

# Kansei Engineering and Design Thinking Methodology for Product/Service Design

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## Abstract

This study discusses the similarity and difference between Kansei Engineering (KE) and Design Thinking (DT) methodology. Inherently, KE focuses on the exploration of customer emotional needs and translates them into product and service properties. Through customer experience with product/service, which product/service attributes are found to be critical. On the other hand, DT starts with the identification of problem dealt with empathy and ends with product testing. These KE and DT methodologies have some similarities and differences. This study integrates these two methodologies and provides a unified framework of KE-DT putting forward the customer emotional needs which are accommodating the customer empathies and complex human-environment interaction and ending with the testing of proposed solutions. It is hoped that the proposed framework of KE-DT provides more efficient, effective, and sustainable approach addressed to the development of products and services.

## Keywords

Kansei Engineering, Design Thinking, Product, Service, Emotional Needs

## 1. Introduction & Motivation

Everyone has a Kansei. When we see a beautiful flower, we will then say, “What an amazing flower!”, “It’s so beautiful!”, “An amazing creation!” Also, when we meet a friendly staff in a shopping center or a luxurious hotel, we talk in our heart and say, “I like the way the staff serves me!”, “He has a heart”, “You’ve got the heart of customer!” That is called Kansei; it is something beyond the words, it is more on satisfaction. It will be a good remembrance for a certain product or service. Not only positive impression, Kansei will occur when we have a bad experience. When we feel dissatisfied due to certain product or service experience, for instance, when the staff in a hotel is not so responsive to our request, then we will have a bad feeling. People with lots of emotions will show their feelings fully once there is a stimulus which matches their emotions. The manifestation of their emotions will be optimal.

Looking at the interaction between employee and customer; a happy employee due to the perception of training and/or the meaning of work given will produce good emotions. Later, it will be contagious to the customers. As a result, the customers will be happy and satisfied. The basis for Kansei is the human five senses. Among five senses, the visual-based emotion is found to be the most dominant sensory stimulation. It counts about 70% of the whole information and perception which impacts Kansei (Nagamachi & Lokman, 2015). It would be great once the stimulus is fully accepted by all senses; it could be a combination of eyesight, taste, and touch. The perfection of full emotion or Kansei of someone is expected. More senses impacted, more Kansei accepted.

Kansei-based design for products or services offers a practical guideline for product or service designer and also an evaluation tool for the existing products or services. A popular Kansei-based design methodology is called as Kansei Engineering (KE). KE has a unique superiority in terms of its flexibility to engage with other methods in improving

the quality of product and service design. In understanding the user expectation and experience better and better, the modified adjusted KE methodology is always open (Hartono, 2020).

In general, KE methodology starts with the choice of service or product – human interaction system. Once a product is of interest, it will be a focus of exploration. Based on the prior similar product interaction and experience, the product attributes (forms, shapes, and functions) are explored and defined. All product attributes perception will bring impact on user/customer Kansei. Kansei consists of hearing, eyesight, smell, touch, and taste; they are known as human five senses. Also, there is an internal receptor to complement the human senses. When something is experienced, perceived, and met with the similar previous experience, then our emotion will be revealed. It is also applied in product interaction. For instance, someone eats a chocolate bar, the crunchiness, smell, and taste of that chocolate bar will be sensed. Kansei works. We will say, “This chocolate is so tasty and crunchy, also milky”, “The smell is appetizing, it brings to Switzerland.” Also, the feeling of current experience is strengthened by the previous experience, and indirectly, this feeling or impression or Kansei can be predicted. In other words, Kansei is strongly defined once it is confirmed. More human senses influenced, the stronger the Kansei is. This mechanism is shown in Figure 1. Apart from physical products, Kansei is also experienced by someone in a service environment. Using the same mechanism of Kansei expression, through service stimuli received by human senses, all those inputs will be perceived and influence Kansei. For instance, a staff in a department store should be aware of customer response through facial expressions and verbal communication due to service perception.

Actually, Kansei is deemed to be an indicator of customer or user satisfaction due to service or product delivered. Kansei might be a symptom of customer problem. It is either spoken or even unspoken problems. It can be potential problems or latent needs. Kansei can also be deemed as the representation of customer satisfaction. Everything is simplified and fully satisfied, or perhaps there are rooms for improvement. In KE methodology, the identification of both service or product attributes and their respective Kansei is the most critical part. Afterward, the analysis of which service or product attributes are significantly connected to certain Kansei will be conducted. It is important to identify which service or product attributes are critical to be improved. The entire step of KE simple methodology is shown in Figure 2. In addition, the KE methodology is extended into service design and development, as shown in Figure 3. A study by Hartono (2020) shows the importance of KE for service development and sustainability.

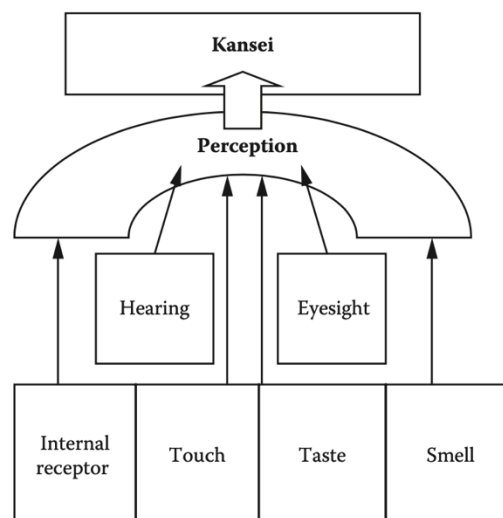


Figure 1. Kansei as a function of perceived human senses (adopted from Nagamachi & Lokman, 2015)

Related to the first step in DT methodology, it is advised to observe, engage, and empathize with customer or user to understand what his/her motivation in using products, experiencing services, and to probe any possible problems. Moreover, immersing us in the real physical environment is critical in gaining a deeper understanding of any issues or problems faced by customer or user. This step is crucial as well to set aside the designer’s point of view and initial assumptions about any phenomenon. What perceived by the designers may be different from what have been addressed by customer. Thus, it needs a wiser approach to come out with any possible human-product/service system interaction.

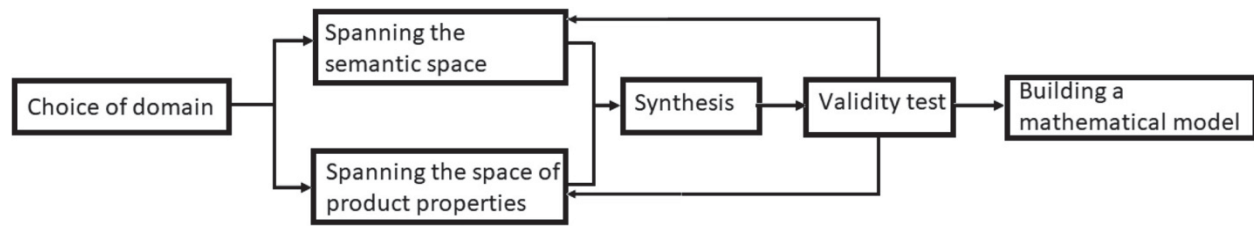


Figure 2. General KE methodology for product experience (adopted from Schütte et al., 2004)

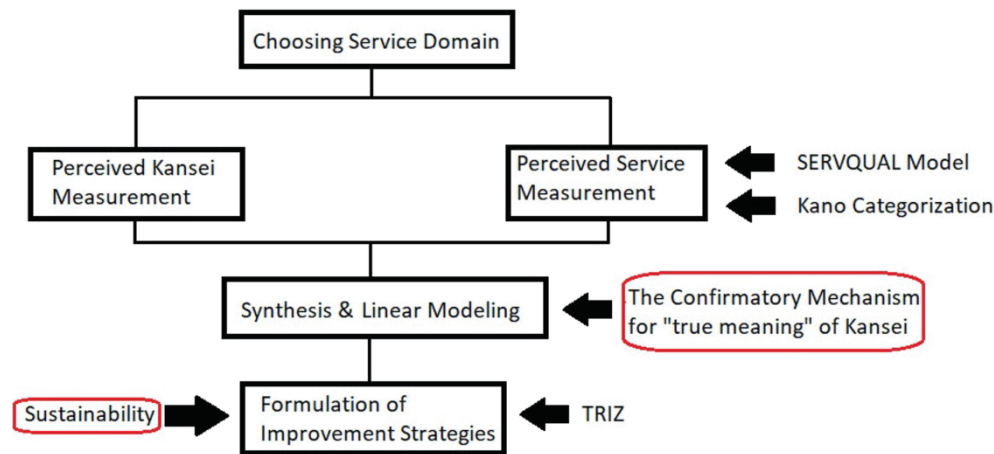


Figure 3. KE Framework in service design and sustainability (adopted from Hartono, 2020)

Since KE methodology deals with customer emotional needs (known as Kansei) and translates them into product or service attributes, the understanding of customer needs deeper and clearer is highly required. Once the synthesis of product/service attributes and Kansei finalized, a proposed improvement (it may be accompanied by a prototype or model or another type of outcome) will be implemented and tested. The feedbacks from the lead user and potential customer/user are expected to justify the appropriateness of proposed solution, and potentially give inputs to a new problem. It is a room for improvement in the KE methodology by engaging DT methodology.

Regarding the research gap, it is summarized as follows. There is questionable whether Kansei Engineering is closely related to Design Thinking. If it is so, how they are explained as both methods put a concern on empathy and human-system problem for product/service setting and experience. Hence, as an objective, this study will discuss a refined KE methodology incorporating DT methodology called as KE-DT methodology for product/service design and development.

## 2. Brief Literature Review and Proposed Framework Development of Kansei Engineering – Design Thinking (KE-DT)

Design has been regarded as the main activity in the engineering field, and also extended in the social engineering area. What are needed and whether the customers are satisfied with the existing condition are the trigger for understanding potential problems, and should be followed with appropriate engineering action. It is the start of a design process (Razzouk & Shute, 2012). Designing products and services which satisfy customer is a major component of business competition. More specifically, design process which deals with social problem is of beneficial.

Thus, Design Thinking (DT) methodology is proposed. This DT methodology promotes product and service design in line with the customer and provider expectation and also the improvement of quality (Stickdorn, 2018).

Kansei Engineering (KE) is well known as a powerful ergonomic product design methodology taking into account customer emotional needs (Nagamachi & Lokman, 2015; Nagamachi, 2002). Recent studies show that some have done the implementation of the proposed design, some haven't yet. It is especially for service design. Usually, it stopped at the proposed solution recommendation (see Hartono & Tan, 2011; Hartono, 2020). Hence, a more complete KE methodology can be done through adopting the DT methodology.

The consolidation of KE and DT is believed to provide deeper understanding of user experience and interaction taking into consideration the entire related product/service attributes and customer emotional needs. The main backbone of this study is DT methodology. DT is inherently defined as a systematic process which engages someone or group to do experiment, build and test prototype, gaining feedback from user, and redesign it. Empathy, creativity, and visualization should be appealing in the design process. According to Owen (2007), the concept of design thinking is more on process of synthesis and addressing the real problem (see Figure 4). Design is highly connected to model/framework generation and strongly concerned with real-case subject.

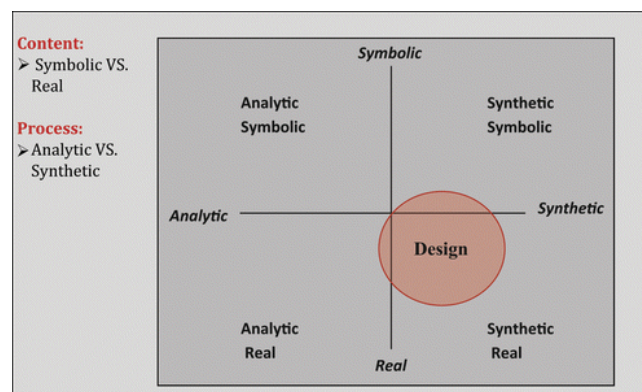


Figure 4. A conceptual representation of process and content in a design thinking (adopted from Owen, 2007)

KE methodology is product and service development and design framework indeed (see Figure 5 for the details of consolidation framework of KE-DT). At the initial stage, both KE and DT has the same step which is to understand the human-system interaction. It may be either a new environment or an experienced environment. Using both linear and non-linear type of DT methodology, after understanding the human-system interaction, through empathize step, a designer needs to choose service/product domain which is of interest, and to define the problem. It is an empathic recognition of the possible and potential problem(s) the designers or engineers are trying to solve. The potential problems may be recognized from customer complaint, customer review, and verbal or non-verbal customer communication.

Afterward, it moves to the define step. It is to analyze our observation and do synthesis them in order to formulize the core problems. The core problems should be related to complex human-centered perspective point of view. In other words, it is more on understanding what is required by customers – what the goal is. Here, Kansei words are identified, finalized, and measured. Concurrently, the product or service attributes are defined and measured. SERVQUAL model is usually used in dealing with services, whereas product dimension categorization is used in dealing with physical product. Kano categorization is utilized to filter which attributes are critical for improvement (see Hartono & Tan, 2011). Kansei is found to be a function of perceived product or service performance, thus, the Kansei response is linked to the perceived product or service performance. It is called as Kansei modeling. In order to validate the formed Kansei model, the confirmatory mechanism for “true meaning” of Kansei is used (Hartono, 2020). Once the linear or non-linear KE model is formed, it needs to check whether the model is valid and make-sense by confirming it with the real condition experienced by the actual customers.

The next step is that the ideate. Based on the confirmed significant relationship between Kansei and product/service attributes as done in the previous step, it is important to list the most critical product/service attributes need to be improved. Using the House of Quality (HoQ), for instance, those critical product/service attributes (known as

WHATs) will be linked to alternative solutions (usually known as HOWs). Some relevant tools are listed as alternatives, such as brainstorming, Quality Function Deployment (QFD), Theory of Inventive Problem Solving (TIPS/TRIZ) (Hartono, 2016). A recent issue on sustainability can be considered as well. In general, the ideation step is about to consolidate some possible solutions internally and externally. Once there are some possible solutions, due to limited resources, a prioritization step should be conducted. Pareto analysis is a common tool to be used.

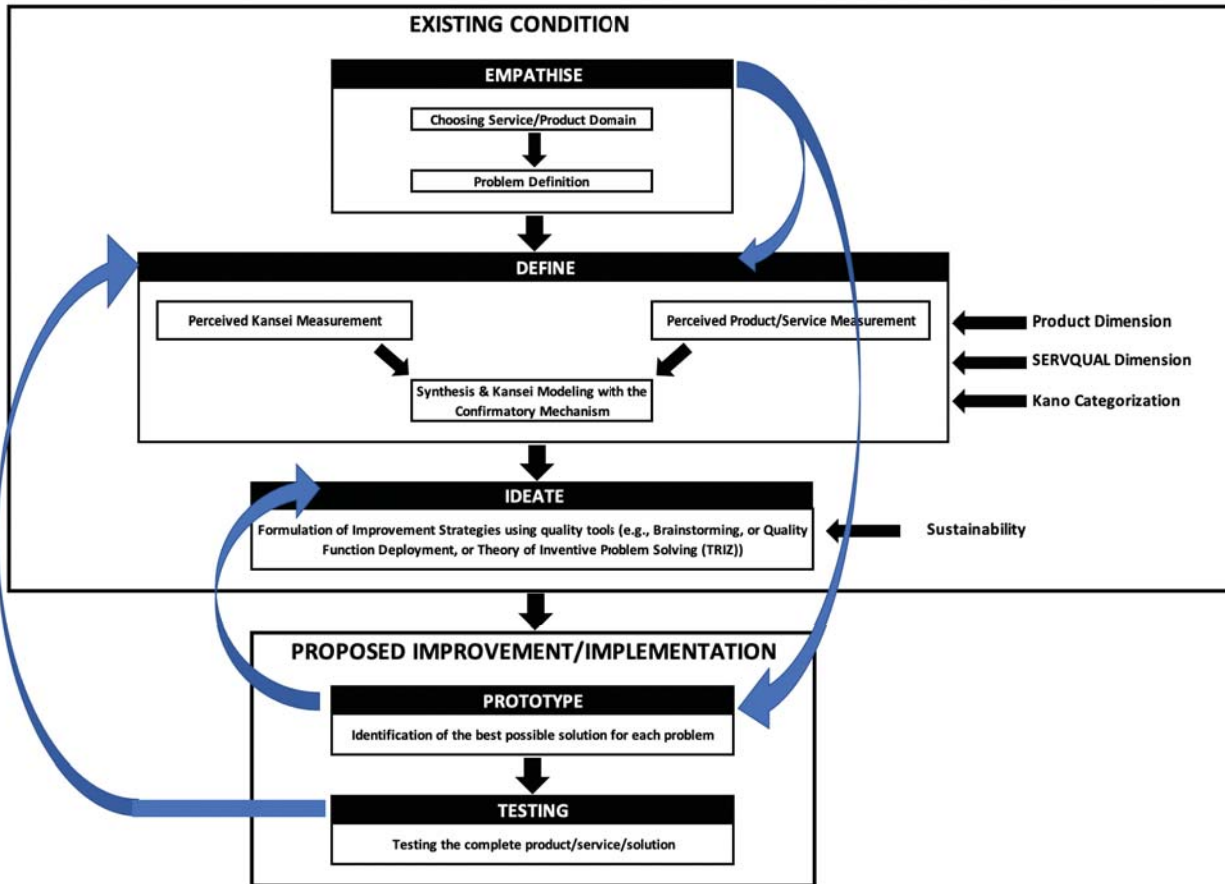


Figure 5. A proposed KE-DT methodology for product/service design and development

Once all the previous steps settled (categorized as the existing condition), a group of proposed improvement/implementation step will follow. It consists of prototyping and testing. Prototyping is a way of experimental stage. It is to create a physical model or real improvement strategy. Afterward, a testing will be conducted. It is a final and complete physical product or service solution to be tested in a real environment with actual or potential user/customer.

