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

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

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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

ID 208 Investigating the role of benchmarking as a cost control measure: Lessons from selected restaurants in Johannesburg, South Africa

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

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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

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

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ID 214 Factors affecting the Level of ICT innovation in Tanzania

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

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

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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

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

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ID 219 Plastic waste management in South Africa

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

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ID 221 Management of Innovation in a Weapon Manufacturing Company

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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

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

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ID 224 Intelligent Traffic Light Control

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

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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

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

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

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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

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

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

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

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

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

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

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

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

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

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

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ID 255 Critical Risk Factors of Outsourcing in Supply Chains

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ID 257 Blockchain-Enabled Campus Wine Supply Chain

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ID 258 Enhancement of Supply Chain Performance by Data Analytics

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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

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ID 261 Green Brand Awareness Factors on the Body Shop Product

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

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

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

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ID 265 DMAIC Six-Sigma Application in Management Productivity 'Gap' Reduction in Manufacturing Production Line

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ID 266 Adaptation of Hybrid Strategy in Healthcare Supply Chain

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

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

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

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

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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

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

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

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

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

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ID 287 Curriculum and learning;

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

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

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

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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

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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 Optimization the Process and Production of Polyurethane Foam from Soybean Oil

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

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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

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

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

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

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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

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

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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

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

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ID 308 Designing e-Commerce Supply Chains

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

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

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

Lynda Salem and and Mohamed Tayeb Laskri, Computer Science Department, Badji Mokhtare 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

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

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

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ID 322 The Effect of Transportation Infrastructure on Economic Development

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

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

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

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ID 326 Ambidexterity in Industrial Engineering Technology Education

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ID 327 The Dilemma of Productivity Improvement Initiatives

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

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

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

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ID 332 Accessing Production Machine Technology Flexibility Potential

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ID 333 Analyzing Human Errors Responsible for a Pressure Vessel Failure

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

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ID 335 Potential Role of Sugar Mills in the Peruvian Development

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

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

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ID 344 Communication Model in Blended Learning Using Telegram Applications

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

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

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ID 347 Evolution of Strategic Indian Defence

PARUL MEHTA, India

ID 348 E-procurement Application for a Distributor Company

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

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

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

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

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

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

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ID 356 Disposal of Used Fumigant Containers in Zambia

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

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

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

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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

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

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

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

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

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

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ID 369 Human Factors Concern in Multicultural Classroom Dynamics

Aljohara Fahad Al-Saud, KSU, Saudi Arabia

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

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

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

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

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

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

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

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

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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

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

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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

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

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

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ID 394 Security and Privacy Preserving in Precision Agriculture

Munyaradzi Magomelo, Bindura University of Science Education, Zimbabwe

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

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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

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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

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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, Syarif Hanum

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

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

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

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

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ID 410 Green Manufacturing for Waste Reduction in the Food Industry

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

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

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

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ID 415 Predicting Congenital Heart Diseases Using Machine Learning

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

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

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

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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)

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ID 422 Broadcasting Beyond: Making the Next Generation in Communication

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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

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

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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

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

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

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

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

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ID 432 BPJS Health Insurance Program: SME's Perspective

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

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

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ID 435 Mitigation Efforts and Natural Disaster Insurance Schemes in Indonesia

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

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

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

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ID 439 Determination of Earthquake Insurance Premiums Using the Bayesian Method

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ID 440 Inventory Simulation Modelling for Local Shoes Manufacturer

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

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

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ID 443 Adomian Decomposition Method and the New Integral Transform

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

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

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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)

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

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

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

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

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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

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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

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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

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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

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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

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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

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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

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

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

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

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

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

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

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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)

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

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

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ID 501 Modelling And Mapping University Business Process: Level 1

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

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

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

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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

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

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

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

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

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

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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 Mpofu 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

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

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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

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

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ID 537 Predict 2020 USA Presidential Election COVID-19 Correlation

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ID 538 Bio Printing and Micronutrient Supplements

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

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

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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

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

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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

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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

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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

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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

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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 Mejjaouli and Sarah Algublan, Industrial Engineering Department Alfaisal University, Riyadh, KSA

ID 568 Branch Network Optimization Model following Two Banks Merger

Sobhi Mejjaouli 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

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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

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Devit Etika Sari, STAI Miftahul Ula Nganjuk, East Java Indonesia

