadi Adi Putra Yunus, Universitas Khairun, Ternate, Indonesia

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Sukaris, Universitas Muhammadiyah Gresik, Program Studi Manajemen, Indonesia

Jiwangga Hadi Nata, Universitas Muhammadiyah Gresik, Program Studi Kewirausahaan, Indonesia

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Umar Tangke, Lecturer at Fisheries Technology Products Departement, Faculty of Agriculture, Universitas Muhammadiyah Maluku Utara, North Maluku, Indonesia

Aisyah Bafagih, Lecturer at Fisheries Technology Products Departement, Faculty of Agriculture, Universitas Muhammadiyah Maluku Utara, North Maluku, Indonesia

Ruslan A. Daeng, Lecturer at Fisheries Technology Products Departement, Faculty of Agriculture, Universitas Muhammadiyah Maluku Utara, North Maluku, Indonesia

Syahnul Sardi Titaheluw, Lecturer at Fisheries Technology Products Departement, Faculty of Agriculture, Universitas Muhammadiyah Maluku Utara, North Maluku, Indonesia

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Wa Ode Sifatu, Anthropology Department, Cultural Science Faculty, Halu Oleo University; Home Adress: BTN UNHALU BLOK W, Number 28 Kendari, Pos Code: 93232, Sulawesi Tenggara, Indonesia

Bahtiar, Sociology Department, Social and Political Science Faculty, Halu Oleo University; Home Address: BTN Kendari Permai Blok H2 Number 17, Kendari, Pos Code: 93232, Sulawesi Tenggara, Indonesia

La Ode M. Aslan, Aquaculture Department, Fishery Science Faculty, Halu Oleo University. Home Address: BTN Unhalu Blok U Number 17, Kendari, Pos Code: 93232, Sulawesi Tenggara, Indonesia

Muh. Abd. Rachman Gege, English Letter Department, Cultural Science Faculty, Halu Oleo University, Kendari, Indonesia

Siti Rasiah, Arab Letter Department, Cultural Science Faculty, Halu Oleo University, Kendari, Indonesia

La Sudu and Irma Magara, Indonesian Language Department, Cultural Science Faculty, Halu Oleo University, Kendari, Indonesia

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Zeth Patty, Faculty of Science, Technology and Health, Universitas Hein Namotemo, Tobelo, Indonesia

Febrina Olivia Akerina, Faculty of Science, Technology and Health, Universitas Hein Namotemo, Tobelo, Indonesia

Zakarias Dilago, Departement of Silviculture, Politeknik Perdamaian Halmahera, Tobelo, Indonesia

Ariance Yeane Kastanja, Faculty of Science, Technology and Health, Universitas Hein Namotemo, Tobelo, Indonesia

Nonice Manikome, Faculty of Science, Technology and Health, Universitas Hein Namotemo, Tobelo, Indonesia

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Syafiadi Rizki Abdila, School of Materials Engineering, University Malaysia Perlis, Malaysia

Syafwandi, Faculty of Engineering, Univeristy Mercu Buana Jakarta, Indonesia

Muhammad Isradi, Faculty of Engineering, Univeristy Mercu Buana Jakarta, Indonesia

Muhammad Sobirin, Faculty of Engineering, Univeristy Mercu Buana Jakarta, Indonesia

Acep Hidayat, Faculty of Engineering, Univeristy Mercu Buana Jakarta, Indonesia

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Khoirul Hidayat, Department of Agricultural Technology, Faculty of Agricultural, Trunojoyo University, Bangkalan, Indonesia

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Izzatul Fithriyah, Universitas Airlangga Teaching Hospital, Department of Psychiatry, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia

Yunias Setiawati and Sasanti Yuniar, Department of Psychiatry, Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia

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Khoirul Hidayat, Department of Agroindustrial Technology, Trunojoyo University, Bangkalan, Indonesia

M Adhi Prasnowo and Nurul Aziza, Department of Industrial Engineering, Universitas Maarif Hasyim Latif, Sidoarjo, Indonesia

Mohammad Mahpur, Department of Psychology, Universitas Islam Negeri Maulana Malik Ibrahim Malang, Malang, Indonesia

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M. Zamroni, Aang Kunaifi, Agung Supangkat, Rahayu Sri Utami, Siti Mundiroh, Bambang Panji Gunawan, Suyatno, and Sudjiono, Mudjib, Departement of Law, Universitas Maarif Hasyim Latif Sidoarjo, Indonesia