With regard to non-linear KE-DT methodology, after empathize stage, it can move to either define or directly to prototyping step. Also, from prototyping it can return to ideation step. It means that there is something to refine based on the prototyping result. After testing, it also can give feedback to the define step. It means that there is another potential problem identified. In general, this combined KE-DT methodology accommodates the concurrent processes in the product or service design and development incorporating customer emotional needs (Kansei).

### 3. Discussion

Design Thinking (DT) has become a dominant and integral part of the engineering design and business field. It promotes across disciplines since it has a methodology for product, service, and even system design incorporating creative thinking in exploring and generating some possible solutions to any social and engineering problems. Due to

a more complex problem and customer dynamics, a more mature approach in design is needed. According to Gloppen (2009), a design attitude differentiates an approach for solving problem with regard to continuous invention and striving a better place to live for human beings.

Due to more complex problems, Kansei Engineering (KE) should be adjusted to be more relevant in handling various cases. DT is chosen to be a relevant model to be combined with. DT is believed to accommodate wider perspective in human-system interaction. It starts with empathize, which is to observe, interview, and understand deeper what is required by the subject or user or customer. Surely, it is relevant to KE. KE stresses on the importance of user/customer emotions. Through empathy, customer emotions can be revealed and explored. This proposed integrated KE-DT methodology complements the existing KE framework/methodology by engaging the improvement/implementation stage (which is comprised 2 parts, i.e., prototyping and testing). It is wrapped in the design thinking framework.

The superiority of this proposed KE-DT framework is that its ability to dealing with various physical products or non-physical services, and its flexibility to engage with many quality tools. It has the common objective of how to achieve more efficient and effective solution regard to any social-engineering problems.

In dealing with real case studies, there are some conditions to be considered. These are referred to design-thinker characteristics, as follow (Razzouk & Shute, 2012). First, it is human and environment-centered concern. The proposed designs (either product or service) should focus on human needs and sustainable environment concurrently. Second, it should be visualized. Third, it promotes multifunctionality; it means that more diverse or multiple solutions are expected. It is also referred to system thinking. The solutions are not meant to be engaged with 1 problem, instead, they can accommodate more and various problems. Fourth, it puts forward multidisciplinary approach.

Some domains of empirical study examples to be considered such as mechanical engineering, industrial design, software design, industrial services, and IOT-based design.

#### **4. Conclusion**

This study proposes a joint framework of Kansei Engineering (KE) and Design Thinking (DT), named as KE-DT methodology. KE methodology has been extensively used for product and service design, and it has extended as well in terms of its ability to engage with quality tools. With rapid growth of customer needs and complex socio-technical problems, more relevant and updated KE approach is needed. Hence, this study proposes an integrated KE-DT framework which can be applied to both physical products and non-physical services. Human and environment-centered and multidisciplinary approach are the main characteristic of this framework. An empirical study is needed for future research.

This study is considered a preliminary research proposing a conceptual framework of KE-DT. As this is also a limitation of the study, hence in the future it is recommended to validate the proposed KE-DT methodology considering a complex service setting. It is specially to prove that KE has a close relationship with DT.

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## Biography

**Markus Hartono** is an Associate Professor in Industrial Engineering at the University of Surabaya, Indonesia, and the Dean of Faculty of Creative Industries at the University of Surabaya, Indonesia. He earned M.Sc. and Ph.D. with full scholarships in Industrial and Systems Engineering from National University of Singapore, Singapore. He has published journal and conference papers in the areas of Ergonomics/Human Factors Engineering, Industrial and Systems Engineering, Kansei Engineering, and Product Design. He is also a Certified Human Factors Professional (CHFP) by Board of Certification in Professional Ergonomics (BCPE), a Professional Engineer of Indonesian Engineers Association (PII), ASEAN Engineer, and Indonesian Accreditation Board for Engineering Education (IABEE) Evaluator.



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# Proceedings

## Proceedings

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### **ID 002** [Managing the Crisis Condition in SMEs: A case study during the Covid-19 in West Java, Indonesia](#)

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### **ID 003** [Using Association Rule to Analyze Hypermarket Customer Purchase Patterns](#)

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### **ID 004** [Comparing the Relationship of Tourist Attraction by Using Association Rule](#)

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### **ID 005** [Green Product Purchase Intention in Emerging Country: An UTAUT-2 Adoption](#)

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### **ID 006** [Flowshop Production Scheduling Using Cds, Tabu Search And Genetic Algorithm \(Case Studies: Cv. Mega Abadi\)](#)

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Siti Rohana Nasution, Industrial Engineering, UPN Veteran, Jakarta, Indonesia

**ID 008      The Implementation of Green Productivity for Plastic Manufacturer**

Axel Fernaldy, Industrial Engineering Department, Faculty of Engineering, Bina Nusantara University, 11480 Jakarta, Indonesia

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**ID 009      Analysis of the Application of Circular Supply Chain in Beverage Packaging Industry**

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Taufik Roni Sahroni, Industrial Engineering Department, Faculty of Engineering, Bina Nusantara University, 11480 Jakarta, Indonesia

**ID 010      The Components of Strategic Marketing and Its Importance to Achieving Organisational Goals**

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**ID 011      The Remuneration of Chief Executive Officers (CEOs) of State-Owned Enterprises as a Current Corporate Governance Issue in Zimbabwe**

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

**ID 015      An Integrated Inventory Model with Electric Vehicles, Freight Costs, and Stochastic Lead-time**

Ivan Darma Wangsa, Iwan Vanany, and Nurhadi Siswanto, Department of Industrial and Systems Engineering, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia, Kampus ITS, Sukolilo, 60111, Indonesia

**ID 016      Priority in TQM Process Using AHP Technique – A Case study of an EPC Organization**

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**ID 017      OSH Hazards Risk Assessment Using AHP Technique – A Case study of an Electronics Manufacturing Company**

Kanesan Muthusamy, Joses Shem John David, Shannen Darshini Surasan Nair, and Nagesparan Ainarappan, Faculty of Engineering and Technology, UCSI, niversity, 56000 Kuala Lumpur, Malaysia

**ID 020      Blockchain Application for Halal Integrity: Exploratory Study**

Iwan Vanany and N.A. Nandya Shafira Pramesti, Department of Industrial and Systems Engineering, Institut Teknologi Sepuluh Nopember, Sukolilo, Surabaya, Indonesia

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Jan Mei Soon, University of Central Lancashire, Faculty of Health and Wellbeing, International Institute of Nutritional Sciences and Applied Food Safety Studies , Preston, United Kingdom

**ID 021 Association Rules For Layout Design And Promotion Strategy**

Anisa Aulia Majid and Cahyono Sigit Pramudyo, Industrial Engineering Department, Faculty of Science and Engineering, Universitas Islam Negeri Sunan Kalijaga, Yogyakarta, Indonesia

**ID 022 The Impact of Big Data Analytics on Firm's Operational Performance: Mediating Role of Knowledge Management Process**

Anas Iftikhar, Department of Economic Sciences, Università Del Salento, Lecce, Italy

Imran Ali, School of Business and Law, Central Queensland University, Australia

Adeel Shah, Institute of Business Management, Karachi, Pakistan

**ID 023 A Field Study of Thermal Comfort in Indoor and Semi-Outdoor in Oil and Gas Company Semarang Indonesia**

Ega Rizkiyah, Heru Prastawa, Ratna Purwaningsih, Novie Susanto, Manik Mahachandra, Faculty of Engineering, Diponegoro University, Semarang, Indonesia, Faculty of Public Health, Diponegoro University, Semarang, Indonesia

Daru Lestantyo, Faculty of Public Health, Diponegoro University, Semarang, Indonesia

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**ID 024 Comparing Decision Tree and Artificial Neural Network Model in Predicting Bank Approval on Customer Credit**

Puji Rahmawati, Aisyah Larasati, Industrial Engineering Department, State University of Malang, Malang, Indonesia

Marsono, Mechanical Engineering Department, State University of Malang, Malang, Indonesia

**ID 025 Analyzing Social Media Marketing Strategies of Indonesian E-commerce using Text Mining Techniques**

Raretha Maren, Aisyah Larasati, Industrial Engineering Department, State University of Malang, Malang, Indonesia

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**ID 026 Industry 4.0 Technologies and Sustainable Warehousing – A Systematic Literature Review**

Minh Huy Phan, and Imran Ali, School of Business and Law, Central Queensland University, Melbourne, Australia

**ID 027 Waste Minimization In A Concrete Block Company Using Lean Six Sigma, ECRS And Triz Methods**

Paulino Gamboa, Department of Industrial and Systems Engineering, Institut Teknologi Sepuluh Nopember (ITS), Department of Industrial Engineering, Dili University (UNDIL)

Moses Laksono Singgih, Department of Industrial Engineering, Dili University (UNDIL)

**ID 028 Supply Chain Performance Analysis Using Model Supply Chain Operations Reference (SCOR®) 11.0: A Case Study for Educating Engineering Student**

Wahyudi Sutopo, University Centre of Excellence for Electrical Energy Storage Technology, Research Group Industrial Engineering and Techno-Economic, Industrial Engineering Department, Faculty of Engineering, Universitas Sebelas Maret, Jl. Ir. Sutami, 36 A, Surakarta, Indonesia

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Universitas Sebelas Maret, Surakarta, Indonesia

**ID 029 Parametric Cost Estimation Model for Li-ion Battery Pack of E-motorcycle Conversion based on Activity Based Costing**

Sofi Desi Susanti, Bachelor Program of Industrial Engineering Department, Faculty of Engineering, Universitas Sebelas Maret, Surakarta, Indonesia

Wahyudi Sutopo, University Centre of Excellence for Electrical Energy Storage Technology, Research Group Industrial Engineering and Techno-Economic, Industrial Engineering Department, Faculty of Engineering, Universitas Sebelas Maret, Jl. Ir. Sutami, 36 A, Surakarta, Indonesia

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Rina Wiji Astuti, Chief Executive Officer of Start Up Technology PT Batex Energi Mandiri Surakarta, Indonesia

**ID 030 Capital Budgeting Models for Investing The Utilization of Lithium Battery Products (Case Study: UNS Battery Factory)**

Wahyudi Sutopo, University Centre of Excellence for Electrical Energy Storage Technology, Research Group Industrial Engineering and Techno-Economic, Industrial Engineering Department, Faculty of Engineering, Universitas Sebelas Maret, Jl. Ir. Sutami, 36 A, Surakarta, Indonesia

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**ID 031 Retail Shelf Space Allocation in Supply Chain Contracts: A Literature Review**

Winda Narulidea, Ahmad Rusdiansyah, and Sri Gunani, Department of Industrial and Systems Engineering, Institut Teknologi Sepuluh Nopember Surabaya 60111, Indonesia

**ID 032 Towards Sustainable Industrial Development – A Systems Thinking-Based Approach**

Luis A. Mendoza-del Villar, and Eduardo Oliva-López, ESIME Zacatenco, Instituto Politécnico Nacional, Mexico City, Mexico

Octavio Luis-Pineda, ESE, Instituto Politécnico Nacional, Mexico City, Mexico

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**ID 039 Design for Manufacturing, Assembly, and Reliability on Product Redesign: Literature Review and Research Direction**

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**ID 042 Container Ports' Performance and Logistics Costs: A Case Study in Indonesia**

Reslyana Dwitarsari, Irawati Andriani, Marlia Herwening, Suci Susanti, Masrono Yugihartiman, and Atik S Kuswati, Ministry of Transportation, Jakarta, Indonesia

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**ID 044      Capacity Modeling for Marine Products Air Cargo Delivery from Indonesia**

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Paulus Wisnu Anggoro, Department of Industrial Engineering, Faculty of Industrial Technology, Universitas Atma Jaya Yogyakarta, Yogyakarta, Indonesia

**ID 046      Risk Management on Quality Improvement Project: Literature Review and Bibliometric Analysis**

Mokh Suef, and Moses Laksono Singgih, Department of Industrial and Systems Engineering, Institut Teknologi Sepuluh Nopember Surabaya, Indonesia,

Wiwik Sulistiyowati, Department of Industrial and Systems Engineering, Institut Teknologi Sepuluh Nopember Surabaya, Indonesia, Industrial Engineering Majoring, Universitas Muhammadiyah Sidoarjo, Sidoarjo, Indonesia

**ID 048      Vehicle Routing Problem Using Sweep Algorithm for Determining Distribution Routes on Blood Transfusion Unit**

Fitra Lestari, Muhammad Rizky, Muhammad Isnaini Hadiyul Umam and Fuspita Fitri Indriyani, Industrial Engineering Department, Faculty of Science and Technology, UIN Sultan Syarif kasim, Riau, Indonesia

**ID 050      Recent Development and Future Research of Manufacturing Excellence: A Literature Review**

Moses Laksono Singgih, Dessy Ahadian, Winda Puspitasari, Firdausy Anindita Ayudinda, Aida Aidil, Arventa Lukas Pranastya, Paulino Gamboa, Afrigh Fajar Rosyidiin, Hari Prasetyo, Department of Industrial and Systems Engineering, Institut Teknologi Sepuluh Nopember, ITS Campus, Keputih-Sukolilo, Surabaya-Indonesia

**ID 051      Lesson Learned in Developing and Implementing Global Business Strategy in Food and Beverages Companies: A Comparative Study**

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**ID 053      Integration of Supply Chain Network Design Models and Payment Options for Evaluation Commercialization of Batik Wastewater Treatment Equipment**

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**ID 054      A Location and Allocation Model in Determining Charging Station Facilities Using Facility Fixed and Variable Cost: A Case Study**

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**ID 055      Integration of Supply Chain Network Design and Warehouse Receipt System for a Cathode Material Factory Feasibility: A Case Study**

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**ID 056      A Framework for Developing Technopreneurship and Innovation System: Comparative Study of the Development of Wastewater Treatment Machine Technology**

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**ID 057      Global Business Strategy for Commercialization of Wastewater Treatment Machine Technology: Lessons from the Trident Water System and Procon Water**

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**ID 058      Comparative Analysis of Global Business Strategies on Solar Cell Companies**

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Maret, Surakarta, Indonesia

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#### **ID 059 Lessons Learned in Developing and Implementing a Global Business Strategy in Outdoor Gear Companies: A Comparative Study**

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#### **ID 060 Global Business Strategy in Electric Car Vehicle Industry: A Comparative Study between Tesla Inc. vs Rivian LLC**

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#### **ID 061 Technological Innovation and Commercialization of Solar Tracker on Solar Cell: A Comparison Study**

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#### **ID 062 Lesson Learned in Comparative Analysis of Global Business Strategy to Commercialize Wi-Fi Router Technology**

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**ID 066 Optimization of Network Design for Charging Station of Electric Car with Center of Gravity Method: A Case Study**

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**ID 067 Technopreneurship and Innovation System for Commercializing OpenWrt Router with Global System for Mobile Communication (GSM) Internet: A Case Study**

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**ID 068 The Role of Technopreneurship and Innovation System for Commercializing Smart Backpack**

Arga Seta Asmara Sakti, Master Program of Industrial Engineering Department, Faculty of Engineering, Universitas Sebelas Maret, Surakarta, Indonesia

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**ID 069 Implementation Strategy of Outcome-Based Education: A Case Study in Engineering Faculty Diponegoro University**

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Mochamad Agung Wibowo, Department of Civil Engineering, Diponegoro University, Semarang 50275, Indonesia

**ID 070 Distribution Delivery Services of Ornamental Plant (in Malang Raya) by Developing and Implementing A Global Business Strategy: The Company J&T Express VS JNE Express**