Muzayyanah Yuliasih, STP Aviasi, Jakarta Indonesia

Rika Istianingrum, Universitas Balikpapan Indonesia

ID 589 The Effectiveness of Group Mentoring Services in Reducing the Communicational Anxiety of Students

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ID 590 Improving the students of the EFL speaking class

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Yogi Purnama, Universitas Indraprasta PGRI, Indonesia

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ID 591 The Impact of CIRC (Cooperative Integrated Reading Composition) In Reading Comprehension Ability by Using the Cooperative Approach

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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

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ID 597 Develop Troop Strength Metric of Playing Empire 4 Kingdoms Video Game

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ID 599 The Islamic Working Culture of BRI Syariah and Its Influence on Employee Performance (Case Study at BRI Syariah Banyuwangi Branch)

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ID 600 Governance and Organization Theory Crisis

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ID 601 The Importance of Character Education in Higher Education (University) in Building the Quality Students

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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

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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

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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

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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 Relationship with Brand Image on The Decision of Selecting Business Studies

Dian Arisanti, Sekolah Tinggi Ilmu Administrasi dan Manajemen Kepelabuhan Barunawati Surabaya, Indonesia

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ID 619 Strategy of Performance Development of Indonesia Aerodrome Inspector in 2020

Eko Wahyu Purwanto, Arasy Alimudin, and Abdul Wahid, Narotama University, Surabaya, Indonesia

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ID 620 Brand Satisfaction, Brand Trust and Brand Loyalty

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Astrid Puspaningrum, Universitas Brawijaya, Malang, Indonesia

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ID 621 The Mediating Role of Knowledge Sharing in Relationship Between Organizational Culture and Employee Performance

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ID 622 The Mediating Role of Job Satisfaction in Relationship Between Organizational Justice and Employee Performance

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ID 623 Component Campaign against Attitudes Vote in the Elections in 2010

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Bambang Hadi Santoso Dwidjosumarno, Sekolah Tinggi Ilmu Ekonomi Indonesia Surabaya, Indonesia

ID 624 Antecedents of Job Performance at the Ship Design Company in Surabaya

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ID 625 The Antecedent of Job Satisfaction and Employee Loyalty: Financial Rewards and Work Motivation

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ID 626 The Determinant Factors of Work Life Quality and Employee Performance: Motivation and Job Satisfaction

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ID 627 Millennial Employees Performance, Transformational Leadership and Organization Communication

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ID 628 Implementation of Corporate Social Responsibility on Corporate Reputation Through Social Capital Strengthening and Increasing Community Welfare

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ID 630 A Review of Property Attributes Influence in Hedonic Pricing Model

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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

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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

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ID 635 NBA Player Aging Influence & Benchmarking Analysis

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ID 637 Monte Carlo Simulations in Poker and Gambling

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ID 638 Opportunistic maintenance under product-service system for usage based transportation system

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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.

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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

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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

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ID 667 The Application Of Program Monitoring The Health Of The Baby Through The SMS-Based Immunization Activities

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ID 668 Community Behavior, Regulation, and Reliable Waste Infrastructure in Ngawi Regency to Improve the Quality of Life

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ID 669 The Mediating Role of Knowledge Sharing in Relationship between Top Management Support and Employee performance

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ID 670 The Determinant Factors of Job Satisfaction and Employee Performance: Direct Compensation and Work Environment

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ID 671 Legal Protection of Employment Relationships for Employee Relationships (Study at PT X)

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ID 672 Implementation of Surgical Patient Safety by Nurses in Hospital

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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

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ID 680 ERASMUS+ United CBHE Automotive International Collaboration from European to South East Asia

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ID 681 Convolutional Neural Networks for Solid Waste Segregation and Prospects of Waste-to-Energy in Ghana

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ID 684 The Effectiveness Working Capital Management Small and Medium Enterprises (SMEs) Surabaya

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ID 685 Entrepreneurial Orientation and Business Sustainability of Home Industry Leather Shoes in Surabaya

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ID 686 Determining Dividend Payout Ratio And Good Corporate Governance On Consumer Goods Companies In Southeast Asia

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ID 689 The Relationship between Enterprise Resource Planning and Supply Chain Management

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ID 692 Teaching Extensive Reading Using Blended Learning

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Sugeng Susilo Adi, Universitas Brawijaya, Indonesia

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Yenny Aman Serah, Faculty of Law, Universitas Panca Bhakti, Pontianak, Indonesia

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ID 694 Undergraduate Engineering Education during COVID-19