Achmad Fathoni Rodli, Department of Economics and Business, Universitas Maarif Hasyim Latif Sidoarjo, Indonesia

Ahmad Makki, Yayasan Pendidikan dan Sosial Maarif Sepanjang, Sidoarjo, Indonesia

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Nurul Aziza, M Adhi Prasnowo, and Eko Wahyudi, Department of Industrial Engineering, Universitas Maarif Hasyim Latif, Sidoarjo, Indonesia

R Dion Handoyo Ontoseno, Sehman, Khairil Anam, and Yesi Novia, Isturom Arif, Department of Information Technology, Universitas Maarif Hasyim Latif, Sidoarjo, Indonesia

Wiji Lestariningsih, Department of Mechanical Engineering, Universitas Maarif Hasyim Latif, Sidoarjo, Indonesia

Renny Nirwana Sari, and Agung Santoso, Department of Visual Communication Design, Universitas Maarif Hasyim Latif, Sidoarjo, Indonesia

Lilla Puji Lestari, Department of Medical Laboratorium Technology, Universitas Maarif, Hasyim Latif, Sidoarjo, Indonesia

Darno, Department of Accounting, Universitas Maarif Hasyim Latif, Sidoarjo, Indonesia

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Pujo Kusumo, Nurul Aziza, M Adhi Prasnowo, Moch. Anshori, Gusti Adriansyah, Ahmad Fatih Fudla, Dini Retnowati, Ika Widhya Anggraini, and Asri Dwi Puspita, Department of Industrial Engineering, Universitas Maarif Hasyim Latif, Sidoarjo, Indonesia

Moch. Hatta, Department of Information Technology, Universitas Maarif Hasyim Latif, Sidoarjo, Indonesia

Mochamad Choifin, Department of Mechanical Engineering, Universitas Maarif Hasyim Latif, Sidoarjo, Indonesia

Achmad Fathoni Rodli, Department of Economics and Business, Universitas Maarif Hasyim Latif Sidoarjo, Indonesia

Ahmad Makki, Yayasan Pendidikan dan Sosial Maarif Sepanjang, Sidoarjo, Indonesia

Strategy of Performance Development of Indonesia Aerodrome Inspector in 2020

Eko Wahyu Purwanto, Arasy Alimudin, Abdul Wahid
Narotama University, Surabaya, Indonesia
cagaliyullaatta@gmail.com, arasy.alimudin@narotama.ac.id

Joko Suyono
Narotama University, Surabaya, Indonesia
Universitas Airlangga, Surabaya, Indonesia

Damarsari Ratnasahara Elisabeth
Sekolah Tinggi Ilmu Ekonomi Mahardika, Surabaya, Indonesia.

Corresponding Author: Joko Suyono (joko.suyono@narotama.ac.id)
joko.suyono-2016@feb.unair.ac.id

Abstract

The Aerodrome Inspector at the Airport Authority Office, he carries out control activities in the form of: providing directions, guidance, technical assistance and recommendations for licensing extensions. The objective of the research is to evaluate and analyze the performance and excellence of the Aerodrome Inspector in 2019 and to analyze what are the alternative strategies for developing the Aerodrome Inspector's performance, using the Internal Factor Analysis Strategy (IFAS) and External Factor Analysis Strategy (EFAS) methods, then determining strategic priorities from the results of the IFAS and EFAS analysis with the QSPM matrix (Quantitative Strategic Planning Matrix). The competitive advantages of Aerodrome Inspector in Region III Airport Authority offices in 2019 can be formulated as follows: 1. Competent Aerodrome Inspector; 2. Officials who support the performance of the Aerodrome Inspector; 3. An appropriate Aerodrome Inspector educational background; 4. Aerodrome Inspector's knowledge of data base processing software; 5. Aerodrome Inspector's knowledge of the data processing software; 6. Aerodrome Inspector's knowledge of license renewal data processing software. The results of the study show that the right strategy for developing the performance of the Aerodrome Inspector in 2020 is a product development strategy through developing the productivity skills and knowledge of the Aerodrome Inspector himself.