Maya Revanola Zainida, Department of Industrial Engineering, Faculty of Engineering, Universitas Sebelas Maret Surakarta, Indonesia

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**ID 071      Determinant Factors of Innovation Strategies to Create Competitive Advantages in Batik SMEs**

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**ID 072      Consumers' Perception on Quality Service Delivery of Two Major Telecommunication Companies In Sierra Leone: A comparative study**

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**ID 073      Locating a Cement Distribution Facility using the Centre of Gravity (COG) model: A Case Study**

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**ID 074      Evaluating the Adequacy of Public Healthcare Centers in Yogyakarta City: A Simulation Study**

Christian Mario, Bertha Maya Sopha, Industrial Engineering Program, Department of Mechanical and Industrial Engineering, Universitas Gadjah Mada (UGM), Yogyakarta, INDONESIA

**ID 077      Human Machine Collaboration for Car Toys Assembly Line by Using Discrete Event Simulation Approach**

Jessica Florencia, Ivan Kurniawan, and Aditya Tirta Pratama, Department of Industrial Engineering, Swiss German University, Tangerang, Indonesia

**ID 079      A Proposed of Lean Six Sigma Framework for Higher Education Institution (LSSF – for HEdu) To Improve Effectiveness and Efficiency of Higher Education in Indonesiaveness and Efficiency of Higher Education in Indonesia**

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**ID 080      Is the influence of Net Working Capital on Earnings per Share Critical: A Literature Review?**

Batumalay Kaliannan, Universiti Teknologi Malaysia, Asia Metropolitan University, Bandar Baru Seri Alam, Johor, Malaysia

Mohd Norfian Alifiah, Universiti Teknologi Malaysia, Skudai, Johor, Malaysia

Kanesan Muthusamy, UCSI University, Malaysia, Cheras, Kuala Lumpur, Malaysia

**ID 081      Strategic Market Planning Using SWOT Approach for Robotic Post-Stroke-Rehabilitation Product**

Berty Dwi Rahmawati, Department of Industrial Engineering, Faculty of Industrial Engineering, Universitas Pembangunan Nasional Veteran Yogyakarta

Herianto, Department of Industrial and Machine Engineering, Faculty of Engineering, Universitas Gadjah Mada

**ID 083      Lean Manufacturing Approach for Improvements of Work System in Furniture Factories (A Case Study in PT. Salim Selamat Sempurna)**

Aldo Salim, Christian, Lina Gozali, Frans Jusuf Daywin, Harto Tanujaya, Industrial Engineering, Universitas Tarumanagara, Jakarta, Indonesia 11440

Iveline Anne Marie, Industrial Engineering, Universitas Trisakti, Jakarta, Indonesia, 11440

Agustinus Purna Irawan, Harto Tanujaya, Mechanical Engineering, Universitas Tarumanagara, Jakarta, Indonesia, 11440

**ID 084      Production Planning and Control Industry 4.0 on Plastic Bottles With the Blow Moulding Process (Case Study Pt. Peace Industrial Packaging)**

Sharin Chandra, Student of Industrial Engineering Department, Lecturer of Industrial Engineering Department, Universitas Tarumanagara, Jakarta, Indonesia

Lina Gozali, and Andres Tjhia, Frans Jusuf Daywin, Lecturer of Industrial Engineering Department, Universitas Tarumanagara, Jakarta, Indonesia

**ID 085      Factory Re-Layout with SLP, CRAFT, CORELAP, Promodel, and FlexSim for Optimization of Material Flow Movement**

Aurellia Kharisty Tjusila, Lina Gozali, Carla Olyvia Doaly, Department of Industrial Engineering, Faculty of Engineering, Universitas Tarumanagara, Jl. S. Parman No 1, Jakarta, 11440, Indonesia

**ID 086      Quality Control Analysis Using DMAIC Method and DPMO Calculations on Low Voltage Cable Production (Case Study at PT XYZ Jakarta)**

Felita Yulianti and Lina Gozali, Department of Industrial Engineering, Faculty of Engineering, Universitas Tarumanagara, Jl. S. Parman No 1, Jakarta, 11440, Indonesia

**ID 087      Analysis of Readiness toward Halal Certification in Sumatera Utara (Case study in Food Manufacturer)**

Dini Wahyuni, Ph.D student at Department of Industrial Engineering, Universitas Sumatera Utara, Province of Sumatera Utara 20155, Indonesia

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**ID 088      Development of a Public Transportation Location-Based Service in Web Application**

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**ID 089 Identification of the PLCOR Model for the Management of Product Lifecycle Management Process in Food Industry**

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Wara Widyarini Endah Saptaningtyas, Agency of Industrial Research and Standardization Samarinda, Ministry of Industry Republic of Indonesia, Samarinda, Indonesia

**ID 090 FMEA METHOD FOR IDENTIFYING THE RISK OF FAILURE THE BOSS 05K ROTOR IN MACHINING PRODUCTION PROCESS**

Jesica Laurensia and Lina Gozali, Department of Industrial Engineering, Faculty of Engineering, Universitas Tarumanagara, Jl. S. Parman No 1, Jakarta, 11440, Indonesia

**ID 091 Line Balancing in Assembly Line Automotive Carrosserie (Body of a Car) Production Process at PT. XYZ**

Melynia Novita Pratama and Lina Gozali, Department of Industrial Engineering, Faculty of Engineering, Universitas Tarumanagara, Jl. S. Parman No 1, Jakarta, 11440, Indonesia

**ID 092 Material Requirement Planning on Y-Strainer Production (Case Study at PT. XYZ)**

Natalia Velony Putri and Lina Gozali, Department of Industrial Engineering, Faculty of Engineering, Universitas Tarumanagara, Jl. Letjen S. Parman No. 1, Jakarta 11440, Indonesia

**ID 093 Analysis of driving and inhibiting factors for managing food waste in restaurants**

Siti Mahsanah Budijati, Fatma Hermining Astuti, and Wandhansari Sekar Jatiningrum, Industrial Engineering Department, Faculty of Industrial Technology, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

**ID 094 Quality Improvement of Shoes Manufacturing Process at SMEs using the Quality Function Deployment (QFD)**

Rosnani Ginting and Aulia Ishak, Department of Industrial Engineering, Universitas Sumatera Utara, Medan, 20155, Indonesia

**ID 095 Quality Function Deployment for the Improvement of the attributes from a Hybrid Micro Hydro-Solar Generator**

Rosnani Ginting and Aulia Ishak, Department of Industrial Engineering, Universitas Sumatera Utara, Medan, 20155, Indonesia

**ID 096 Evaluating Supply Chain Sustainability Risks Using Integrated Shannon Entropy, Statistical Variance and Prospect Theory**

Agung Sutrisno, Department of Mechanical Engineering, Sam Ratulangi University, Manado, Vikas Kumar, Faculty of Business and Law, University of the West of England, UK



**ID 097      A Flow Shop Batch Scheduling Model with Part Deterioration and Operator Learning-Forgetting Effects to Minimise Total Actual Flow Time**

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Mohammad Mi'radj Isnaini, Anas Ma'ruf, Abdul Hakim Halim, Industrial Engineering Department, Institut Teknologi Bandung, Bandung, Indonesia

**ID 098      Analysis of Halal Supply Chain in Chicken Meat Products using Human Error Perspective**

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Irwan Budiman, Department of Industrial Engineering, Universitas Prima Indonesia, Province of Sumatera Utara 20111, Indonesia

**ID 099      Simulated Annealing Algorithm for Vehicle Routing Problem with Simultaneous Pick Up and Delivery: A Case Study of Liquid Petroleum Gas Distribution**

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Agus Supranartha, Department of Electrical Engineering, Universitas Pendidikan Nasional, Bali, Indonesia

**ID 100      Effect of Different Fatigue Levels on Work Quality in an Experimental Cognitive Task**

Asterina Febrianti, Yoanita Yuniati, Dwi Kurniawan, Industrial Engineering Department, Institut Teknologi Nasional, Bandung 40124, Indonesia

**ID 102      A Knowledge Sharing Behavior Model and Its Effect on Employees' Innovative Work Behavior**

Mohammad Mi'radj Isnaini, Dina Nadhirah, Iwan Inrawan Wiratmadja, Industrial Engineering Department, Institut Teknologi Bandung, Bandung 40132, Indonesia

**ID 103      A Model of Multiple Items Batch Scheduling for m Batch Processors Flowshop to Minimize Total Actual Flowtime**

Nita P.A Hidayat, Industrial Engineering, Bandung Islamic University, Bandung, Indonesia

Wisnu Aribowo, Abdul Hakim Halim, Industrial Engineering Department, Bandung Institute of Technology, Bandung, Indonesia

Abdul Hakim Halim, Bandung Institute of Technology, Bandung, Indonesia

**ID 105      Implementation of Lean Healthcare For Waste Elimination at Darmayu Ponorogo Hospital**

Haniatu Susanti, Master Program of Industrial Engineering Department, Faculty of Engineering, Universitas Sebelas Maret, Surakarta, Indonesia

Bambang Suhardi, Laboratory of work system design and ergonomics, Department of Industrial Engineering, Faculty of Engineering, Universitas, Sebelas Maret, Surakarta, Indonesia

Novie Susanto, Department of Industrial Engineering, Faculty of Engineering, Universitas Diponegoro, Semarang, Indonesia

#### **ID 106 Usability Testing of Syringe Adapters and Conventional Syringe in Healthcare Workers**

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Novie Susanto, Department of Industrial Engineering, Faculty of Engineering, Universitas Diponegoro, Semarang, Indonesia

Nanang Wiyono, Department of medicine, Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia

#### **ID 107 Blockchain Adoption for Halal Food Integrity in Indonesian Food Industry**

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J.M.Soon, University of Central Lancashire, Faculty of Health and Wellbeing, International Institute of Nutritional Sciences and Applied Food Safety Studies, Preston, United Kingdom

#### **ID 108 Behavioral Factors Underlying Households' Intention Toward Solar Photovoltaic Adoption**

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Industrial Engineering Department, Sultan Agung Islamic University, Indonesia

Bertha Maya Sopha and Adhika Widyaparaga, Mechanical and Industrial Engineering Department, Universitas Gadjah Mada, Indonesia

#### **ID 110 Capturing Profile of Halal Chicken Meat Slaughterhouse in Indonesia: A Clustering Approach**

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Department of Industrial Engineering, Faculty of Industrial Technology  
Universitas Islam, Indonesia, Yogyakarta, Indonesia

Anna Maria Sri Asih, Bertha Maya Sopha, Department of Mechanical and Industrial Engineering, Faculty of Engineering, Universitas Gadjah Mada, Yogyakarta, Indonesia

#### **ID 111 Robust Optimization of Multi Depot Vehicle Routing Problems with Simultaneous Deliveries and Pickups in an Uncertain Environment**

Dina Natalia Prayogo, Department of Industrial Engineering, University of Surabaya, Raya Kalirungkut, Surabaya, Indonesia

#### **ID 114 Risk Management Measurement Model in Small and Medium Industries**

Isnaini Rodiyah, Wiwik Sulistiyowati, and Ika Ratna Indra Astutik, Universitas Muhammadiyah Sidoarjo, Sidoarjo, Indonesia

#### **ID 115 Public Facility During Pandemic MULTIFUNCTIONAL DINING TABLE DURING COVID 19**

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Frans Jusuf Daywin, Lina Gozali, Helena Juliana Kristina, Andres, Department of Industrial Engineering, Tarumanagara University, Jakarta, Indonesia

#### **ID 116 Modification of Food Dehydrator for Tea Blend Products Using Reverse Engineering and VDI 2221 Methods**

Laurencia Sutianto, Lina Gozali, Frans Jusuf Daywin, Industrial Engineering Program, Faculty of Engineering, Tarumanagara University, Jakarta, Indonesia

**ID 118 Cost-Volume-Profit Analysis for Uncertain Capacity Planning: A Case Study**

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Chong Kuan Eng, Faculty of Manufacturing Engineering, Universiti Teknikal Malaysia Melaka, Melaka, 76100, Malaysia

**ID 120 Set Covering Method Determine The Capacity, Type and Covering Area of The Temporary Landfill Facility in Each Region**

Annie Purwani, Utaminingsih Linarti, Fajar Pujo Kesumo, Ekky Armandi, Department of Industrial Engineering, Universitas Ahmad Dahlan, Yogyakarta, Indonesia

**ID 121 A Green Inventory Management for Manufacturer-Retailer System with Stochastic Demand and Carbon Tax**

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**ID 132 Evaluation of Warehouse Operation in Power Plant Company Using Discrete Event Simulation**

Aryo Saputra, Tri wahyu hidayat, Fitra Lestari, and Muhammad Rizki, Industrial Engineering Department, Science and Technology Faculty, Sultan Syarif Kasim State Islamic University, Pekanbaru, Riau 28293, Indonesia

**ID 133 A Logic model development for planning program in Indonesia SMEs – Case study: Pucung, Manding, and Keparakan Kidul leathercraft industries**

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**ID 134 REDESIGNING OF FACILITY LAYOUT IN PT. OCEAN CENTRA FURNINDO USING GROUPTECHNOLOGY, CORELAP AND CRAFT METHOD**

Hubert Wahyudi, Frans Jusuf Daywin, Carla Olyvia Doaly, Lina Gozali, Wilson Kosasih, Industrial Engineering, Tarumanagara University, Jakarta, Indonesia

**ID 135 The Effect of Safety Management and Perceived Motivation on Safety Practices for Safety Performance and Quality of Care**

Au Yong Hui Nee and Charles Remendran S.P.R., Faculty of Business and Finance, Universiti Tunku Abdul Rahman, 31900 Kampar, Perak, Malaysia

Lilis Sureinty, School of Management, Universiti Sains Malaysia, 11800 USM Penang, Malaysia

**136 Utilizing Local Wisdom Community Towards A Healthy Food Industry: A Preliminary Research of Torbangun Leaves Biscuit**

Donal Nababan, Rizabuana Ismail, Ivana Tiar, Universitas Sumatera Utara

**ID 137 Cold Chain Planning for COVID-19 Vaccine Distribution**

Ferensius Axel Oscar Reynaldi and Rienna Oktarina, Industrial Engineering Department, Bina Nusantara University, Jakarta, Indonesia, 11480

**ID 141 Business Feasibility Analysis: Multifunction Bus HandGrip**

Felita Yulianti, Kevin Ravenska, Jesica Laurensia, Lina Gozali, Wilson Kosasih, Carla Olyvia Doaly, Frans Jusuf Daywin, Industrial Engineering Department, Universitas Tarumanagara, Jl. S. Parman No 1, Jakarta, 11440, Indonesia

Agustinus Purna Irawan, Harto Tanujaya, Mechanical Engineering Department, Universitas Tarumanagara, Indonesia 11440, Jl. S. Parman No 1, Jakarta, 11440, Indonesia

**ID 142 Planning Business Analysis of Multifunction Car Locker**

Bryankim Phangestu 1, Ferian Waisakha Putra 2, Lika Angelina 3, Lina Gozali 4, Wilson Kosasih 5, Carla Olivia Doaly 6, Agustinus Purna Irawan 7, Harto Tanujaya 8, Frans Jusuf Daywin 9

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**ID 143 Production, plant layout, and financial planning of Multifunctional Back Car Seat Organizer**

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Agustinus Purna Irawan, Harto Tanujaya, Mechanical Engineering Department, Universitas Tarumanagara, Jakarta, Indonesia 11440

**ID 144 Business Feasibility Analysis: Multifunctional Handphone Holder**

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Agustinus Purna Irawan, Frans Jusuf Daywin, Mechanical Engineering Department, Universitas Tarumanagara, Jakarta, Indonesia

**ID 145 Design Planning of Hand Sanitizer Dispenser and First Aid Kit on Bus**

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**ID 146 Design Key Performance Indicator for Supplier in Sustainable Organic Farming Supply Chain**

Elisa Kusriani, Industrial Engineering Department, Faculty of Industrial Technology, Indonesian Islamic University (UII)

Anindita Rahmalia Putri, Billi Syufrian and Nurul 'Aini, Master Industrial Engineering, Faculty of Industrial Technology, Indonesian Islamic University (UII)

**ID 147 Examining Customer Service Performance in Shipping Company**

Lianna Wijaya and Tiurida Lily Anita, Management Department, Faculty of Binus Online Learning, Hotel Management Department, Faculty of Economy, Bina Nusantara University, Jakarta, Indonesia

Athea Sarastiani, Service Management, Trisakti University, Jakarta, Indonesia

Asep Suparman, Faculty of Business Management, Trisakti Logistic & Transportation Institute, Jakarta, Indonesia