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ID 695 Enhanced the performance of diesel fuel Blended with palm kernel oil for diesel engine

Salah K. Jawad, Mohammed M. Hamadi and Batool H. Kafi, Department of Production Engineering and Metallurgy, University of Technology, Baghdad, Iraq

ID 698 Potential of Lean Tool of Value Stream Mapping (VSM) in Manufacturing Industries

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

ID 699 Applications of Lean Six Sigma in Production Systems

Usama Khursheed Mughal, Muhammad Ali Khan, Pawan Kumar & Suneel Kumar, Department of Industrial Engineering & Management, Mehran University of Engineering & Technology, Jamshoro, 76062, Sindh, Pakistan

ID 700 Implementation of Overall Equipment Effectiveness (OEE) in Maintenance Management

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

ID 702 The SIR Spatial Model for COVID-19 Transmission by Resampling Method to Selecting Parameter Study Case: Java Island, Indonesia

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ID 703 Modified Verhulst Logistic Growth Model Applied to COVID-19 Data in Indonesia as One Example of Model Refinement in Teaching Mathematical Modeling

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ID 704 Can Convalescent Plasma Transfusion Reduce the COVID-19 Transmission?

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ID 705 Two-dimensional Maintenance Service Contract Ensuring Availability using Non-periodic Imperfect Preventive Maintenance

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ID 706 Prioritization of Programs and Projects of the Department of Science and Technology for Endorsement to the Public Investment Program (PIP) of the National Economic and Development Authority (NEDA) using Analytic Hierarchy Process (AHP)

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ID 707 English Teaching Techniques and Media Used in Indonesian Islamic Junior High Schools

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ID 708 Criminal Prosecution for Audio Visual Copyright Infringement in Coastal Areas

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ID 709 Food Safety and its Regulation on School Snacks for Society's Health in Cirebon

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Dewi Rahayu, Student of Magister of Law Program University of Swadaya Gunung Jati Cirebon West Java, Indonesia

ID 710 Enhancing Students' Awareness on Cross-Cultural Understanding Course through Lesson Study

Erwin Gay, English Department, UMMU, Jl. Ki. H. Ahmad Dahlan, Ternate, Indonesia

ID 711 Analysis of the Role of Financial Technology in Supporting the Financial Inclusion Program

Fahrudin Salim, Universitas Pancasila, Jakarta, Indonesia

ID 712 Organoleptic Quality of Beef Meatball Filled with Jackfruit Seed Flour

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ID 713 Financial Capability Analysis of South Buru Regency in the Era of Regional Autonomy

Hayati Hehamahua, University Iqra Buru, Indonesia

ID 714 An Analysis of Finance of Regional Government of North Halmahera Regency for 2009-2014 Budget Year

Muhammad Iqra Harun, Lecturer at Economy Faculty UMMU-Ternate, Indonesia

ID 715 Accounting Information System Analysis of Micro to Medium Enterprises

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Sarah Usman, Department of Management, Universitas Papua, Manokwari, Indonesia

ID 716 The Influence of School Culture on The Characters of The Students of Muhammadiyah Junior High School 1 of Ternate City

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ID 717 Collegial Supervision Model at Primary School 4 Menteng Palangka Raya, Central Kalimantan, Indonesia

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ID 718 Analysis Service Indicator of Speed Bumps on Toboko Road in Ternate City

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ID 719 Individual Assignment Method to Increase Students' Learning Independence in Christian Education Subject of Class VIII-A Public Junior High School-7 Palangka Raya

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ID 720 HVAC Equipment's Spare Parts Optimization in Saudi Arabia

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ID 721 Industrial Engineering Education in the Philippines: Issues and Concerns

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Financing Model for Small-Medium Scale Contractors in Indonesian

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Abstract

The important role played by the small-medium scale contractors in Indonesia has been flawed by their lack of performance and inefficiency. It demands improvement through innovation processes. Yet, the endeavor has been challenged by the limitation in sources of funding. This study therefore, was set to investigate the significance of the available source of funding to the innovation processes for Indonesian small-medium scale contractors. The result has shown that majority of the respondents were not having difficulties in accessing source of funding. Moreover, the interest rate was the most highlighted by the respondents amongst financial factors which might stimulate the innovation. However, the available source of funding still could not supporting the innovation processes. A solution has been proposed in order to overcome the problems. It is a system which has scanning, monitoring and training processes in one complete mechanism and known as microcredit. All the respondents agreed that the program would boost the industry performance. Yet, there was a major concern shown by the respondents for its contingency and success. The program would also bring a major change to the industry's structure.