Keywords

Strategy, product development, performance, competitive advantages, Aerodrome Inspector

1. Introduction

The air transportation is one of the lifeblood of a nation's economy. The development of sustainable air transportation is the task of the government in improving the people's economy. The development of air transportation is not only in the form of developing transportation facilities and supporting equipment but also in the form of guaranteeing flight safety and improving services to passengers. Airport Authority Office Region III - Surabaya was formed based on the Regulation of the Minister of Transportation Number PM 41 of 2011 concerning the Organization and Work Procedure of the Airport Authority Office. The Airport Authority Office oversees airports in four provinces in Indonesia, namely: East Java, Central Java, Yogyakarta Special Region and South Kalimantan which are the Technical Implementing Units within the

Ministry of Transportation which are under and responsible to the Minister Transportation through the Director General of Civil Aviation. The authority related to provisions regarding the position and accountability relationship of the Regional Airport III - Surabaya Authority Office in its implementation is delegated to the Director General of Civil Aviation.

For the implementation of the duties and functions of the Regional III - Surabaya Airport Authority Office, Human Resources are strengthened including Echelon II Officials (Head of Office); Echelon III Officials (Head of Division and Head of Section); Echelon IV Officials (Head of Section and Head of Subdivision); Aviation Inspector (Air Transport Inspector, Airport Inspector, Aviation Security Inspector, Aviation Navigation Inspector, Airworthiness and Aircraft Operations Inspector); and General Functional Positions. The Airport Inspector (Flight Inspector in general) at the Regional Airport III - Surabaya Authority Office is obliged to carry out control, supervision and investigation of safety, security and flight services in accordance with the fulfillment of the criteria as well as the assigned duties and authority (Prasetya, 2019; Siahaan, 2019). The performance measurement index for the Aerodrome Inspector, Regional Airport Authority Office, uses the Activity Performance Index in the Performance Accountability Report for Government Agencies (Siahaan, 2019). So that it can be seen the excellence of the Airport Inspector in 2019 and a strategy for developing the Airport Inspector's performance in 2020.

For that it is necessary to do research on:

1. How is the Performance of the Aerodrome Inspector in 2019 and the competitive advantage of the Aerodrome Inspector?
2. What alternative development strategies should be taken to improve the Performance of Aerodrome Inspectors in 2020?

2. Literature Review

Performance is the implementation of functions that are required of a person, performance is an act, an achievement, a general exhibition of skills ("Interview with John Whitmore," 2009). And Performance is an assessment of how someone has worked compared to predetermined targets (Holmes et al., 2004). Whereas strategy is "the creation of a unique and valuable position that is gained by carrying out a series of activities" (E. Porter, 2011; Porter, 1996). To improve company performance in a sustainable manner requires a series of managerial decisions and actions that determine the performance of a company in the long term (Hunger, J. David, 2003). The company will have a competitive advantage is whatever the company does better than its competitors. When a company can do something a rival firm cannot or has something a rival firm wants, it can represent a competitive advantage (Fred R. David, 2011). Several previous studies on airport development strategies include;

Many airports have shifted from simple transfer stations to global logistics transportation hubs and, more recently, to multifunctional airport cities. This study carries out an integrated analysis of the development trends of city-airports and the formulation of strategies. By integrating trends and key factors for successful airport-city development and analyzing the competitive environment to detect the advantages and disadvantages of Taiwan Taoyuan International Airport with SWOT analysis, and developing a TOWS matrix so that an airport-city development strategy can be identified by consolidating the competitive advantage, key factors and airport-city development strategy (Hong et al., 2012). Airport cities are not only an index of a country's performance in development, but also play a role as a driver of national industry and a gateway to economic globalization. The Taoyuan International Airport case study illustrates the application of the proposed approach in systematic competitive analysis and the formulation of an airport city development strategy. Strategic planning that is put forward in the systematic operation of the unit is the key to the development of an airport city (Wang & Hong, 2011). The Asia-Pacific region has become one of the largest aviation markets in the world, and an increasing number of airports in the region are looking to develop into aviation hubs. In order to understand the competitive position of major airports in Asia, this study has selected ten major airports in Asia-Pacific, and has identified the markets in which these airports have an edge by looking at their level of connectivity both in terms of quantity and quality. The results show that airport authorities should identify their market position and strengthen their

comparative advantage based on the results(Chang et al., 2020). International airports must offer unique services and facilities to customers, modern service-based information systems and customer complaint handling systems. Service quality is one of the important concerns of international airports, because high quality brings many benefits to the organization, such as increased customer satisfaction and revenue. Therefore, to maintain high quality and compete with other international airports, International Airport needs to ensure the development of its services(Albeshr & Ahmad, 2015).