**ID 149      Development of Automatic Wound Healing Level Detection System based on Convolutional Neural Network**

Michael Ethan, Sofyan Tan, Winda Astuti , , Automotive and Robotics Program, Computer Engineering Department, BINUS ASO School of Engineering, Bina Nusantara University, Jakarta, Indonesia

Yuli Astuti Andriatin, Nursery Departement, Cilacap Regional General Hospital, Gatot Subroto No.28, Cilacap, Central Jawa, Indonesia

**ID 150      Development of Automatic Tomato Plant Diseases Detection System based on Convolutional Neural Network**

Raditya Rifqi Rayhan, Muhammad Nurul Puji, Winda Astuti, Automotive and Robotics Program, Computer Engineering Department, BINUS ASO School of Engineering, Bina Nusantara University, Jakarta, Indonesia 11480

**ID 151      Automatic Cataract Detection System based on Support Vector Machine (SVM)**

Leonardo Michael Marcello , Endra Oei, Zener Sukra Lie, Winda Astuti, Automotive and Robotics Engineering Program, Computer Engineering Department, BINUS ASO School of Engineering, Bina Nusantara University, Jakarta 11480, Indonesia

**ID 152      A Conceptual Model: The Role of Social Networking in Indonesian SMEs during COVID-19 Pandemic**

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**ID 153      Supply Chain Risk Assessment of Hazardous Chemical Products in a University Laboratory**

Dacanay, Daren Joy T, Velasco, Ma. Carmina C, Quevedo, Venusmar C, Lasian, Lourdes P, Industrial Engineering Department, Adamson University, Manila, Philippines

**ID 154      Kano Lean Six Sigma (KLSS) for Improving Service Quality at Education Technology (EdTech) Startups**

Moses Laksono Singgih, Reza Aulia Akbar, and Okto Abdillah, Department of Industrial and Systems Engineering, Institut Teknologi Sepuluh Nopember (ITS), ITS Campus, Keputih-Sukolilo, Surabaya, Indonesia

**ID 156      The Influence of Moods And Emotions On Female Leadership Style In The Hospitality Industry**

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Tiurida Lily Anita, Hotel Department Management, Faculty of Economic and Communication, Bina Nusantara University, Indonesia

Rivani Farahmita, Hotel and Tourism Management, Faculty of Business and Communication, Swiss German University, Indonesia

**ID 157      Assessment of Laboratory Occupational Safety and Health at Engineering Faculty of Diponegoro University**

Heru Prastawa, Manik Mahachandra, Dita Rizkiana, Industrial Engineering Department, Faculty of Engineering, Diponegoro University, Semarang, Central Java 50269, Indonesia

**ID 159      [A Simulated Annealing Heuristics for Delivery Time Equality of the Couriers in an Expedition Company](#)**

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Hikmah Sekarningtyas, Industrial Engineering Department, Sepuluh Nopember Institute of Technology, Surabaya, East Java, Indonesia

**ID 161      [Fintech: The Impact of Technological Innovation on the Performance of Banking Companies](#)**

Felix Fernando, Christiana Fara Dharmastuti, Atma Jaya Catholic University of Indonesia, Jakarta, Indonesia

**ID 162      [The Critical Organization Factor Contribute Lecturers' Happiness](#)**

Nurul Nazihah Awang Kecek, Khairunesa Isa, Syamimi Syafiqah Shahlal, Science Social Department, Centre for General Studies and Cocurricular, University Tun Hussein Onn, Batu Pahat, Malaysia

**ID 163      [Analysis of Warteg's Customer Satisfaction Levels on the Use of Food Delivery Services](#)**

Farida Aprilia Rozanto, Rienna Oktarina, Industrial Engineering Department, BINUS University, Jakarta, Indonesia, 11480

**ID 167      [Preventing Stranded Coal Power Assets by Using Comparative Scenario of Energy Mixture and The SWOT Analysis of Energy Sector in Indonesia](#)**

Rizal Ari Fando, Industrial Engineering Student, Sampoerna University, Jakarta Selatan, 12780, Indonesia

Jeanne Svensky Ligte, M.Eng., Head of Smart Production and Supply Chain Laboratory, Industrial Engineering Lecturer, Faculty of Engineering and Technology, Sampoerna University, Indonesia

**ID 168      [Improving Mixing Process Quality for Sweet Soybean Sauce Using Full Factorial Design of Experiment](#)**

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**ID 173      [Developing Strategies for Improving Overall Equipment Effectiveness Using FMEA and FAHP](#)**

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**ID 174      [Developing e-logistics system for Plastic Recycle in order to Enhance the Role of Community-Based Waste Bank](#)**

R.B. Seno Wulung, Midarto Dwi Wibowo, Yuli Suwarno, Rofiatun Nafiah, Politeknik ATK Yogyakarta, Jl.Ateka, Bangunharjo, Sewon, Bantul, D.I.Yogyakarta

**ID 176      [Influence of Price, Quality Of Service and Promotion toward Purchase Decisions at one Coffee Shop in Tangerang](#)**

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**ID 178 Sustainability of Brand Equity of Business Management in Local Firm: Experience from Indonesia**

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**ID 179 Brand Communication and Service Quality Contribution in Building Brand Loyalty through Brand Trust in Indonesia's Garuda Airways**

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**ID 182 Net Zero Energy Building: Modeling and Techno-Environmental Evaluation of a Retrofitted Building**

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**ID 194 Preparing New Engineer for the Job Skills Demanded in the 21st Century**

Albertus Retnanto, Ph.D., Professor, Petroleum Engineering, Texas A&M University at Qatar, Doha, Qatar

Hamid R. Parsaei, Ph.D., P.E., Professor, Department of Industrial and Systems Engineering, Texas A&M University, College Station, TX, USA

Boback Parsaei, Integrated Technology Systems, Inc., Houston, Texas, USA

**ID 198 The Impact of Dynamic Capability as a Driver of Innovation Ambidexterity on MSMEs' Performance in Bali, Indonesia**

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Dini Turipanam Alamanda, Faculty of Economy, Garut University, Garut, Indonesia

Werda Bagus Profityo, School of Communication and Business, Telkom University, Bandung, Indonesia

**ID 199 The Influence of Investment and Wage Levels on The Human Development Index (Case 6 Province in Sulawesi) 2015-2019**

Nur Azmi Karim, Tjia Fie Tjoe, and Iston Dwija Utama, Entrepreneurship Department, Binus Business School Undergraduate Program Bina Nusantara University, Campus Bandung

**ID 200 The Effect of Job Resources Demand on Job Performance Through Work Engagement, which is**

### **moderated by Computer-Related Technostress**

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Heri Sapari Kahpi and Anis Fuad Salam, Department of Management, STIE Banten, Serang, Indonesia

Deni Hermana, Department of Management, Faculty of Economic and Business, Universitas Pakuan, Bogor, Indonesia

### **ID 201 Value Proposition Canvas Validation: Measuring Customer Satisfaction of Photography Business**

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Marceline Sandy, Entrepreneurship Department, BINUS Business School Undergraduate Program, Bina Nusantara University, Jakarta, Indonesia

Mulyani Karmagatri, Entrepreneurship Department, BINUS Business School Undergraduate Program, Bina Nusantara University, Jakarta, Indonesia

### **ID 202 Competitive Advantage Strategy Implementation to Gain Customers Engagement and Brand Positioning**

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Mulyani Karmagatri, Entrepreneurship Department, BINUS Business School Undergraduate Program, Bina Nusantara University, Jakarta, Indonesia

### **ID 203 Product Development Assessment to Measure The Accuracy in Realizing Customer Expectations: Case Study in Ricebowl Small Business Hongmiao**

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### **ID 204 Applications and Challenges of Adopting Internet of Things (IoT) in Reducing Road Traffic Accidents**

Ryan M. Paradina and Marvin I. Noroña, School of Industrial Engineering and Engineering Management, Mapua University, Manila, Philippines

### **ID 205 Implementation of Global Sustainability Management in Micro Small Medium Enterprises of Undergraduate Students in an Entrepreneurship Major**

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**ID 206      The Coffee Shop Customer perception of product acceptances and willingness to pay of organic coffee Beverages: A case study from small business “NgoopiKopi”**

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**ID 207      Marketing Strategy to Introduce and Increase Sales of Korean Aesthetic Cake During the Pandemic: A Case Study of Small Cake business Hi Buy Keikeu**

Anastasia Ichthus, Entrepreneurship Department, BINUS Business School Undergraduate Program, Bina Nusantara University, Jakarta, Indonesia

Mulyani Karmagatri, Entrepreneurship Department, BINUS Business School Undergraduate Program, Bina Nusantara University, Jakarta, Indonesia

**ID 209      Marketing Strategy Analysis on Daily Crafts Accessories**

Felicia Irene, Entrepreneurship Department, BINUS Business School Undergraduate Program, Bina Nusantara University, Jakarta, Indonesia

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**ID 210      Business Development: Excity Business Analysis – Kpop Themed T- shirt**

Jessica Dermawan Foedarsono, Entrepreneurship Department, BINUS Business School Undergraduate Program, Bina Nusantara University, Jakarta, Indonesia

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Mulyani Karmagatri, Entrepreneurship Department, BINUS Business School Undergraduate Program, Bina Nusantara University, Jakarta, Indonesia

**ID 212      Create and Develop Italian Food Business Opportunities with a Taste of the Archipelago at Sayeat.co**

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**ID 213      [MARKETING STRATEGY FOR NEW BRAND FASHION: A CASE STUDY OF VAMODE FASHION BUSINESS](#)**

Angeline Yolanda, Entrepreneurship Department, BINUS Business School Undergraduate Program, Bina Nusantara University, Jakarta, Indonesia

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**ID 223      [Technology Capabilities and Innovation Ambidexterity Impact on MSME Business Resilience during Covid-19 Pandemic in Bandar Lampung](#)**

Grisna Anggadwita, Rharma Yulia Putri, and Erni Martini, School of Economics and Business, Telkom University, Bandung, Indonesia

**ID 224      [Reforming CAD/CAM and CNC Machining Course by Using "Process-oriented" for Higher Education Institutes \(HEI's\)](#)**

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**ID 227      [Measuring the effectiveness of Healthy Values Brand Positioning Strategy: A Case Study of Healthy Bakery Café- Moose Bake Shop](#)**

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**ID 228      [Public Product During Pandemic: Multifunctional Hygiene Facility](#)**

Kevin Adrian, Shafa Alauddino Priantoraharjo, Marchelino Gosal, Agnes Setiawan, Lina Gozali, Frans Jusuf Daywin, Helena Juliana Kristina, and Andres, Industrial Engineering Department, Universitas Tarumanagara, Jakarta, Indonesia, 11440

Agustinus Purna Irawan, Harto Tanujaya, Mechanical Engineering Department, Universitas Tarumanagara, Jakarta, Indonesia, 11440.

**ID 229      [Smart Trolley as Sophisticated Supermarket Facility in Covid-19 Pandemic Era](#)**

Jonathan Albert, Willy Harianto, Gabrielle Halim, Geraldo Rafael, Lithrone Laricha Salomon, Lina Gozali, Frans Jusuf Daywin, Helena Juliana Kristina, and Andres, Industrial Engineering Department, Universitas Tarumanagara, Jakarta, Indonesia

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**ID 230      [Designing Strategy for Meisterstadt Batam Apartment Unit Using SWOT and QSPM Method](#)**

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**ID 232      A Proposed risk model for the halal supply chain**

Anisa Nurul Islamadina and Iwan Vanany, Department Industrial and Systems Engineering, Institut Teknologi Sepuluh Nopember (ITS), Surabaya, Indonesia

**ID 234      Layout Design of Distributor Warehouse PT. X in Sidoarjo**

Abdur Rohim Achmad, Indri Hapsari, Dina Natalia Prayogo, Industrial Engineering, University of Surabaya, Indonesia

**ID 235      The Use of Grey Failure Mode and Effect Analysis (FMEA) to Improve Production Quality in Textile Company (Case Study: PT. ABC)**

Muhammad Zulfikar, Irine Indriana Wati, and Ira Setyaningsih, Industrial Engineering Department, UIN Sunan Kalijaga Yogyakarta, Yogyakarta, Indonesia

**ID 237      Customer Satisfaction Analysis on Food Delivery Services during the COVID-19 Pandemic Using Bayesian Network**

Rendi Kurniawan, Tutik Farihah, Department of Industrial Engineering, Sunan Kalijaga Islamic State University Yogyakarta, Indonesia

**ID 239      Quality Function Deployment (QFD) Approach for Digitalization of Teluk Lamong Terminal Services System in Support of Indonesia's "Sea Toll" Program**

Tri Wijaya N. Kusuma, Amanda N. Cahyawati, Sylvie I. Kartika Sari, Ahmad M. Iqbal, Deandra Denidaulia, Mohammad R. Kurnia, Nanda R. Amalia, Tazkiya A. Hanan, Irmala, Oktaviana Department of Industrial Engineering, Faculty of Engineering, Universitas Brawijaya, Malang, Indonesia

**ID 247      Sea Toll Services Criteria Cluster Analysis to Minimize Price Disparity of Indonesian Eastern Areas amidst The Covid-19 Pandemic**

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I G. N. Sumanta Buana, Lecturer at the Department of Marine Transportation Engineering, ITS, Surabaya, 60111, Indonesia

**ID 249      Model of e-supply chain by Adopting Blockchain Technology in Salt SMEs in indonesia**

Issa Dyah Utami, Department of Industrial Engineering, Universitas Tunjojoyo Madura, Bangkalan, Indonesia

Trisita Novianti, Department of Industrial Engineering, Universitas Tunjojoyo Madura, Bangkalan, Indonesia

Dwi Kuswanto, Department of Informatics Engineering, Universitas Tunjojoyo Madura, Bangkalan, Indonesia

**ID 250      Design and Development of Automatic Bakelite Cleaner for Marilao Alerco Industrial Corporation**

Val Ryan E. Aguilar, Racquel G. Tadina, and Eugene R. Tamba  
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Maria Teresa B. Mendoza, PIE, ASEAN Eng. Chairperson, Industrial Engineering Department, Course Adviser & Design

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**ID 252      Halal Operation Assessment using Quality Function Deployment in Indonesian Cosmetics Industry**

Muhammad Nurhasan Assidiq, Department of Technology Management, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia

Iwan Vanany, Department of Industrial and Systems Engineering, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia

**ID 253 Determining Promotion Media Based on Customer Characteristic using Cluster Analysis and Marketing Mix Strategy**

Mohammad Arsyad Fathurrohman, Jihan Afifah, Rahma Fariza, Annisa Uswatun Khasanah, Department of Industrial Engineering, Faculty of Industrial Technology, Universitas Islam Indonesia (UII), DI Yogyakarta, Indonesia

**ID 254      Logistic Service Quality: An Approach Strategy for National Market Growth**

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

**ID 255      Switching Intention of ATM Link to Digital Transactions in Responding Himbara's Bank New Policy: PPM Framework Perspective**

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**ID 256      Digital Industry Competition of Video on Demand Services: Technology Perspective and Consumer Behavior**

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**ID 257      Global Research Trends and Indonesia's Position in the Development and Application of Electric Trucks: A Literature Review**

Benazir Imam Arif Muttaqin, Industrial Engineering Department, Faculty of Industrial and Information Technology, Institut Teknologi Telkom, Surabaya, Indonesia

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Muhammad Miftahul Abidin and Hendrawan Widiyanto, Industrial Engineering Department, Faculty of Industrial and Information Technology, Institut Teknologi Telkom Surabaya, Indonesia

**ID 258      Market Feasibility Study for Conversion of Diesel-powered into Electric Truck**

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Terresa Indrajani Kusuma and Yudith Iqbal Dika Permana, Industrial Engineering Department, Faculty of Industrial and Information Technology, Institut Teknologi Telkom Surabaya, Indonesia

**ID 259      The Requirements for Predictive Maintenance Strategy and the Data Required for Successful Implementation, for the case of Nutrunners**

Stephen Matope, Associate Professor, Department of Industrial Engineering  
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Emma L Bekker, Masters Student, Department of Industrial Engineering  
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**ID 260      The Designing of Swivel Chair For Bending Machine Work Station At Pt Graha Adikarya Logam**

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Agustinus Purna Irawan, Mechanical Engineering Department, Universitas Tarumanagara, Jakarta

**ID 261      Halal Assurance System for Leather Industry in Indonesia: Future Research Directions**

Tengku Nurainun, Hayati Habibah, Abdul Talib, and Khairur Rijal Jamaludin, Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia, Kuala Lumpur, Malaysia

Nilda Tri Putri, Department of Industrial Engineering, Andalas University, Padang, Indonesia

Fitra Lestari, Industrial Engineering Department, Sultan Syarif Kasim State Islamic University, Riau, Indonesia