Keywords

Small-Medium Contractors, Innovations, Sources of Funding, Microcredit.

1. INTRODUCTION

Globalization has become a major challenge for the construction industry and changed its structure. Globalization means that the boundaries are becoming wider, in context of opportunities and challenges. The Indonesian construction industry naturally has become one of the effected sectors which needed to respond to it. Yet, Soeprapto and Trigunarsyah [2005] argued that the Indonesian construction industry was not ready to enter the competition. Major changes and contingency endeavors need to be done by the industry. On the other hand, the highlighted for the industry was 60% market share was taken by the big scale contractors which registered only 1% from all Indonesian contractors' population [Afriyanto, 2016]. Therefore, further studies and major concerns are needed to be addressed to the small-medium scale contractors due to their improvement for surviving within the industry.

Under the heading of small-medium scale contractors, surviving within the industry is equally with a continuous improvement or innovation. The construction industry has a unique characteristic. Almost all construction projects are temporary basis activities whilst as a corporate the construction companies are managed based on day to day basis activities. In more common words, the incomes are temporarily whilst spending are continuous. Inadequate in liquidity to support the daily activities has brought many construction companies out of the business [as Singh and Lokanathan, 1992; cited by Nesan, 2012]. On the other hands, contractors which part of construction companies, tend to bid lower prices in order to stay within the business. By doing this, contractors take more risks beyond their power and make them more vulnerable to the unexpected financial aspects during the project completions [Purnus and Bodea, 2015].

It has been known that the financial ability of small and medium-scale companies will determine their aptitudes in developing and winning the market. This is typical of a fast growing and uncertain economic environment in a developing country and it sometimes brings obstacles for such companies to achieve this objective. As Bosa 1969; Levy 1993; Keasey and Watson 1994 stated, as cited by Eyiah [2001], “Difficulties in obtaining bank loans have been recognized as major constraints on development of small businesses in developing countries”. However, it should be noted that the existence of small and medium-scale contractors in developing countries is important, especially for their contribution to the socio-economic development. Perhaps, they are the only group of contractors who would seize the prospect of undertaking relatively unattractive construction contract in rural communities [Eyiah and Cook, 2003].

Therefore, based on above overviews, there are two headings which become major concerns, there are “innovation within small and medium scale contractor” and “the sources of funding to support their business sustainability”. This anxiety has been highlighted by Bahaswan, et. al. [2020] which noted that the availability on source of funding was the main factor which could brought innovation within small-medium scale contractor successful. Hence, the research objectives were constructed to serve the purpose. Firstly, “*What are the kinds of financing sources currently used by small-medium scale contractors in Indonesia?*” and secondly, “*What is the influence level of the available financial sources to the level of innovation for small-medium scale contractors in Indonesia?*”

2. LITERATURE REVIEWS

2.1. Source of Funding on Construction Industry

In general, the types of sources and financing available are many and varied, but can be divided into two broad categories, equity and debt. The definition of equity is finances that give the provider a proprietorial or ownership interest in the business. It is common that the amount of equity will be raised through the business development. Because of the limitation of individual sources in financing, an unlimited number of individuals or financial institutions contribute variable amounts of money in return for an appropriate shareholding in the company. On the other hand, debt also comes in many different forms. The most popular in this category is bank borrowing and trade credit. Yet, most of the businesses will be financed using a mixture of equity and debt [Calvert, et al, 1995].

A debt agreement has two common subjects to discuss. These are, the point where the debt must be refunded and interest that must be paid until the debt is repaid. On the other hand, the value of the funding which comes as equity, will be determined by the company’s performance. Nevertheless, there is, sometimes, a unique agreement which combine debt and equity as a unity. For instance, the assistance starts as a debt with an entitled amount of interest and later it may be delivered into shares of the company.

There are many ways in which the company can gain funding beside from the bank loan. The alternatives can be distinguished into two categories, which are short-term finance and long-term finance. Firms may further supplement their short-term needs by; trade credit, subcontracting, hire purchasing, leasing, stock control and venture capital. On the other hand, firms may combine these following sources of finance for their long-term finance; retained profits, clearing bank loans, merchant bank loans, shares, debentures, government grants and loans, sale and lease-back, joint venture and concession contraction. These are shortly quoted from Brett [1997], Ashworth [1996], and also Harris and McCaffer [2001].