3. Method

This study aims to explain the competitive advantages of Aerodrome Inspectors in 2019 and determine the strategy for developing the performance of airport inspectors in 2020 using the SWOT analysis method with the Internal Factor Analysis Strategy (IFAS) and the External Factor Analysis Strategy (EFAS) which regulates strengths, weaknesses, opportunities. , and the main threat becomes an organized and carried out list to see the factors that exist both internally and externally that affect the performance of the Airport Inspector. Primary data collection uses observation and interview methods, primary information is obtained from informants and can also interact directly(Sugiyono, 2016). Where the sources that researchers get are from the Head of Airport Service and Operation, Head of Airport Operations Section, Head of Airport Service Facilities Section, Group Leader 1 Airport Operations Section, and Group Leader 2 Airport Facilities and Services Section.

The IFAS and EFAS matrices were processed using the following steps(Freddy Rangkuti, 2014):

- a. Identification of internal and external factors of the organization
The first step is to identify internal factors, namely by listing all the weaknesses and strengths of the business. Internal factors are identified by listing all opportunities and threats of a business.
- b. The determination of the weight of each variable
The determination of the weight is done by proposing identification of external and internal strategic factors to those who have a strong knowledge of the internal and external factors of their business by using the pairwise comparison method.
- c. The determination of rating
The determination of rating is carried out on the variables of the analysis of the organizational situation. The weighting and rating results are included in the IFAS and EFAS matrices. Furthermore, the value of the weighting is multiplied by the average rating value for each factor and all the products are added vertically to obtain the total weighted score.

Apart from the IFAS and EFAS analyzes, other techniques used to formulate the Aerodrome Inspector's strategy are External Factor Evaluation and Internal Factor Evaluation(F. R. David, 2006; Fred R. David, 2011).

4. Result And Discussion

The Regional III Airport Authority Office has strategic objectives, namely:

1. Increasing the safety and security of air transportation in the work area of the Airport Authority Region III;
2. Increasing the performance of transportation facilities and infrastructure services in the working area of the Regional Airport Authority Office III;
3. Availability of competent and professional human resources for air transportation at the Regional Airport Authority Office III;
4. Increased air transportation services in disaster prone areas, borders, outermost and remote areas in the work area of the Airport Authority Region III;
5. Realizing good governance and clean governance in the Regional Airport Authority Office III.

The main business of aviation development at the Regional Airport Authority Office III is Regulation, Control and Supervision of Aircraft, Airports, Air Transport, Aviation Security and Aviation Navigation.

Based on the analysis of the advantages of the Regional III Airport Authority Office The Government Agency Performance Accountability Report in Table 1.Target and Realization of Performance in 2019, it can be concluded that the excellence of the Region III Airport Authority office in 2019 can be formulated as follows:

1. Competent Aerodrome Inspector;
2. Officials who support the performance of the Aerodrome Inspector;
3. An appropriate airport inspector educational background;
4. Aerodrome Inspector's knowledge of data base processing software;
5. Aerodrome inspector's knowledge of the data processing software; and
6. Aerodrome inspector's knowledge of license renewal data processing software.