**ID 263      Modification of Chocolate Stirring Machine Using Reverse Engineering and VDI 2221 Method**

Calvin, Frans Jusuf Daywin, Adianto, Lina Gozali, , Wilson Kosasih, Industrial Engineering Department,

Agustinus Purnairawan, Mechanical Engineering Department, Universitas Tarumanagara, Jakarta

**ID 264      Redesign of Smart Trash Bin with Reverse Engineering and VDI 2221 Method**

Christopher Gunawan, I Wayan Sukania, Frans Jusuf Daywin, Lina Gozali, Wilson Kosasih, Industrial Engineering Department, Universitas Tarumanagara, Jakarta

**ID 265      Modification Of Potato Washing Machine By Adding Cutting Tool Using Reverse Engineering And Vdi 2221 Method**

Fransiscus Felix, Frans Jusuf Daywin, Adianto, Lina Gozali, Agustinus Purnairawan, Industrial Engineering Department, Universitas Tarumanagara, Jakarta, Indonesia

**ID 266      MODIFICATION DESIGN OF SHREDDER MASK WITH DISINFECTANT SPRAYER BY USING REVERSE ENGINEERING AND VDI 2221 METHODS**

Immanuel Beckham, Frans Jusuf Daywin, I Wayan Sukania, Lithrone Laricha Solomon, Lina Gozali, Industrial Engineering Department, Universitas Tarumanagara, Jakarta

**ID 267 MODIFICATION OF GROUP HEAD COFFEE MACHINE USING REVERSE ENGINEERING AND VDI 2221 METHODS**

Willy Andreas, Frans Jusuf Daywin, Lithrone Laricha, Lina Gozali, Agustinus Purnairawan, Industrial Engineering Department, Universitas Tarumanagara, Jakarta, Indonesia

**ID 274      Comparison of crossover operators in genetic algorithm for vehicle routing problems**

Eric Wibisono, Iris Martin, and Dina Natalia Prayogo, Department of Industrial Engineering, Faculty of Engineering, University of Surabaya, Surabaya, Indonesia

**ID            275            The Pull and Push Factors Towards the Adoption of Agricultural Revolution 4.0 (AR4.0) for Agro-Food Supply Chain (AFSC) in SMI's Agro-based in Malaysia**

Nur Fatin Munirah Aris and Fazleen Abdul Fatah, Faculty of Plantation and Agrotechnology, Universiti Teknologi Mara Cawangan Melaka Kampus Jasin, 77300 Merlimau, Melaka, Malaysia

Suhaiza Hanim Mohamad Zailani, Department of Operations Management and Information System, Faculty of Business and Accountancy, University of Malaya, Kuala Lumpur, Malaysia

**ID 277      Automating Inventory Management in Distribution Centers of a Leading FMCG Industry Player in the Beverage Market A Supply Chain 4.0 Journey**

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**ID 278      Indonesian Industrial Estate Firms Sustainability Conceptual Framework**

Christina Wirawan, Department of Industrial Engineering, Maranatha Christian University, Bandung, Indonesia

Gatot Yudoko, Yuliani Dwi Lestari, School of Business Management, Bandung Institute of Technology, Bandung, Indonesia

**ID 279      Machine Productivity Improvement of the Test-To-Pack Process Line in the Production of SMD Power Inductors Using DMADV Approach and ProModel Simulation**

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Marvin I. Noroña, School of Industrial Engineering and Engineering Management Mapúa University, 658 Muralla St., Intramuros, Manila, Philippines

**ID 281      Optimal Portfolio Using Single Index Model and Capital Asset Pricing Model (CAPM) in Covid-19 Pandemic Era**

Tieka Trikartika Gustyana, Candra Wijayangka, School of Postgraduate Program, Universitas Pendidikan Indonesia, Bandung, Indonesia, And School of Economic and Business, Telkom University, Bandung, Indonesia

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Maya Sari, Ikaputera Waspada, Associate Professor, School of Postgraduate Program, Universitas Pendidikan Indonesia,

Bandung, Indonesia

**ID 282 Empirical study of MOPSO and NSGA II comparison in multi-objective location routing problem incorporating the service level of delivery**

Rachmat Parayoga and Anna Maria Sri Asih, Department of Mechanical and Industrial Engineering, Universitas Gadjah Mada, Indonesia

**ID 284 Effect of Social Support on Elderly Welfare Using Structural Equation Modelling (SEM)**

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Ayudyah Eka Apsari, Industrial Engineering Program, Universitas Islam Batik Surakarta, Surakarta, Indonesia

**ID 285 Simulation of Dynamic System to Assist Policy Formulation and Prevention and Mitigation Strategies Spread of COVID-19 in Medan**

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Wahyudi Sutopo, Professor, Department of Industrial Engineering, Past Head of Department of Industrial Engineering, Head of Industrial Engineering and Techno-Economics Research Group, Vice Dean for Human Resources, Finance, and Logistics, Faculty of Engineering, Universitas Sebelas Maret (UNS), Surakarta, Indonesia, President, IEOM Indonesia Chapter

**ID 286 Capturing Profile of Halal Chicken Meat Slaughterhouse in Indonesia: A Clustering Case Study**

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Anna Maria Sri Asih, Bertha Maya Sopha, Department of Mechanical and Industrial Engineering, Faculty of Engineering, Universitas Gadjah Mada, Yogyakarta, Indonesia

**ID 292 Selection of E-Grocery Platform Strategy in Highly Urbanized Cities in the Philippines Using Analytic Hierarchy Process (AHP) and Structural Equation Modeling (SEM)**

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**ID 294 Use of Internet of Things (IoT) in the Design of an Inventory Management System for Omni-Channel Retailing**

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**ID 295 Use of Internet of Things (IoT) in the Design of an Inventory Management System for Omni-Channel Retailing**

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**ID 297 Big Data Analytics Adoption Intention Among Small & Medium Enterprises in Malaysia : A Conceptual Framework**

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**ID 298      Lean – Agile Workforce Model for Traffic Enforcers**

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Maida A. Dela Cueva, PIE, ASEAN Eng., Research Co-Adviser, Professor, Industrial Engineering Department, Adamson  
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**ID 299 Development of a Framework for Household Solid Waste Management in an Urban Locality**

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Excellence and Centers for Development, Chairman, Industrial Engineering Certification Board, Adamson University,  
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**ID 300 Analyze the Proper of Instagram as the Trends of Social Media: Why do Young Entrepreneurs Choose It?**

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Ariesty Dwinugraha Siswanto, Business Administration Department, Telkom University, Jl. Telekomunikasi No. 1,  
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**ID 304      Performance Management System for Industrial Water Management Company Using Balanced  
Scorecard Model**

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Iwan Vanany, Department of Industrial and Systems Engineering, Institut Teknologi Sepuluh Nopember, Surabaya,  
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**ID 320 Economic Ordering Policy of Deterioration Item with Time Varying Holding Cost under Backlogging and  
Permissible Delay in Payments**

Laila Nafisah, Yuli Dwi Astanti, Ahmad Muhsin, Department of Industrial Engineering, Faculty of Industrial Engineering,  
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**ID 324      Heterogeneous Vehicle Routing Problem with Vehicle Dependent Travel Time for Urban Freight  
Transportation**

Fran Setiawan and Kevin Harvest Novialdo, Industrial Engineering Department, Faculty of Industrial Technology,  
Universitas Katolik Parahyangan, Bandung, Indonesia



**ID 327      What Makes Entrepreneurial Intention for Students in Technological University Works During Covid-19 Period: A Behavioral Assessment**

Reny Nadlifatin, Gogor Arif Handiwibowo, Rr Ratih Laksitowati, and Bobby Ardiansyahmiraja, Insitut Teknologi Sepuluh Nopember, Campus ITS Sukolilo, Surabaya 60115, Indonesia

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**ID 331 The Use of Gamification Tools to Boost Students Engagement and Motivation**

Renée Hannah A. Niro, Via Shereen L. Daracan, Arvin Joseph D. Pizarro, and Josephine D. German, School of Industrial Engineering and Engineering Management, Mapúa University, 685 Muralla St., Intramuros, Manila 1002, Philippines

**ID 332      MedReS: A Charged Medication Report System for a General Hospital in the Philippines**

Cielo Jefferson F. de Castro, Klarence Emmanuel F. Decena, Ken Joshua U. Rebosura, and Josephine D. German, School of Industrial Engineering and Engineering Management, Mapúa University, Intramuros, Manila, Philippines

**ID 334      Developed concept and approach of Engineering Design course in the Fourth Industrial Revolution (IR 4.0): A study case in Mechanical Engineering**

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Fajar Budi Laksono, Division of Research and Development, DTECH-Engineering, Salatiga, Central Java 50742, Indonesia

**ID 342      Development of Chocolate Beverage Products by Considering Consumer Preferences**

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Muthia Sukma, Department of Industrial Engineering, Faculty Engineering, Andalas University, Padang, West Sumatra

**ID 343      Design of Halal Assurance and Food Safety Tracking System on the Production of Palm Sugar**

Desriyenti, Nilda Tri Putri and Alexie Herryandie Bronto Adi, Department of Industrial Engineering, Faculty of Engineering, Andalas University, Padang, Indonesia

**ID 347      Health Vulnerability to CoVid-19: A Barangay Level Assessment for Bocaue, Bulacan**

Alexandria Nicole A. Caalim, Christine Angel Aquino, Risha Caitlin V. Bongabong, Samantha Angela Osia, and Ardvin Kester S. Ong, Young Innovators Research Center, Mapúa University, Manila, Philippines, 658 Muralla St., Intramuros, Manila 1002, Philippines

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**ID 348      Indonesian Construction Sectors: An Analysis from the Economic Perspective**

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**ID 349      Inventory and Purchasing Analysis of Main Distribution Materials: Case Study in an Electrical Company Unit**

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Iwan Vanany, Department of Industrial and Systems Engineering, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia, Kampus ITS, Sukolilo, Indonesia

**ID 350      A Case Study on Educational Level and Gender Differences on Academic Self-Concept of Student**

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

Rocelle S. Calandria, Ella D. Delizo, Ellaine Genesis S. Lera, John Aldrin C. Selda, Karl Christian B. Toledo and David Brian B. Vizmanos, Bachelor of Science in Industrial Engineering, Malayan Colleges Laguna under Mapua Institute Technology at Laguna, Pulo-Diezmo Road, Cabuyao, 4025 Laguna

**ID 351      Effects of Online Learning Capacity on the Academic Stress of Students: A Case Study during COVID-19 Pandemic**

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Angelica R. Barcelon, Kyla Clarrizze M. Enriquez, Nhea Mica M. Llasos, Pia Alexis C. Lomague, Mary Abcdee C. Remoquillo, Jenelle E. Silverio, A Mapua Institute of Technology at Laguna, Malayan Colleges Laguna, Pulo-Diezmo Road, Cabuyao City

**ID 352      Perceived Effect of Home Environmental Factors to the Academic Stress of College Students: A Case Study during COVID Pandemic**

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**ID 353      A Case Study Measuring the Quality of Life of Students: Before and During COVID-19 Pandemic**

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**ID 354      Effects of Academic Stress on the Academic Performance of Students: A Case Study during Pandemic**

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**ID 357      Profitability, Liquidity, Advertising Cost and Firm Size Towards Tax Aggressiveness In Indonesia**

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**ID 358      [The Effect of Leverage, Profitability, Sales Growth, and Thin Capitalization Towards Tax Avoidance on Service Companies in The Trade, Service, and Investment Sector Listed on The Indonesia Stock Exchange](#)**

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**ID 361      [Queue System Analysis at Starbucks Stores](#)**

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Akhmad Nidhom Nurzaman, Lecturer of Industrial Engineering, Faculty of Engineering, Pembangunan Nasional Veteran Jakarta University, Indonesia, South Jakarta

Fitra Lestari, Associate Professor, Department of Industrial Engineering, Head of Department of Industrial Engineering, Member, IEOM Indonesia Chapter, Sultan Syarif Kasim State Islamic University, Riau, Indonesia

**ID 363      [Analysis of Automatic Toll Gate Payment Queue System](#)**

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**ID 364      [Organic Food in Supply Chain: Literature Review](#)**

Ismi Zahria and Iwan Vanany, Department of Industrial and Systems Engineering, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia, Kampus ITS, Sukolilo, 60111, Indonesia

**ID 367      [Enhancing Innovations through the Distance-Learning Studio: The Sociological Institutionalism Perspective](#)**

Chrisna T. Permana, Paramita Rahayu, and Isti Andini, Urban and Regional Planning Programme, Faculty of Engineering, The University of Sebelas Maret, Kentingan, Surakarta, Indonesia

**ID 369      The Effect Of External Auditor Quality, Profit Quality, Fixed Asset Intensity, Liquidity, And Corporate Risk On Tax Aggressiveness Of Property And Real Estate Companies**

Maya Safira Dewi, Accounting Department, Faculty of Economics and Communication, Bina Nusantara University, Jakarta, Indonesia

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**ID 370 THE EFFECT OF CEO OVERCONFIDENCE, CAPITAL INTENSITY, ADVERTISING EXPENSE, AND BOARD GENDER DIVERSITY ON TAX AVOIDANCE**

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**ID 372      Analysis of Waiting Time And Worker Utilization On A Gas Station In Indonesia**

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**ID 374      Analysis of Queue System Simulation on Banks with Arena System Modeling**

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**ID 377      Developing Simulation Optimization to Minimize Total Inventory Cost under Uncertain Demand**

Mufida Nur Khasanah and Hayati Mukti Asih, Department of Industrial Engineering, Universitas Ahmad Dahlan, Bantul, Yogyakarta 55191 Indonesia

**ID 382      Ergonomic Assessment on the Mental Workload of Work from Home Employees**

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**ID 384      Sustainability Awareness and Attitude to Sustainability among Entrepreneurial Students: Cultural Analysis and Level Measurement**

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**ID 385      Queue System Analysis in Drive-Thru Swab Test of COVID-19 in A Hospital**

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**ID 386      Simulation Analysis of Cashier Service Queue System at a Supermarket Using Arena Simulation**

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**ID 388      Critical Success Factors of Asset Management Software Implementation in Construction Indonesia**

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**ID 389      Automated Material Handling System and Inspection System Model for Flexible Manufacturing Systems Learning**

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**ID 390      Analysis of Workers' Physical and Mental Complaints in Conducting Online Meetings in the New Normal Era**

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**ID 391      Kansei Engineering and Design Thinking Methodology for Product/Service Design**

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**ID 392 Process Improvement of COVID-19 Vaccination System by utilizing Queuing Theory and ProModel Simulator on Vaccination Facilities in Metro Manila**

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**ID 394 Lean Six Sigma DMAIC Implementation to reduce Total Lead Time Internal Supply Chain Process**

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**ID 395 Working Posture Improvement on Batik Coloring Process using Rapid Upper Limb Assessment Method**

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**ID 396 A Strategy Design for Logistics Company: J&T Express Case Analysis Using Blue Ocean Strategy**

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**ID 397 Does it Pay to be Perfect? A Lesson Learnt from CV XYZ**

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**ID 398 Identification of At-Risk Behaviors among Fuel Station Consumers in Indonesia**

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**ID 400 Quality Improvement with the DMAIC Approach Using the Implementation of the Benchmarking and KPI Methods**

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**ID 402 Solar Renewable Energy Potential and Development in Malaysia, Indonesia, Vietnam and Japan**

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**ID 404 Cost Minimization of Feeds in RGS Hog Farm in the Philippines: An Operation Research Approach**

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**ID 405 Development Of Social Media Applications To Support Online Learning Of Computer Simulation Course**

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**ID 406 Improvement of AMG Rice Dealer Workplace Safety Using Ergonomics and Six Sigma Tools**

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**ID 412 Technical Analysis of Biomass Bamboo for Generating Electrical Energy Using APL Power Pallet**

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**ID 416 Developed SERVQUAL Model in Measuring Customer Satisfaction for Ferry Service in Langkawi**

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**ID 417      Age-Dependent Inventory Routing Problem Model for Medical Waste Collection**

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**ID 419      Optimization of Medical Personnel in Response to COVID-19 in the Philippines: A Working Time Scheduling Problem**

Reiniel D. Allanic, Shahira S. Herrera, Stephanie Christine D. Landicho, Aracely Ruth DC.Ramiro, Romalyn L. Galingan, Ma. Teodora E. Gutierrez

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**ID 421      Some Forms of Single Stage Queuing Systems Resulted from The Decomposition of Complex Supply Chain**

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**ID 422      Hub Location Problem Model to Determine the Location of Facilities by Considering Capacity and Routes**

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**ID 423      Feasibility Analysis of a Large Scale Floating Photovoltaic Power Plant Investment Using Financial Modeling with the Consideration of Uncertainties Factors**