2.2. Source of Funding for Small-Medium Scale Contractors

Concerning of the contributions of small-medium scale business enterprises in the macro economy of developing countries, many assistance programs are given to them by government and financial institutions. Basically, there are two kinds of policy options in this regard: (i) those designed to reduce enterprise needs for working capital; and (ii) those to enhance their access to loans. These policy options are based on the construction industry’s characteristics and the most likely problems which can happen in developing countries. For example, contractors could not repay loans made to them if interim-certificate payments were persistently delayed, and if they could not make profits from a project because of their poor technical and managerial knowledge [Eyiah, 2001].

On the other hand, Hillebrandt and Cannon [1990] argued that the industry used to be self-financed; however, this has changed because of the following four factors: a) Lower profit margins which are in some cases slim or not

existent, b) Inflation is lower and thin, following a period of high inflation which allows laxity in financial practice, meaning that tightening up is necessary, c) More fixed price contracts, and d) More difficult credit terms.

Eyiah [2001] argues that there is a remaining gap in the relationship between banks and small firms. This highlights the importance of employing an intermediary in helping to develop and strengthen the relationship between the parties. In this regard, Eyiah proposed that this function may well be presented by microcredit programs. Eyiah emerged with a model of microcredit for small contractors in developing countries and identifies three variables of activities that can accommodate and make the model become an interrelated process. These are;

a. Screening; This function could be played by the contractor association. Providing some information about its members and documenting their works can end up with recommendations to the source of financing bodies. These processes could minimize the risk and cost of the transaction.

b. Monitoring; This process will observe and maintain the borrowers for misuse of the funding and giving help to solve the incoming problems. It also retains the interest of both parties. However, the main issue within this process happens when the interim payments to the contractor are delayed. It is obvious that small contractors will suffer because of their limitation on capital sources.

c. Training; This process is based on the identified problems. Basically, such trainings or short courses will be given to the staff members of the small firms to improve their ability and capability in dealing with such problems.

Unfortunately, this model will generally bring fundamental changes within the industry and it needs time and further research to make this model more effective. Meanwhile, a sustainable means should be implemented in order to introduce this model into the industry and educate the people. A key role for the success of this program is played by the developing countries' government who has the power to pursue changes within construction industry.

2.3. Source of Funding within Indonesian Construction Industry

The background knowledge in this sub-chapter was gathered from the preliminary research which was conducted by targeting several Indonesian construction firms. In general, Indonesia as one of the developing countries seems to have a similar structure of sources of funding to the reviewed literature in this chapter. Nevertheless, an exception may occur in Indonesia's economic environment.

During the down fall of economic, construction industry was the first economic sector impacted and suffered the most. This is because the nature of the industry highly depends on the financial institutions/banks to support its financing ability. Unfortunately, many economists blame the industry as the main reason of the collapse of the financial structure. It might be reasonable because the majority of the financial institutions spent their credits on the construction industry. When the crisis happened, many of the credits within the industry were stuck and became non-refundable [Kompas, 2003].

On the other hand, the recovery of the Indonesian financial structure after the crisis seems to go slower than what people might have expected. This indeed indicates that there was another problem within the financial structure itself. Therefore, in order to provide a good economic environment, whether for the macro or micro economy, the government must first prioritize the recovery of the financial structure. This means that the credit processes would be more difficult [Djiwandono, 2004].

However, the government realizes that the recovery process within the construction industry is also important. This condition emerges parallel to the demand of small housing for the middle-class people. Therefore, in response to such conditions, the government has established agreements with chosen banks/financial institutions. There are 31 chosen banks/financial institutions that are designed to provide such assistance. Yet, the effectiveness of this policy seems still far from what it should be. It is because from those 31 chosen banks, only 5 of them have the capability to perform as required. The problems faced regarding this are; a) the financial institutions do not have a mechanism and qualified human resources which can support this policy, b) the housing mechanism itself has many internal problems, c) uncertain contribution made by the local government (municipality) to support the policy, d) slow agreement process, e) the requirement of a permit made by the local government makes the credit process slower, and f) the credibility of the contractors sometimes brings lack of trust to the banks [Media Indonesia, 2004].

3. METHODOLOGY

This research uses qualitative approach and gathers the data from the respondents using questionnaires. The questions are open ended type. All gathered data was documented and analyzed individually based on the arising

questions. The data was compared and patterns were expected for each of the questions. Moreover, in order to give a better overview, the graphs and charts will be used.