Table 1.Target and Realization of Performance in 2019

| Program Objectives | Performance Indicators | | Target PK | Realization of Performance | | | | | Achievements (%) |
|---|--|-------|-----------|----------------------------|-------|-------|-------|--------------|------------------|
| | Description | Unit | | I | II | III | IV | Total | |
| The increased safety and security of air transportation in the working area of the Airport Authority Office | The ratio of surveillance reports to Aviation Security that is followed up | Rasio | 0,4 | 0,16 | 0,54 | 0,76 | 0,96 | 0,96 | 240 |
| | Ratio of Follow-up Supervision Reports to Emergency Services | Rasio | 0,3 | 0,1 | 0,1 | 0,5 | 0,5 | 0,5 | 166,67 |
| | Ratio of the Supervision Report to Aircraft Feasibility and Operation which is followed up | Rasio | 1,0 | 0,19 | 0,538 | 0,861 | 0,958 | 0,958 | 95,8 |
| | Ratio of Supervision Reports to Fulfillment of Standards for Activities of Development Navigation Services which are Followed Up | Rasio | 1.0 | 0,3 | 0,45 | 0,72 | 0,88 | 0,88 | 88 |
| | Ratio of Supervision Reports to Airport Services and Operations that are followed up | Rasio | 0,5 | 0,35 | 0,618 | 0,893 | 1,168 | 1,168 | 233,6 |
| | Ratio of control to airport equipment and operating facilities | Rasio | 1,0 | 0,29 | 0,35 | 0,56 | 0,76 | 0,76 | 76 |
| | Average Target Achievement | | | | | | | | 150,01 |
| Increased performance of transportation facilities and infrastructure services in the work area of the Airport Authority Office | Ratio of reports on the monitoring of air transport activities that are followed up | Rasio | 1,0 | 0,3 | 0,61 | 0,835 | 1,153 | 1,153 | 115,3 |
| | The ratio of the service reports of standard airport service users being followed up | Rasio | 0,65 | 0 | 0.09 | 0.09 | 0,211 | 0,211 | 32,46 |
| Average Target Achievement | | | | | | | | 73,88 | |
| Availability of competent and professional air transport human | Competency fulfillment ratio for Aviation Inspectors | Rasio | 1,0 | 0,44 | 0,807 | 0,85 | 0,91 | 0,91 | 91 |

| Program Objectives | Performance Indicators | | Target PK | Realization of Performance | | | | | Achievements (%) |
|---|---|-------|-----------|----------------------------|-------|-------|-------|-------|------------------|
| | Description | Unit | | I | II | III | IV | Total | |
| resources in the work area of the Airport Authority Office | | | | | | | | | |
| Average Target Achievement | | | | | | | | | 91 |
| Increased air transportation services in disaster prone areas, per border, outermost and remote areas | Ratio of reports on monitoring of implementation of pioneering services and air cargo subsidies that are followed up. | Rasio | 1,0 | 0 | 0,33 | 0,49 | 0,49 | 0,49 | 49 |
| Average Target Achievement | | | | | | | | | 49 |
| The realization of good governance and clean governance at the Airport Authority Office | Percentage Rate of Budget Absorption of Regional Air Tire Authority Office | % | 95 | 16,63 | 36,93 | 56,41 | 92,38 | 92,38 | 97,24 |
| | Asset Value of Inventory Airport Authority Office | % | 95 | 0 | 0 | 0 | 95 | 95 | 100 |
| Average Target Achievement | | | | | | | | | 98,62 |

Source: The Government Agency Performance Accountability Report in 2019

Regarding the duties and functions of Airport Authority Officers, which are taken from the tables1:

1. The ratio of supervision to service and airport operations which is followed up where the realization value or achievement in 2018 is 1.03 ratio from the target ratio set at 0.75 or it can be said that the success rate reached 137.33% of the target. Whereas in 2019 the realization value or achievement in 2019 was 1,168 ratios from the target ratio set at 0.5 ratio or it can be said that the success rate reached 233.6% of the target. This resulted in an increase in realization of 96.27% even though the target was lowered from 0.75 in 2018 to 0.5 in 2019.
2. The ratio of control to airport facilities / equipment and operations whose realization value or achievement in 2018 is 1 ratio from the target ratio set at 1 ratio or it can be said that the success rate reaches 480% of the target. Whereas in 2019 the realization value or achievement of 2019 was 0.76 from the target ratio set at 1 ratio or it can be said that the success rate reached 76% of the target. So that there is a decrease in realization of 406% with the same target in 2018 and 2019.
3. The competency fulfillment ratio for aviation inspectors with a ratio value of 1.06 from the targeted 0.9 or it can be said that the success rate reached 106.67% of the target In 2018. Whereas in 2019 the competency fulfillment ratio for aviation inspectors with a ratio value of 0.91 from the targeted 1 or it can be said that the success rate reached 91% of the target. So that there was a decrease in realization between 2018 and 2019 by 15.67%.