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Dimas Kaharudin, PT PJB Indonesia, Purwakarta, West Java, Indonesia

**ID 424      Lean Manufacturing (LM) Implementation Literature Review Based on the K-Chart**

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**ID 425      Finding the Originality of Research on the Application of Lean Manufacturing (LM) With the Development of Systematic Literature Review (SLR) and K Chart**

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**ID 426 Fuzzy Kano Model and E-SERV Qual Application to Evaluate Performance of E-Travel Services Website in Indonesia**

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**ID 427 Maintenance Management Analysis and Risk Assessment Using Failure Mode & Effect Analysis (FMEA) Method on Heavy Equipment Unit at PT XYZ**

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**ID 428 Supply Chain Risk Assessment Implementation Using Failure Mode and Effect Analysis (FMEA). Case study on After-Sales Product Support at Heavy Equipment Company**

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**ID 429 Sustainable Marketing Strategy: The Psychological Factors of Consumer**

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**ID 430 Marketing and Sustainability: The Concept of Green Awareness of Consumer**

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**ID 439 Investigating the Overall Equipment Effectiveness (OEE) of Die Casting Injection Machines using Productivity Analysis**

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**ID 441 Small Medium Enterprises in Indonesia: A Retrospective of The Research Journey**

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**ID 442      A Bibliometric Overview of Universal Basic Income Study**

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**ID 443      A Study of Tourism Publication in Indonesia Using Bibliometric Approach**

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**ID 444      Half-Century of the Development Policy Study in ASEAN: A Bibliometric Analysis**

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**ID 445      Fourth Industrial Revolution in Indonesia: Lesson from Literature Mapping through Bibliometric Review**

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**ID 447      Factors Affecting Vulnerability of Barangays to CoVid-19: A Study in Cebu City**

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**ID 448      Analysis Fluctuation of Stock Price of Mining Companies that Listed on Indonesia Stock Exchange Before and After Covid-19 Pandemic**

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**ID 454      Decision-Making Process to Improve Efficiency and Effectiveness of The Remediation Planning and Implementation Process: a case study of an oil and gas company in Indonesia**

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**ID 456      The Role of Culture in Shaping Entrepreneurial Leader Behavior**

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**ID 457      Artificial Intelligence and Covid-19: A Bibliometric Analysis**

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**ID 458      Improving Safety Culture and Increasing Driver's Safety Awareness of Intercity Bus in The Greater Jakarta Area**

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**ID 461      Quality Improvement of Bolt Welding M6 X 12 with Six Sigma Method and Multi Attribute Failure Mode Analysis (MAFMA) In PT.A**

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**ID 464      Analyzing Factors that Impacts to Organizational Citizenship Behavior as a Part of Strategic Decision in Operation Management**

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**ID 466      Influence of Social Media Marketing, Word of Mouth and Advertising on Brand Awareness and Buying Interest (Case Study of Indihome Product)**

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**ID 467      Evaluation of Project Management Implementation Case Study: Environmental Phytoremediation Project in PT. Abadi Bersama Cahaya Indonesia**

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**ID 469      Public's Perceptions of Batik and How We Determine Marketing Strategy of Batik as Informal Attire**

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**ID 470      Optimization of Woven Fabric Production Process Using Multi Response Taguchi, GRA and PCA**

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**ID 473      Analysis Quality Control of TR 7864 Fabric Product Using Statistical Quality Control Method: A Case Study**

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**ID 474      Workload Analysis to Optimize Productivity of the Inspection Division**

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**ID 476      The Effect Of Perceived Ease Of Use Website And Internet Skills On Website Trust And Online Purchase Interest (Case Study Online Purchase on H&M Indonesia Website)**

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**ID 477 Household Behavior on Plastic Waste Separation in Indonesia**

Akmali Khansa Hafisah and Anna Maria Sri Asih, Departemen Teknik Mesin dan Industri, Universitas Gadjah Mada, Yogyakarta, Indonesia

**ID 478 The Effect of Perceived Service Quality and Brand Trust on The Repurchase Intention of Online Ojek Consumers in The Covid-19 Pandemic: Study on GOJEK Consumers in DKI Jakarta**

Cecep Hidayat, Enny Noegraheni Hindarwati, Ghina Salsabilah Gumay, Mellinia Nur Fortuna, and Risma Octa Sari, Management Department, BINUS Business School Undergraduate Program Bina Nusantara University Jakarta, Indonesia

**ID 479 Plastic Component Nonconforming Analysis Using FMEA and Fishbone Diagram**

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**ID 490 A Conceptual Framework on Work-Related Road Safety of the Gig riders in Malaysia**

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**ID 493 Being a Sustainable Bank: The Case in Indonesian Banks**

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**ID 497 Improvement of Education Quality Using Quality Control Circle Methods Based on Fulfillment of ISO 21001:2018 Requirements**

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**ID 500 Quality Improvement on Welding Process of Colt Diesel Cabin Using Six Sigma Method**

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**ID 502 Industry 4.0 and collaboration along the Brazilian automotive chain: visions of automakers and auto parts**

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**ID 503      Strengthening Local Economy through School Feeding**

Antônio Carlos Estender, Nilza Aparecida dos Santos, Jorge Luiz Dias Agia, Sérgio Miele, Ruggero, and Oduvaldo Vendrametto, Paulista University – UNIP, São Paulo, SP, Brazil

**ID 504      Supply Chain Performance Measurement with Method SCOR Model in Service Company**

Haryadi Sarjono, Adi Teguh Suprpto, Adinda Hanna Setyorini, Dyah Rosita Nurjannah and Fara Fisabilla, Binus Business School Undergraduate Program, Binus University, Jakarta, 11480, Indonesia

**ID 506      Consumer Trust and Online Purchase Decision Study of Consumer Behavior on E-Commerce**

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**ID 507      Performance Improvement in Heat Exchanger Company using Lean Sustainable Manufacturing Approach**

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**ID 508      Supply Chain Improvement of Bearing Lathe Components to Increase Efficiency Using Lean Supply Chain at PT. HRS Indonesia**

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**ID 509      Halal Tourism Research**

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**ID 511      The Acceptance of IoT: Study on Consumer Behavior**

Sandy Setiawan and Doni Purnama Alamsyah, Entrepreneurship Department, Bina Nusantara University, Jakarta, Indonesia

**ID 512      The Effects of Store Atmosphere and Service Quality on Customer Loyalty (Case Study of a Coffee Shop in Tasikmalaya, Indonesia)**

Handy Fadillah Rachman, Aditya Wardhana, Mahir Pradana, and Tri Indra Wijaksana, Department of Business Administration, Telkom University, Bandung, 40257, Indonesia

Renaldi Renaldi, Universitas Andi Djemma, Jalan Puang H. Daud no. 4, Palopo Sulawesi Selatan, Indonesia

**ID 513 Effect Of Work Life Balance and Work Stress On Employee Performance (Study At Bank BJB Branch Tasikmalaya)**

Fylia Pebiyanti, Alex Winarno, and Mahir Pradana, Business Administration, Telkom University, Bandung, West Java, Indonesia

Renaldi Renaldi, Universitas Andi Djemma, Jalan Puang H. Daud no. 4, Palopo Sulawesi Selatan, Indonesia

#### **ID 514 Factors Affecting Cocoa Pricing in West Pasaman District**

Peni Shoffiyati, Agricultural Science Study Program, Faculty of Agriculture, Andalas University, West Sumatra, Padang, Indonesia

Melinda Noer, and Rahmat Syahni, Agricultural Socio-Economic Study Program, Faculty of Agriculture, Andalas University, West Sumatra, Padang, Indonesia

Asrinaldi, Social and Political Science Study Program, Faculty of Social and Political Sciences, Andalas University, West Sumatra, Padang, Indonesia

#### **ID 515 Problem Based Learning in Online Class of Mass Transfer Operation Course**

Sperisa Distantina and Joko Waluyo, Chemical Engineering Department, Engineering Faculty, Universitas Sebelas Maret, Jl. Ir. Sutami 36 A Surakarta, Indonesia

#### **ID 516 A Strategy to Realize Soybean Self-Sufficiency: A System Dynamics Approach (A Case in Central Java Province, Indonesia)**

Nancy Oktyajati, Department of Industrial Engineering, Universitas Islam Batik, Surakarta, Indonesia, Industrial Engineering and Techno-economics Research Group, Department of Industrial Engineering, Universitas Sebelas Maret, Surakarta, Indonesia

Muhammad Hisjam and Wahyudi Sutopo, Department of Industrial Engineering, Universitas Sebelas Maret, Surakarta, Indonesia

#### **ID 517 The Application of Cooperative Project-Based Learning in Engineering Drawing Course to Enhance Students' Teamwork Skills**

Lina Indawati, Department of Civil Engineering, Faculty of Engineering, Universitas Sebelas Maret, 57126, Surakarta, Indonesia

#### **ID 518 The Social Design Techniques as Project Based Learning for Architecture Student**

Kusumaningdyah Nurul Handayani, Head of Urban-Rural Design and Conservation Laboratory, Department of Architecture, Faculty of Engineering, Head of Japan Culture Study Institute for Research and Community Service of Universitas Sebelas Maret (UNS), Surakarta, Indonesia

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#### **ID 519 Project-Based Learning in Civil Engineering: Learning Experience from the Steel Structure Design Course at Universitas Sebelas Maret, Indonesia**

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Siti Nurlita Fitri, Civil Engineering Department, Faculty of Engineering, Universitas Sebelas Maret, Jl. Ir. Sutami, 36 A, Surakarta, Indonesia

**ID 520      An Approach of Project Based Learning design for Autonomous Vehicle Course in Online Class**

Joko Slamet Saputro, Miftahul Anwar, Feri Adriyanto and Hari Maghfiroh, Department of Electrical Engineering, Faculty of Engineering, Universitas Sebelas Maret, Jl. Ir. Sutami, 36 A, Surakarta, Indonesia

**ID 521      PDCA Analysis on Management Administration Information Based on Android in Resik Becik Semarang**

Vania Ayu Rachmadanti, Ratih Setyaningrum, Dwi Nurul Izzhati, Industrial Engineering, Faculty of Engineering, Dian Nuswantoro University, Semarang, Indonesia

**ID 522      Optimization of Artificial Intelligence in Telecommunication**

Nurhayati Sembiring, Maghfira Ashila Nasution, Andri Gunawan, Bayu Febrilliandika, Universitas Sumatera Utara, Medan, Indonesia

Muhammad Fadly Tanjung, Faculty of Computer Science, Universitas Indonesia, Depok, Indonesia

**ID 523      Design Of Elderly Reading Chair To Decrease Musculoskeletal Disorders By Using Quality Function Deployment (QFD) Method**

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Beta Arya Ash shidik, Industrial Engineering Postgraduate Program, Universitas Islam Indonesia, Yogyakarta, Indonesia

Ayudyah Eka Apsari, Industrial Engineering Program, Universitas Islam Batik Surakarta, Surakarta, Indonesia

**ID 524      The Relationship between The Use of Personal Protective Equipment (PPE) With the Levels of Stress in Dentists During the Covid-19 Pandemic**

Wita Anggraini, Dewi Ranggaini, Annisa Putri Ariani, Department of Oral Biology, Faculty of Dentistry, Trisakti University, Jakarta, Indonesia

**ID 525      Macroergonomic and Analysis Design (MEAD) for Permanent Shelter of Public Transportation**

Brilliant Nur Diansari and Bambang Suhardi, Department of Industrial Engineering, Universitas Sebelas Maret, Surakarta

Novie Susanto, Industrial Engineering Department, Universitas Diponegoro, Semarang

**ID 526      The Relationship between Corporate Governance and Financial Performance in the UAE Exchange Market**

Ahmed Khalfan Al Kaabi and Abd Rahman Ahmad, Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia, Batu Pahat, Johor, Malaysia

**ID 527      Assessment and the Difference of Mental Workload between Work from Home (WFH) and Work form Office (WFO) Using NASA-TLX (Case Study in PT KIC)**

Desinta Rahayu Ningtyas, Anisa Puspa Delima, and Kirana Rukmayuninda Ririh, Industrial Engineering – Engineering Departement, Pancasila University, Srengseng Sawah Road, Jagakarsa, South Jakarta Indonesia

**ID 528      Formulation of Mathematical Model to Determine The Risk of Computer Vision Syndrome (VCS) in The Use of An Ergonomic Drawing Tablet Application in Writing Modre Characters**

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I Putu Gede Adiatmika and I Nyoman Adiputra, Medicine Faculty of Udayana University, Bali, Indonesia

Ida Bagus Alit Swamardika, Electrical Engineering of Udayana University, Bali, Indonesia



**ID 529      The Critical Variables for the Risk Assessment Associated with Pushing and Pulling of Wheeled Equipment in the Workplace: Subject Matter Expert Review**

Hari Krishnan Tamil Selvan and Mohd Nasrull Abdol Rahman, Department of Manufacturing and Industrial Engineering, Faculty of Mechanical and Manufacturing Engineering, Universiti Tun Hussein Onn Malaysia (UTHM), 86400 Parit Raja, Batu Pahat, Johor, Malaysia.

**ID 530      Personal Protective Equipment for Health Workers During a Pandemic: A Literature Review of Evaluation of Discomfort and Physiological Response**

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**ID 531      Design of Motorcycle Oil Performance Detector**

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**ID 532      Development of a Real-Time Ergonomic Assessment Tool to Minimize Musculoskeletal Disorders Risk**

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Septian Dwi Chandra, Firmware Design Department, PT. Indonesia Epson Industry, Bekasi, West Java, Indonesia

**ID 533      Assessment Comfortability of Climbing Stairs and the Height of Building Stair**

Lovely Lady, Industrial Engineering Department – University of Sultan Ageng Tirtayasa. Jl. Jend. Sudirman km 3, Cilegon

**ID 534      The Potential and Challenges of Virtual Reality in Indonesia**

Ainun Habibah, Dwita Astari Pujiarti, Ari Widyanti, and Herman Rahardian Soetisna, Industrial Engineering, Bandung Institute of Technology, Bandung, Indonesia

**ID 535      A Genetic Algorithm Based Approach for the Maritime Inventory Routing Problem**

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**ID 536      An Economic Production Quantity Model for Smart and Connected Product with Upstream and Downstream Trade Credit**

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**ID 537      Toyota Production System in Aircraft Industry – A Case Study**

Setyo Utomo Soekarsono and Hardianto Iridiastadi, Master program in Industrial Engineering and Management, Bandung Institute of Technology

Yustiono Dwi Arianto, PT Dirgantara Indonesia, Bandung, Indonesia

**ID 538      Visual Fatigue Examination on Static and Dynamic Virtual Environment**

Laras Swandayani and Adithya Sudiarno, Industrial and System Engineering, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia

**ID 539      Review of Objective and Subjective Methods for Rear-End Collision Risk Assessment**

Fatin Saffanah Didin, Hardianto Iridiastadi, Ari Widyanti, Industrial Engineering and Management Department, Institut Teknologi Bandung, Bandung, Indonesia

**ID 540      Usability Analysis of Tembang Sekar Alit Learning (SekARAI) Applications Using The Human Computer Interaction (HCI) Model In Bali Students**

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Ida Bagus Alit Swamardika, Electrical Engineering of Udayana University, Bali, Indonesia

**ID 541      Factors Causing Train Driver Fatigue: A Systematic Review**

Sevty Auliani and Hardianto Iridiastadi, Faculty of Industrial Technology, Bandung Institute of Technology, Bandung, Indonesia

**ID 542      Systematic Literature Review: Bibliometric Analysis of Green Consumer Behavior**

Aries Susanty, Nia Budi Puspitasari, Pradhipta Listyawardhani, Heru Prastawa, Department of Industrial Engineering, Faculty of Engineering, Diponegoro University, Semarang, 50275, Indonesia

**ID 543      Human-Side Emotional Service Design for Experience-Centric Amusement Park**

Markus Hartono, I Made Ronyastra, Tania Aisyah Fajrin, Department of Industrial Engineering, University of Surabaya, Jalan Raya Kalirungkut, Tenggiling, Surabaya 60293, Indonesia

**ID 544      Influence Safety Climate and Safety Behavior Against the Safety Behavior on Bus Rapid Transit Driver with Gender as Moderating Variable**

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Dyah Santhi Dewi, Industrial Engineering Department Sepuluh Nopember Institute of Technology Surabaya, Indonesia

Adithya Sudiarno, Industrial Engineering Department Sepuluh Nopember Institute of Technology Surabaya, Indonesia

**ID 545      Sustainability Assessment of Tourism Destination with Multidimensional Scaling Approaches**

Ratna Purwaningsih, Maharani Ratri Windy Sabrina, Susatyo Nugroho WP, Aries Susanty, Departement of Industrial Engineering, Diponegoro University, Semarang, 50275, Indonesia