The research started with a literature reviews under the heading of research's objectives. This knowledge guided and constructed the enquiries within the questioner. Moreover, as Naoum [1998] wrote that a preliminary research could bring a more solid results and conclusions. It tests the arising questions constructed from literature reviews and avoids bias to the respondents. Therefore, the constructed questioner was firstly tested by interviewing a credible individual within the industry and some chosen small-medium scale contractors.

The questioner distributed to the respondents majority by email, whilst some of them were direct interviews. Based on the preliminary research, this type of questions supposes be answered by those on the top management level of the company. The respondents need to have a knowledge in area of company's policies specially on accessing sources of funding. The targeted respondents were small-medium scale contractors located in East Java Province of Indonesia.

4. RESULTS AND DISCUSSION

4.1. Results

The questionnaire consists of eight questions. The results are structured described as;

Question 1: *What are the sources of funding that your company currently uses?*

Results;

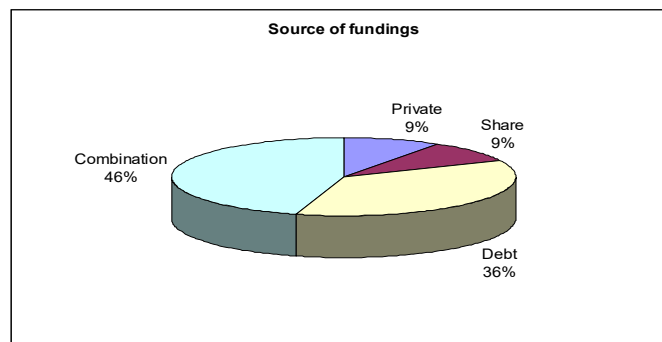


Figure 1. The source of funding used by the respondents

The most common used source of funding is the combination (46%) and is followed by debt (36%). The private and share funding scored only 9% each. In addition, it is important to point out that almost all the combination funding users combine debt and private sources to finance their projects.

On the other hand, in terms of debt financing, bank/financial institutions are not the only providers used by the debentures. In certain cases, especially for short term periods (1-2 month or even weeks), they prefer to use individual sources which can be liquidated faster and are less complicated to access. Regarding this, a good relationship between constructors and individuals within the industry becomes more significant.

Question 2: *If your company uses assistance for funding, in what way will it be?*

Results;

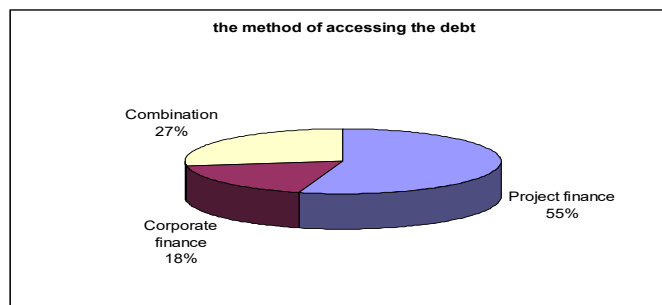


Figure 2. The method of accessing the debt

As discussed on the question number 1, almost all of the respondents have used debt as their financial source. This enquiry explores further on what methods/mechanisms debt has been accessed. The majority of the respondents utilize their projects as debt mortgage (55%) and only 18% of the respondents use it as corporate finance. As discussed earlier, the variety of the projects undertaken sometime makes the financial mechanisms become inconsistent. This has been observed by 27% of the respondents who has utilized both project financing and corporate financing.

Question 3: *Has your company experienced difficulties when accessing such sources of funding?*

Result;

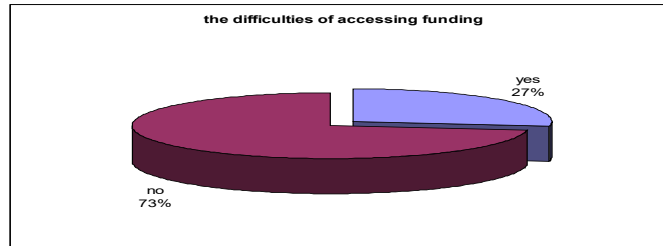


Figure 3. The difficulties of accessing source of funding

In general, companies in the industry do not have a significant problem accessing such funding and this was confirmed by 75% of the respondents. Almost all of the respondents argue that they have been using funding schemes regularly to start their projects. However, the difficulties might occur when instant circumstances emerge which (normally) it will delay the projects. The limited sources mean any delays might bring a major problem to the small contractors' financial position.