Table 2. Strategic Advantage Profile (SAP)

| Component | Strength | Weakness |
|--------------------------------------|---|---|
| Human Resources | <ol style="list-style-type: none"> 1. Competent Aerodrome Inspector 2. Officials who support the performance of the Aerodrome Inspector 3. Appropriate Aerodrome Inspector educational background 4. Aerodrome Inspector's knowledge of data base processing software 5. Aerodrome inspector's knowledge of the data processing software 6. Aerodrome inspector's knowledge of license renewal data processing software | <ol style="list-style-type: none"> 1. Less than optimal dedication of Aerodrome inspectors 2. Official decisions that do not support the performance of Aerodrome inspectors 3. Inappropriate Aerodrome Inspector educational background 4. Lack of skilled Aerodrome inspectors regarding data processing software 5. Lack of skilled Aerodrome inspectors regarding license renewal data processing software |
| Office Facilities and Infrastructure | <ol style="list-style-type: none"> 1. Adequate work facilities for inspectors 2. Adequate monitoring facilities 3. There are PCs in all agencies / work units 4. Measuring equipment for KKOP, personnel testing as well as equipment worthiness testing is available | <ol style="list-style-type: none"> 1. There are work facilities that are becoming obsolete and damaged 2. Hardware maintenance for personnel testing and equipment worthiness testing is of little concern 3. Some equipment is outdated |
| Software Systems | <ol style="list-style-type: none"> 1. Supervision SOP 2. Testing SOP 3. Software for testing personnel and equipment worthiness testing 4. Appropriate inspector training program | <ol style="list-style-type: none"> 1. SOP which sometimes needs to be updated to adapt to developments in the situation 2. Limited data base storage software 3. Inappropriate inspector training program |
| Budgeting | Allocated budget | Budget is cut during budget revisions |

Source: Results of interviews and questionnaires from informants in 2020

The table 2 shows that the Aerodrome Inspector has 15 strengths and 12 weaknesses, so that the strengths are 3 points ahead of the weaknesses.

Table 3. Environmental Threat and Opportunity Profile (ETOP)

| Component | Opportunity | Threat |
|--------------------|---|--|
| Auditee | The auditee supports the provision of information and data during supervision (inspection and monitoring) | <ol style="list-style-type: none"> 1. Inadequate information and data from the auditee 2. Auditee's knowledge of aviation regulations is still lacking 3. Auditee is less cooperative |
| Permit applicant | Application requirements have been completed (administrative data) before checking and testing | The application requirements have not been completed (administrative data) prior to checking and testing |
| Rules and policies | <ol style="list-style-type: none"> 1. There are regulations that cover the duties and authorities of the airport inspector. 2. Leadership policies that support the duties and powers of airport inspectors | <ol style="list-style-type: none"> 1. There are several rules that are not in sync with one another 2. There are no regulations for specific duties or authorities yet 3. Sometimes there are leadership policies that do not support the duties and powers of airport inspectors |

Source: Results of interviews and questionnaires from informants in 2020

Table 3 shows that the Aerodrome Inspector faces a greater threat than the opportunities around him, because the threat is 3 points more.

The value of the total strengths (advantages) - the weaknesses of the Aerodrome Inspector which is the result of this internal analysis (SAP) is combined with the total value of the opportunities - threats (ETOP) into the SWOT analysis diagram, then the position of the Aerodrome Inspector is as shown in Figure 1.

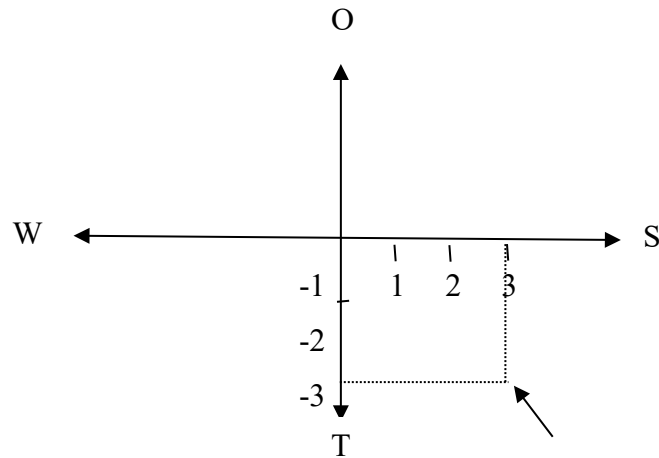


Figure 1 Aerodrome Inspector SWOT Analysis Diagram

Based on Figure 1, it is known that the position of the Regional Airport Authority Office III is in the ST (Force-Threat) Strategy. Where the strategy that can be done is market development, in this case the development of the Auditee and licensing applicants and to increase the intensity of communication, socialization of applicable regulations.