**ID 546      A DMAIC Approach in Improving Wafer Hairline Crack Detection Process at Chip Probe and in Reducing Overall Manufacturing Downtime**

Donilyn D. Salazar and Marvin I. Noroña, School of Industrial Engineering and Engineering Management, Mapúa University, 658 Muralla St., Intramuros, Manila 1002, Philippines

**ID 547      Analysis of Trucking & Transportation Services Performance Factors: A Lean and Green Paradigm Shift**

Gabriel Dan F. Fermazi, Cel Adriane Y. Lalo, and Marvin I. Noroña, School of Industrial Engineering and Engineering Management, Mapúa University, Manila, Philippines

**ID 548      Ergonomic Intervention with Dirgaswasam Modeling Combined with Exercise Prescriptions (DirgasExPres) Reducing Musculoskeletal Complaints in Dentists**

Ni Nyoman Kristina, Udayana University, Bali, Indonesia

I Made Ady Wirawan, I Putu Gede Adiatmika, and I Nyoman Adiputra, Medicine Faculty of Udayana University, Bali, Indonesia

**ID 549      Efficiency Analysis of Indonesian Schools: A Stochastic Frontier Analysis using OECD PISA 2018 Data**

Mujiya Ulkhaq, Department of Economics and Management, University of Brescia, Brescia, Italy

**ID 550      Quality Comparison for Online Transportation Services Using the Competitive Zone of Tolerance Based Importance-Performance Analysis**

Arfan Bakhtiar, Febby Veronica and Denny Nurkertamanda, Industrial Engineering Department, Diponegoro University, Semarang Indonesia

**ID 551      Supply Chain Risk Assessment at Poultry Slaughterhouses using House of Risk Method to Define Mitigation Action**

Ratna Purwaningsih, Putri Indah Ramadani, Sri Hartini, Ade Aisyah Arifna Putri, Departement of Industrial Engineering, Diponegoro University, Semarang, 50275, Indonesia

**ID 552      Analysis of Gastroenteritis Incidence during the Covid-19 Pandemic on Shopping Center Employees**

Veniranda Neny Widyastuti, Student of the Master's Program in Public Health Sciences, Faculty of Public Health, Universitas Sriwijaya Palembang, South Sumatera, Indonesia

Hermansyah and Yuanita Windusari, Lecturer of the Master's Program in Public Health Sciences, Faculty of Public Health, Universitas Sriwijaya Palembang, South Sumatera, Indonesia

**ID 553      Lean Manufacturing Improvement Using ECRS and TRIZ Methods: Literature Review**

Paulino Gamboa and Moses Laksono Singgih, Department of Industrial and System Engineering, Institut Teknologi Sepuluh Nopember (ITS), Department of Industrial Engineering, Dili University (UNDIL)

**ID 554      Designing Performance Measurement System for Animal Feed Company Using Balanced Scorecard and Analytical Hierarchy Process Method**

Deni Dwi Junico and Moses Laksono Singgih, Department of Management Technology, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia

**ID 555      Performance Measurement of Offshore Facility Maintenance Service Provider Using Quality Function Deployment**

Achmad Nanang Zulfikar and Moses Laksono Singgih, Department of Management Technology, Institut Teknologi Sepuluh

Nopember (ITS)

**ID 556      The Customer Satisfaction Analysis of the Cinema during Covid-19 Pandemic using the Kano Model in Indonesia**

Andrean Emaputra, Kartinasari Ayuhikmatin Sekarjati, Indri Susilawati, Department of Industrial Engineering, AKPRIND Institute of Science and Technology, Kalisahak Street No. 28, Special Province of Yogyakarta, 55222, Indonesia

**ID 557      Product Packaging in Support of Consumer Loyalty**

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**ID 558      3D Printing Technology: A New Advancement for Modular Construction?**

William Faustin, Mohammed Ali Berawi, Gunawan Saroji, Civil Engineering Department, University of Indonesia, Depok, Indonesia

**ID 559      A Conditional Process Analysis on the Relationship between Work-Life Balance, Well-being, Job Satisfaction, and Work from Home Practice during the COVID-19 Pandemic**

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Irma Nur Afiah, Department of Industrial Engineering, Universitas Muslim Indonesia, Makassar, Indonesia

**ID 560      Study of Optimization Problems Associated With Technical Implementation of Drones in the Post-Pandemic Society**

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Ronald Sukwadi, Department of Industrial Engineering, Atma Jaya Catholic University of Indonesia, Jl. Raya Cisauk, Sampora Tangerang Selatan, Banten 15345, Indonesia

**ID 561      Systematic Literature Review: Puppet Implementation Digital Technology in Industry**

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Andriyani, Sekolah Tinggi Ilmu Ekonomi Bisnis Indonesia, Jakarta, Indonesia

Heppy Yohanes, Sekolah Tinggi Teologi Bethel The Way, Jakarta, Indonesia

**ID 563      Systematic Literature Review The Role of E-Commerce in Reog Ponorogo Art Crafters**

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Heppy Yohanes, Sekolah Tinggi Teologi Bethel The Way, Jakarta, Indonesia

**ID 564      The Art of Performing The Kecak Dance that Transformed into The Creative Industry: Systematic Literature Review**

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**ID 565      University Students' Mental Workload and Sleep Quality due to Online Lecture during Covid-19 Pandemic**

Lina Dianati Fathimahhayati, Risky, Suwardi Gunawan, Industrial Engineering Department, Engineering Faculty, Mulawarman University, Jalan Sambaliung No. 9, Samarinda, East Borneo, Indonesia

**ID 566      Implementation of Preventive Maintenance on CNC Milling Tape Drill Machine at PT XYZ Using FMEA Method and Age Replacement**

Bambang Purwanggono and Jouondo R Ibana, Industrial Engineering Department, Diponegoro University, Semarang, Indonesia

**ID 567      Ergonomic Risk Assessment of Musculoskeletal Disorders (MSD) During Chest Compression in Three Different Position In A Rescuer Performing Paediatric Basic Life Support**

Amrita Kaur Seera Harapajan Singh, Department of Emergency Medicine, School of Medical Sciences, Health Campus, University of Science Malaysia  
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Shaik Farid Abdull Wahab, Hospital University of Science Malaysia, Health Campus, Universiti Sains Malaysia, Kubang Kerian, Kelantan

Rohayu Othman, Kolej Kemahiran Tinggi MARA, Lebuhraya Pasir Mas Lubok Jang, Pasir Mas, Kelantan, Malaysia

**ID 568      Evaluation of the Implementation of Fire Safety Management Based on Work Breakdown Structure for High-Rise Apartments**

Soraya Muthma Innah Nasution, Fadhilah Muslim, Yusuf Latief, Civil Engineering, Faculty of Engineering, University of Indonesia, Depok, West Java 16424, Indonesia

**ID 569      Improving Oil and Gas Wireline Log Data Quality Using Six Sigma Methods**

Desma and Leni Sagita, Department of Civil engineering, Faculty of Engineering, University of Indonesia, Depok, Indonesia

Mohamad Ichsan, Management Program, Binus, Business School Undergraduate Program, Jakarta, Indonesia

**ID 570      Innovative Learning Era Industrial Revolution 4.0 in Optimizing 21st Century Competence Elementary School Students**

Fitri Indriani, Nur Hidayah, AlQisan, Nana Nur Okfitri, Department of Primary Education, Graduate School of Universitas Ahamad Dahlan

**ID 571      How a Crisis Can Change Training Design: A Case Study on Principal Preparation Training in Indonesia**

Ratna Juwita, Lembaga Pengembangan dan Pemberdayaan Kepala Sekolah dan Pengawas Sekolah (LPPKSPS), Kementerian

Pendidikan dan Kebudayaan, Karanganyar, Indonesia

**ID 572 The Conservational Attitudes of College Students in Elementary Schools Teachers of Education Department on Online Lecturing**

Aldina Eka Andriani, Siti Maryatul Kiptiyah, Sukardi Sukardi, Sri Sami Asih, Yuli Witanto, Department of Elementary School Teacher Education, Faculty of Education, Universitas Negeri Semarang, Indonesia

**ID 573 The Critical Thinking Skills of High School with Problem- Based Learning Model-Assisted Mind Map in Online Learning on Dynamic Fluid**

Yurike Margaret Takus, Student at Department Magister of Physics Education, Faculty of Teacher Training and Education, Sebelas Maret University, 57126, Indonesia

Widha Sunarno and Daru Wahyuningsih, Faculty of Teacher Training and Education, Sebelas Maret University, Surakarta, Indonesia

**ID 574 Support Vector Regression (SVR) Model for Seasonal Time Series Data**

Hanifah Muthiah, Umu Sa'adah, Achmad Efendi, Department of Statistics, Brawijaya University Malang, Indonesia

**ID 575 Factors Affecting Family Resilience of Health Workers during the COVID-19 Pandemic: A Systematic Literature Review**

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**ID 576 The Level of Ability of Public Elementary School Teachers in Use Digital Technology-Based Learning Media during the Covid-19 Pandemic**

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Syihabuddin and Sumiyadi, School of Postgraduates, Indonesia University of Education, Dr. Setiabudhi 229, Bandung, Indonesia

**ID 577 Analysis of Students' Mathematical Problem-Solving Ability Based on John Dewey's Theory**

Fitriani Roskaputri, Mardiyana, Laila Fitriana, Mathematics Education of Graduate School, Sebelas Maret University, Surakarta, Indonesia

**ID 578 The Cooperative Learning Challenges in Elementary School during Covid-19: A Report from Teachers in Yogyakarta**

Ratna Ainun Fauzani and Anwar Senen, Graduate School, Department of Primary Education, Yogyakarta State University, Jl. Colombo Yogyakarta No.1, Karang Malang, Caturtunggal, Kec. Depok, Kabupaten Sleman, Daerah Istimewa Yogyakarta

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**ID 579 Vocational Education in Madrasah Aliyah in Central Java**

Nugroho Eko Atmanto, A.M. Wibowo, Siti Muawanah, Aji Sofanuddin, Umi Muzayanah, Mulyani Mudis Taruna, Wahab, Ahmad Muntakhib, Office of Religious Research and Development Semarang, Ministry of Religious Affairs, Indonesia

**ID 580      Development of Online Module Based on Discovery Learning to Improve Critical Thinking Ability in Basic Concepts of Science at Primary School Teacher Education**

Dewi Nilam Tyas, Desi Wulandari, Panca Dewi Purwati, Aldina Eka Andriani, Siti Maryatul Kiptiyah, Department of Elementary School Teacher Education, Faculty of Education, Universitas Negeri Semarang, Indonesia

**ID 581      Family Resilience and Mental Health during the COVID-19 Pandemic: Systematic Literature Review**

Purwanti Harini, Master Psychology, Faculty of Psychology, Universitas Diponegoro, Jl. Prof. Soedarto, SH, Kampus Undip Tembalang, Semarang, Jawa Tengah

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**ID 582      Student Mathematical Representation Ability in Their Learning Habits during the Covid-19 Pandemic**

Ummu Baroroh, Mardiyana, Laila Fitriana, Mathematics Education of Graduate School, Sebelas Maret University, Surakarta, Indonesia

**ID 583      Analysis of Students Critical Thinking Skills on the Limit of Algebraic Functions**

Yatik Octaviani, Postgraduate Program of Mathematics Education, Universitas Sebelas Maret, Surakarta, Indonesia

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Isnandar Slamet, Faculty of Mathematics and Natural Sciences Training and Education, Universitas Sebelas Maret, Surakarta, Indonesia

**ID 584      Exploring the Kindergarten Preparedness in Facing New Normal Education Era**

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Kadek Dwi Wahyuni, Education Quality Analyst at Early Childhood and Community Education Development Center, Ministry of Education and Culture of the Republic of Indonesia

**ID 585      Cognitive Flexibility Categorization in Moral Dilemma Decision**

Hartanto Hartanto, Universitas Gadjah Mada, Faculty of Psychology

Imam Shofwan, Faculty of Education, Universitas Negeri Semarang, Indonesia

**ID 586      Life Skills Education through the Heroic Values of the King of Kasunanan and the King of Mangkunegaran in Surakarta Folktales**

Nugraheni Eko Wardani, Faculty of Teacher Training and Education, Sebelas Maret University, Jl. Ir. Sutami 36A Surakarta, Indonesia

**ID 587      Najwa Syihab's Speech Strategy in Mata Najwa Show on Metro TV From the Perspective of Community Education**

Lusi Komala Sari, Indonesian Language and Literature Education Department, Sultan Syarif Kasim State Islamic University, HR. Soebrantas Panam Km. 15 No. 155, Riau, Indonesia

Syihabuddin and Vismaia S. Damaianti, School of Postgraduates, Indonesia University of Education, Dr. Setiabudhi 229, Bandung, Indonesia

**ID 588      The Analysis on The Transmission Pattern of Slawatan Pawijian as The Form of Cultural Conservation in Tamanasri Pacitan**

Deasylina da Ary and Kurniana Bektiningsih, Universitas Negeri Semarang, Jl. Beringin Raya No. 15 Wonosari Ngaliyan Semarang,

**ID 589      Mapping Science Teachers' Pedagogical Content Knowledge In Classroom Interaction Through Transcript-Based Lesson Analysis: A Case Study**

Indra Budiman, Anna Permanasari, Ida Kaniawati, and Iwa Lukmana, Science Education Program, School of Postgraduate Studies, Universitas Pendidikan Indonesia, Jl. Dr. Setiabudhi No. 229, Kota Bandung, Jawa Barat 40154, Indonesia

**ID 590      Emergency Curriculum during COVID-19 Pandemic**

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Imam Shofwan, Faculty of Education, Universitas Negeri Semarang, Indonesia

**ID 591      Online Discussion Barrier in Indonesia: Does It Had The Same Walls?**

Bayu Prasodjo, Faculty of Education, Yogyakarta State University, Yogyakarta, Indonesia

Heri Retnawati, Faculty of Mathematics and Natural Science, Yogyakarta State University, Yogyakarta, Indonesia

**ID 592      Modeling Operations of CCPP Tambak Lorok, Based on Gas Fuel and Investment in CCPP Block 3**

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Nurhadi Siswanto, Department of Industrial and Systems Engineering, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia

**ID 593      Value Added and Non-Value Added Activity Analysis in Disassembly Process for Productivity Enhancement during Covid-19 Pandemic**

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**ID 594      Study of RFID Technology Applied to Parts Distribution Center in the Utility Sector**

Gary Yu-Hsin Chen and Chen-Yi Hung, Department of Logistics Management, National Kaohsiung University of Science and Technology, 1 University Rd., Yanchao Dist., Kaohsiung, Taiwan

**ID 595      The Implementation of the Tri Datu Concept of Socio-Cultural Ergonomic Oriented to Maintain Entrepreneurial Attitude of Workers on The Covid-19 Pandemic**

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**ID 596      Ergonomic Risk Assessment of Musculoskeletal Disorders During Simulated Endotracheal Intubation Using Direct Laryngoscopy and Video Laryngoscopy Among Doctors in Emergency and Trauma Department of a**



## Teaching Hospital

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### **ID 597 Correlation Between Backpack Weight and Shoulder Pain in Children Aged 6-11 (A Case in Elementary School in Makassar Indonesia)**

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### **ID 598 Risk Level for Manual Material Handling Activities Using Key Indicator Method in the Simulation of TPS Laboratory at Industrial Engineering, Diponegoro University**

Yustina Nugraheni Wahyuningtyas, Heru Prastawa, Department of Industrial Engineering, Engineering Faculty, Diponegoro University, Tembalang, Semarang, Indonesia 50275

### **ID 599 The Effect of Emotion Induction on Situation Awareness and Driving Performance**

Faradhina Azzahra, Industrial Engineering Postgraduate Program, Department of Mechanical and Industrial Engineering, Universitas Gadjah Mada, Yogyakarta, Indonesia

Titis Wijayanto, Department of Mechanical and Industrial Engineering, Universitas Gadjah Mada, Yogyakarta, Indonesia

### **ID 600 Work Posture Analysis Using Rapid Entire Body Assessment on Workers at AR Tailor Denpasar**

Ni Luh Gede Aris Maytadewi Negara, I Dewa Putu Sutjana, Ni Made Citra Aryani, Program Studi Kesehatan dan Keselamatan Kerja Universitas Bali Internasional

### **ID 601 Analysis of Persuasive Communication Strategies and Ergonomics Macro in an Effort to Reduce Workplace Accidents in PT. X Batam**

Dinda Okta Dwiyantri Ridwan Gucci, Industrial Engineering, Batam Institute of Technology, Indonesia

Muhammad Adi Sukma Nalendra, Design and Visual Communication, Batam Institute of Technology, Indonesia