Question 4: *Does your current source of funding support the process of innovation?*

Results;

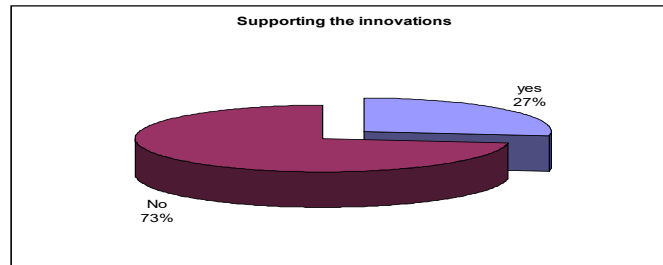


Figure 4. The supporting level of the sources of funding to the innovation

Regarding this heading, the majority of the respondents (73%), argue that their source of funding has been used only on the projects. There is not much room for the companies to use the funding for innovation purposes. The innovation might only be conducted by optimizing profit earned from the projects. This condition has decreased the willingness to undertake such innovations.

On the other hand, another group of respondents, which in this case are medium scale firms, argue that their exceeded resource might lead them to conduct such innovation.

Question 5: *In your opinion, from the finance factors below, in what respect is the sequence supporting the innovation process?*

Results:

The figure 5. illustrates that the most financial factor influencing the innovation process is the interest rate (31%). It is followed by duration of debt, government policies and financial distribution method with 22%, 18% and 17% respectively. Last, the financing institution chosen by the firms contributes only 12%.

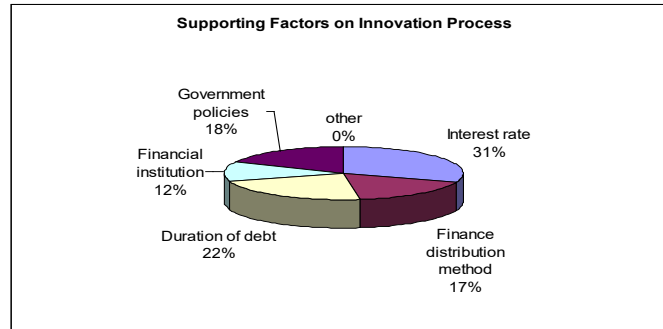


Figure 5. The sequence of the financial aspects supporting innovation process

Question 6: *Will a special funding program (microcredit) help the company in the innovation processes?*

Result;

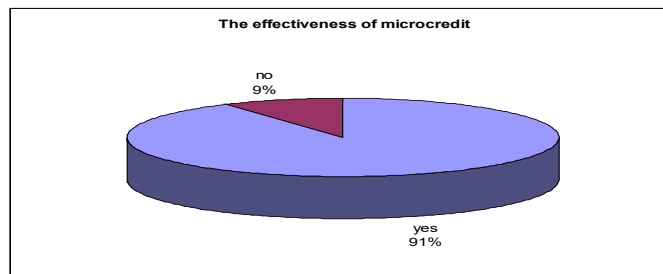


Figure 6. The significance of the microcredit to the innovation

Almost all respondents feel that microcredit will help them to undertake such innovations (91%). They argue that within the supported mechanism, the chance of applying innovation will be possible and higher. However, there is a major concern regarding this, which is the skeptical view from the respondents that such a major change on the structure of the industry, as has been proposed by the microcredit program, can not easily take place within the industry.

Question 7: *Does the professional body that your company is registered with help you through difficulties accessing such sources of funding and innovation processes that your company might have?*

Results;

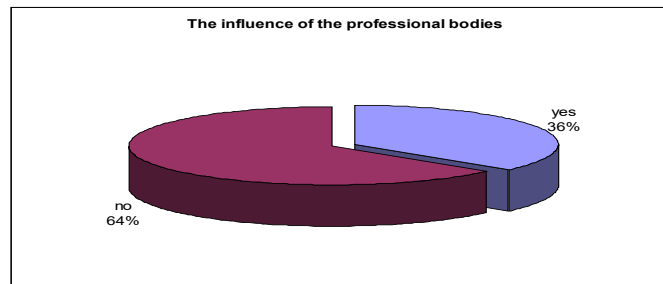


Figure 7. The contribution made by the professional bodies

It has been confirmed by 64% of the respondents that the professional bodies, which they have been registered, are no more than to serve administrative purposes only. Yet, the respondents argue that their membership may lead to indirect effects which, in some cases, can help to solve the financial problems and the accessing of information amongst the members. This is what the rest of respondents stress as the advantage of being the member of certain associations.