| | | Skor Total IFE | | | |
|----------------------|-----------------------------------|---------------------|--------------------------|----------------------|--------------------------|
| | | Kuat 3,00 – 4,00 | Rata-rata 2,00 – 2,99 | Lemah 1,00 – 1,99 | |
| Skor Total EFE | | I | II | III | Tinggi 3,00 – 4,00 |
| | Grow & Build (3,24;2,65) IV | | V | VI | Rata-rata 2,00 – 2,99 |
| | | VII | VIII | IX | Rendah 1,00 – 1,99 |

Figure 2 Aerodrome Inspector IE Matrix

In Figure 2 it can be seen that the total IFE value of 3.24 indicates that the Aerodrome Inspector is in a strong position (more than 2.5 IFE total score) in an effort to take advantage of existing strengths and if needed can also hide weaknesses – weakness. And then the total EFE value of 2.65 shows that the Airport Inspector responds well to opportunities and avoids threats in the external environment. And the results of the mapping of the total IFE value and the total EFE value of the Airport Inspector into the IE Matrix show that the position of the Aerodrome Inspector is in quadrant / cell IV. This position implies that the most appropriate strategy to use is the Grow and Build strategy. Strategies that can be applied are intensive strategies (market penetration, market development and product development), and Integration Strategy (vertical integration and horizontal integration). To determine the recommended alternative strategy because it is the same strategy that is generated through the use of two different matrices, and it can be said that the results are suitable. After analyzing using QSPM, the total value of relative attractiveness (Total Attractiveness Score) was obtained for each alternative strategy as can be seen in table 4.

Table 4 .Total Attractiveness Score Aerodrome Inspector

| No | Strategy | Value (TAS) |
|----|---|-------------|
| 1. | Market penetration intensifies the performance of an airport inspector in responding to his duties and functions that are directly related to the auditee and the licensee. | 3,73 |
| 2. | Product development, development in terms of productivity of Airport Inspectors. | 5,15 |
| 3. | Market development, development from the side of the Auditee and licensing applicants. | 4,54 |

Based on table 4, it can be seen that for the future development of Airport Authority Officers, the use of product development strategies in terms of Airport Inspector productivity can be prioritized. This strategy was chosen because it has the largest Total Attractiveness Score (TAS) among other alternative strategies with a score of 5.15.

5. Conclusions

Based on the SWOT Matrix Analysis and Discussion and based on the IE matrix (IE Matrix), the recommended strategy recommendations for Aerodrome Inspector Development in 2020 are growth and development strategies. Furthermore, the Quantitative Strategic Planning Matrix (QSPM) is used as a tool to evaluate alternative strategic choices more objectively based on the main internal-external success factors that have been previously identified. After analyzing using QSPM, that for the development of Aerodrome Inspectors' performance in 2020 or in the future Aerodrome Inspectors must prioritize the use of product development strategies in terms of aerodrome inspector productivity because they have a value of Total Attractiveness. The highest score (TAS) among other strategies, namely: 5.15.

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Biographies

Eko Wahyu Purwanto is a Master of Management Student at Narotama University, Surabaya Indonesia, majoring in human resource management.

Arasy Alimudin is Associate Professor of strategic management, and Lecturer of Master of Management Program of Narotama University, Surabaya, Indonesia.

Joko Suyono is a lecturer at Narotama University, Surabaya, Indonesia. He is also as Head of Master of Management at Narotama University, Surabaya, Indonesia. He got bachelor degree in business administration and also accounting, he got master degree in industrial management and also in marketing management, and he got doctoral degree in business administration. Prior becoming a lecturer, he is a practitioner as senior manager in some multinational corporation such as Stanley Works Indonesia (USA Company), Ericsson Indonesia (European Company) and Lotus Indah Textile Industries, a multinational company in the textile, spun yarns.

Damarsari Ratnasahara Elisabeth is a lecturer at Sekolah Tinggi Ilmu Ekonomi Mahardhika, Surabaya, Indonesia. She is a teacher in the field of management. She got bachelor degree in industrial management and master degree in human resource management.