Question 8: *In general, what is your opinion concerning this subject, please explain?*

Results;

The responses to this question are varied amongst the respondents. However, there are certain aspects which can be summarized regarding this issue. First of all, we can highlight the respondents' enthusiasm regarding the proposed mechanism (microcredit). This is because despite the recently problems faced by the industry, it seems that the government's efforts to create a conducive industry environment are not significant, especially on small-medium scale contractors.

On the other hand, another major concern coming from the respondents is the contingency of the program. If there was such a program, the majority of the respondents doubt that it would be easily applied. Considering the changes which might be needed and the availability of adequate human resources, there are several stages that need to be taken by the government and other responsible bodies within the industry before the program comes into effect.

4.2. Discussion

Within this sub-chapter, the discussion constructs analysis based on literature reviews and gathered questioner's data. The discussion answers questions which been stated as research's objectives.

"What are the kinds of financing sources currently used by small-medium scale contractors in Indonesia?"

As has been discussed earlier, the economic crisis experienced in some time period of Indonesia economy has changed many aspects of the financial structure. Difficulties have been also experienced by the construction industry. The sources of funding used by the industry and an overview on how it has been accessed will be explored.

The economic crisis has shifted the Indonesian financial behavior. Many financial institutions tend to relocate their credits. This condition has brought difficulties to the contractors with limited resources. Moreover, the economic recovery does not mean that the industry performance has healed to the level it had before the crisis. It has been confirmed by the research that the majority of the respondents are still distressed by the difficulties accessing sources of funding.

On the other hand, the research finds that the majority of the respondents have used a combination between private and debt sources of funding as their main resource. Many factors have forced the firms to be more flexible and creative combining the available resources. The diversity of the projects undertaken, delay on the payment process and complicated credit/loan processes have forced the firms to have options for the financial resources.

Finally, concerning the methods used by the enterprises to access debt or credit the research has found that the majority of the respondents have utilized their projects as financial mortgages.

"What is the influence level of the available financial sources on the level of innovation in small-medium scale Contractors in Indonesia?"

This question is tightly related with the first arguments, innovation process and source of funding. To begin with, an analysis of the sources of funding currently used to support the innovation process will take place. It will then continue with the analysis of the ideal condition of sources of funding which might lead to innovation.

The conducted research denotes that the most respondents feel that their current resources do not support the innovation process within the firms. The existing resources have only been utilized for the works undertaken. Therefore, it is necessary to identify an appropriate mechanism which might support the process. The investigation has been pursued to classify and identify the sequences of the influential factors.

The research highlights that the most important financial variable when determining the pace of innovation is the interest rate. Moreover, the other factors which follow it are; the duration of the debt, the government policies, financial distribution method and financing institutions, respectively.

Meanwhile, the literature review regarding this has acknowledged that the microcredit mechanism, which theoretically might grow with the required financial conditions, could lead a proper innovation process. The research on funding confirms the most of respondents agree that this proposed financial mechanism might be appropriate for supporting the innovation. This enthusiasm comes because there has not been any assistance from the professional bodies, which in many cases are expected to be significant.

Finally, the discussion under this heading is underlined by the respondents' concern. They believe that the successful of the microcredit program depends on the consistency of the involved parties. This concern is based on the fact that the implementation of such programs might provoke a major change within the industry.

5. CONCLUSION

The research noted that in case of Indonesian construction industry, the major concern under the heading of accessing source of funding for the small-medium scale contractor was incorrect. The majority of the respondents (73%) were not having difficulties accessing source of funding for their project. Even though debt was not their main source of funding in gaining capital, only 9% of the respondents whose fully self-financed. Shared finance, fully debt financed and combination financed were experienced 9%, 36% and 46%, respectively. However, by 73% of the respondents, the source of funding used was only served the project purposes and left no room for the companies conducting such of innovations.

Furthermore, under the heading of innovation within the Indonesian contractors, the research highlighted that amongst financial aspects, interest rate was believed could stimulated the innovation within the enterprises (31%). They agreed that the professional bodies have to contribute more in serving the purposes. Moreover, they believed that innovation process could be more appropriate under the proposed scheme (microcredits) even though it would be difficult and could change the industry's structure.

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