### **ID 602 The Optimization of Facility Location-Routing Decision Model for Municipal Solid Waste Network**

Cahaya Annisaa' Fathonah and Suparno, Department Industrial and Systems Engineering, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia

### **ID 603 The Effect of Intercultural Learning Challenges on Cognitive Load of Indonesian Students Abroad**

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Aisyah Juliawulan Malahayati, Department of Industrial and Systems Engineering, Sepuluh Nopember Institute of Technology, Surabaya, Indonesia

**ID 604      Implementation of Kansei Engineering, Kano Model, and TRIZ in Improving the Quality of Fully Online Learning System**

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Dianda Aryntya Firia Ferlania, Department of Industrial and System Engineering, Sepuluh Nopember Institute of Technology, Surabaya, Indonesia

**ID 605      Analysis of Train Passenger Comfort Related to the Vibration and Heat It Creates**

Sugiono Sugiono, Oke Oktavianty, Dwi Hadi Sulistyarini, Willy Satrio Nugroho, Department of Industrial Engineering, Universitas Brawijaya, Malang, Indonesia

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Retno Widyaningrum, Ratna Sari Dewi, Department of Industrial and Systems Engineering, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia

**ID 606      Perceived Usability Evaluation of MOLS (Mulawarman Online Learning System) During COVID-19 Pandemic Using System Usability Scale (SUS), Performance Measurement, and Thinking Aloud Methods**

Theresia Pawitra, Willy Tambunan, Syahrul, Industrial Engineering Department, Mulawarman University, Samarinda, Indonesia

**ID 607      Identification of Occupational Health and Safety Management System Indicators Based on Indonesian Government Regulation Number 50 Year 2012 and ISO 45001:2018 on Safety Culture in EPC Projects**

Diennur Izzati Sugito, Leni Sagita Riantini and Rossy Army Machfudiyanto, Department of Civil Engineering, Universitas Indonesia, Jakarta, Indonesia

**ID 608      Ergonomic Risks Associated with Musculoskeletal Disorders in Ikat Weaving Workers in Letmafo Induk Village, Insana Tengah District, Timor Tengah Utara Regency**

Luh Putu Ruliati and Ribka Limbu, Public Health Study Program, Faculty of Public Health, Nusa Cendana University, Kupang NTT Indonesia

Arince Sopbaba, Student of Public Health Study Program, Faculty of Public Health, Nusa Cendana University, Kupang NTT Indonesia

**ID 609      Macro Ergonomic Modeling in Instagram Usage Based on The Socio-Technical System Approach**

Adithya Sudiarno, Industrial and System Engineering Department, Institut Teknologi Sepuluh Nopember, Indonesia

Roikhanatun Nafi'ah, Industrial and System Engineering Department, Institut Teknologi Sepuluh Nopember, Indonesia

Yogi Tri Prasetyo, School of Industrial Engineering and Engineering Management, Mapua University, Philippines

**ID 610      Identification of Digitalization-Based Work Plans to Improve Time Performance in Railway Infrastructure Development Projects**

Radeta Effendi, Leni S. Riantini and Rossy A. Machfudiyanto, Department of Civil Engineering, Faculty of Engineering, Universitas Indonesia Jakarta, 10430, Indonesia

**ID 611      Reviewing the relationship between Authentic Leadership, Employee Engagement, and Organizational Innovation: Telecommunication Sector in Malaysia**

Abdiaziz Mohamed Abdirahman, and Seow Ta Wee, Faculty of Technology Management & Business, Universiti Tun Hussein Onn Malaysia, 86400, Batu Pahat, Malaysia

**ID 612      The Feasibility Level of The Infrastructures and Facilities of the Vocational Engineering Workshop in Palembang**

Jefri Aldo and Dwi Rahdiyanta, Department of Mechanical Engineering, Universitas Negeri Yogyakarta, Yogyakarta, Indonesia

**ID 613      Students' Perception toward Videoconference as the Mode of Teaching English Speaking for Presentation**

Wiannastiti Melania, Mujiyanto, J., Bharati, D.A.L., Graduate School- Universitas Negeri Semarang, Semarang, Indonesia

**ID 614      Students' Perceptions and Attitudes in Waste Management: The Role of Internet Literacy and Sustainability Programs**

Teddy Prasetiawan and Aryo Wasisto, Research Center of Parliamentary Expertise Agency of the Indonesian House of Representatives, Bandung, Indonesia

**ID 615      Hybrid Metaheuristics for Solving Vehicle Routing Problem in Bulk Cement Distribution**

Antono Adhi, Department of Industrial and Systems Engineering, Institut Teknologi Sepuluh Nopember, Surabaya 60111, Indonesia, Department of Industrial Engineering, Universitas Stikubank, Semarang, Indonesia

Budi Santosa, Nurhadi Siswanto, Department of Industrial and Systems Engineering, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia

**ID 616      Factors Affecting Parental Psychological Flexibility during Pandemic COVID-19: A Systematic Literature Review**

Retno Herfinanda, Master Psychology, Faculty of Psychology, , Universitas Diponegoro, Indonesia, Jl. Prof. Soedarto, SH, Kampus Undip Tembalang, Semarang, Jawa Tengah

Dian Veronika Sakti Kaloeti, Pusat Pemberdayaan Keluarga, Faculty of Psychology, Universitas Diponegoro, Indonesia, Jl. Prof. Soedarto, SH, Kampus Undip Tembalang, Semarang, Jawa Tengah

**ID 617      Improving the Critical Thinking Skills by Using the Discovery Learning Model Based on the Ethnoscience of the Patiayam Site**

Sri Utaminingsih, Rihayati and Santoso, Teacher Training and Education Faculty, Muria Kudus University, Indonesia

**ID 618      The Framework of Information Distribution in Project Communication System of Quality Culture in Construction Companies to Reduce Construction Failure Levels**

Redhani Putri Maharani, Yusuf Latief, Rully Andika, Department of Civil Engineering, Faculty of Engineering, University of Indonesia, Depok, West Java 16424, Indonesia

**ID 619      Framework of Leadership System in Improving Quality Culture in Indonesian Construction Company to Reduce Construction Failure**

Putri Astie Utami, Rully Andhika Karim, Yusuf Latief, Department of Civil Engineering, Faculty of Engineering, University of Indonesia, Depok, West Java 16424, Indonesia

**ID 620      Evaluation of Information System Implementation on Civil Registration Service at Surabaya, Indonesia (Case Study: Birth Certificate Service)**

Maria Anityasari, Aufar Fikri Dimiyati, Department of Industrial and System Engineering, Institut Teknologi Sepuluh

Nopember, Surabaya, Indonesia

**ID 621      Comparison of Quick Exposure Check (QEC) and Nordic Body Map (NBM) in Traditional Broom Workbench Design**

Niko Siameva Uletika, Tigar Putri Adhiana, Khoerul Huda Aditama, Industrial Engineering Program, Engineering Faculty, Jenderal Soedirman University, Purbalingga, Jawa Tengah, Indonesia

**ID 622      Ergonomics Assessment for Wearable Elbow Exoskeleton Prototype**

Novie Susanto and Manik Mahachandra, Industrial Engineering Department, Faculty of Engineering, Diponegoro University, Semarang, Indonesia, Center for Bio Mechanic, Bio Material, Bio Mechatronics and Bio Signal Processing (CBIOM3S) Diponegoro University, Semarang, Indonesia

Christ Novia P Saraswati, Industrial Engineering Department, Faculty of Engineering, Diponegoro University, Semarang, Indonesia

**ID 623      A Framework of University Internship Information System with Web-Based Design Analysis**

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Riana Magdalena Silitonga, Department of Industrial and Systems Engineering, Chung Yuan Christian University, Taiwan

Yung-Tsan Jou, Department of Industrial and Systems Engineering, Chung Yuan Christian University, Taiwan

**ID 624      Evaluation of the SM-8018 Shima Ergono Wheelchair Product Prototype Design Based on Quality of Life and Ergonomic Function Deployment**

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Micheline Rinamurti, Management Study Program, Business and Accounting Faculty, Musi Charitas Catholic University, Bangau Street No. 60 Palembang, South Sumatera, Indonesia

**ID 625      Experimental Design of Baby Food Advertisement in Social Media**

Nia Budi Puspitasari, Zainal Fanani Rosyada and Siauw Jessica Amanda Wijaya, Department of Industrial Engineering, Faculty of Engineering, Diponegoro University, Semarang, Indonesia

**ID 626      Designing Strategies to Anticipate Circular Economy Barriers in Furniture Industry**

Purnawan Adi Wicaksono, Yonathan Pradana Atmaja, Singgih Saptadi, Denny Nurkertamanda, Yusuf Widharto, Industrial Engineering Department, Faculty of Engineering, Diponegoro University, Semarang 50277, Indonesia

**ID 628      Application of Occupational Health and Safety (K3) in Agrotourism**

Yusuf, Department of Mechanical Engineering, Politeknik Negeri Bali, Indonesia

N.K. Dewi Irwanti, STIPAR Triatma Jaya Denpasar, Bali, Indonesia

**ID 629      Effective Workplace Stretching Exercise for Decreasing Musculoskeletal Disorders in Ndao Ika weavers in Rote Ndao Regency**

Serlien A Luik, Jacob M Ratu and Agus Setyobudi, Faculty of public health, Nusa Cendana University

**ID 630      Independent Design of the Legalization Office by Applying Activity-Based Flexible Office Concepts**

Muhammad Fadhil Farras and Hartomo Soewardi, Industrial Engineering Department, Faculty of Industrial Technology, Islamic University of Indonesia, Yogyakarta, Indonesia

**ID 631      Designing Sustainability Accounting and Dashboard Monitoring Based on Open ERP using Quickstart Approach**

Putu Priyanka Sonia Dewi, Ari Yanuar Ridwan and Umar Yunan Kurnia Septo H, Information System Department School of Industrial Engineering, Telkom University, Bandung, 40257, Jawa Barat

**ID 632      Development of Web-Based Occupational Safety and Health Management Information System (OSH-MIS) at Engineering Faculty of Diponegoro University**

Manik Mahachandra and Jojo Kakanda Purba, Industrial Engineering Department, Faculty of Engineering, Diponegoro University, Semarang, Indonesia

Ike Pertiwi Windasari. Computer Science Department, Faculty of Engineering, Diponegoro University, Semarang, Indonesia

**ID 633      Cognitive Differences between Senior and Younger Worker: A Mental State Examination**

Kristiana Asih Damayanti, Ari Widyanti, and Yassierli, Industrial Engineering and Management Department, Institut Teknologi Bandung, Bandung, Indonesia

**ID 634      Occupational Health and Safety in Classroom Facilities Layout When New Normal at Bali International University**

I Gusti Agung Haryawan, Komang Angga Prihastini, Agnes Ayu Biomi, Occupational Health and Safety Study Program, Faculty of Health Sciences, International University of Bali, Indonesia

**ID 635      Ergonomic Approach on Rail Industry Workers Using Rail Ergonomics Questionnaire**

Dian Palupi Restuputri, Angelie Rekha Elvera, Adhi Nugraha, Ilyas Masudin, Industrial Engineering, University of Muhammadiyah Malang, Malang, East Java, Indonesia

**ID 636      Survival Strategies for Small and Medium Enterprises (SME's) Due to the Covid-19 Pandemic Through Supply Chain Management: A State of the Art Literature Review**

Kaleb Kurniawan, Saiful Mangnggenre and Syarifuddin Mabe Parenreng, Industrial Engineering Department, Hasanuddin University, Gowa, South Sulawesi, Indonesia

**ID 637 Optimum Route Design for Paper Waste Transportation Using Sequential Insertion: Waste Bank in Grobogan**

Sri Hartini, Rani Rumita, and Gunawan Silalahi, Department of Industrial Engineering, Universitas Diponegoro, Semarang, 50275, Indonesia

**ID 639      The Relationship Analysis between Physical and Mental workload with Work Fatigue in Extruder Section at PT. ABC**

Fanisa Ismi Permatasari, Industrial Engineering Department, Universitas Muhammadiyah Surakarta, Bekasi, Indonesia

Muchlisson Anis, Industrial Engineering Department, Universitas Muhammadiyah Surakarta, Surakarta, Indonesia

**ID 640      Eliminating Unsafe Behaviour through the Implementation of Nudge Theory in Indonesian Industry**

Andri Prabowo, Department of Industrial Engineering, Universitas Indonesia, Depok, Indonesia

Danu Hadi Syaifullah, Department of Industrial Engineering, Universitas Indonesia, Depok, Indonesia

**ID 641      Occupational Stress Assessment and Its Impact on Job Performance during Work from Home**

Audrey Maharani Bhinuko, Maya Arlini Puspasari, Department of Industrial Engineering, Faculty of Engineering, Universitas Indonesia, Kampus UI Depok, Indonesia

**ID 642      Measurement of Situation Awareness on Pedestrians: An Exploratory Study**

Gilang Hamzah Akbar, Budi Hartono, and Titis Wijayanto, Departement of Mechanical and Industrial Engineering, Universitas Gadjah Mada, Yogyakarta, Indonesia

**ID 643      Mask Design For Children Aged 7-12 Years Based On Children's Convenience And Interest**

Diah Meisi Roudatul Jannah, Master's Program in Visual Art, Faculty of Art and Design, Universitas Sebelas Maret, Indonesia

Lu'lu' Purwaningrum, Faculty of Art and Design, Universitas Sebelas Maret, Indonesia

**ID 644      Lectures' Mental Workload During Covid-19 Pandemic Online Learning With NASA-TLX**

Muhammad Syaiful Fathon, Industrial Engineering Departement, Universitas Muhammadiyah Surakarta, Surakarta, Indonesia

Etika Muslimah, Industrial Engineering Departement, Universitas Muhammadiyah Surakarta, Surakarta, Indonesia

**ID 645      Framework of Virtual Reality Based Training System for Improving Stability and Gait of Lower Limb Prosthetic Users**

Dwita Astari Pujiartati, Khoirul Muslim, Yassierli, Faculty of Industrial Technology, Institut Teknologi Bandung, Bandung, Indonesia

**ID 646      Analysis of Work Posture and Proposed Improvement for Workers of Kaysa Taylor Clothing Home Industry**

Umi Suci Melinda, Rani Aulia Imran, Amanda Sofiana, Industrial Engineering Department, Faculty of Engineering, Universitas Jenderal Soedirman, Purbalingga, Indonesia

**ID 647      Restaurant Business Insights based on Zomato Online Food Marketplace Big Data Scraping**

Erlinda Gilberta Wibawa, Parama Kartika Dewa, Teguh Siswanto, Industrial Engineering Department, Universitas Atma Jaya Yogyakarta, Yogyakarta, Indonesia

**ID 648      Potential Hazard Analysis for Higher Education Laboratory Building (Pilot Case Study in Industrial Technology Faculty)**

Dicky Rahmadhani, Muhammad Ragil Suryoputro, Amarria Dila Sari, Industrial Engineering Department, Universitas Islam Indonesia, Yogyakarta, Indonesia

**ID 649      Feasibility Study Analysis of Bottle Reverse Vending Machine Based on Value Engineering Concept using IoT Approach**

Joko Wisnugroho, Civil Department, Faculty of Engineering, University of Indonesia, Depok, Indonesia

**ID 650      The Application of The House of Quality Matrix in Developing Work Time Measurement Technology Prototypes**

Euis Nina Saparina Yuliani and Muhammad Kholil, Industrial Engineering Study Program, Faculty of Engineering, Mercu Buana University, Jakarta, Indonesia

Ajeng Yeni Setianingrum, Industrial Engineering Study Program, Gajah Tunggal Polytechnic, Banten, Indonesia

**ID 651      Consumer Behavior on Selection of Online Retail Stores**

L.Nurul Huda, Jefry A. Sinaga, Nismah Panjaitan, Chindy E. Revadi, Chalis F. Hasibuan, Department of Industrial Engineering, Universitas Sumatera Utara, Medan, 20145, Indonesia

**ID 652      The Effect Of Leadership Style And Organizational Culture On Employee Performance In Pt. Telkom Witel Aceh**

Rekha Aulia Akharamah Ismi, Alex Winarno, Aditya Wardhana, Mahir Pradana, Tri Indra Wijaksana, Department of Business Administration  
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**ID 654      The Relevance of Shorthand in the Modern Office from the Perspective of Human Resource Managers and Office Technology and Management Lecturers: A Case Study of Nigerian Colleges of Education of North-western States.**

Muhammad Yahaya Musaa & Kahirol Mohd Sallehb, Faculty of Technical and Vocational Education Universiti Tun Hussein Onn Malaysia

**ID 655      Measuring the Risk Level of Retail Sector for COVID-19 Infection**

Jhon Lawrence G. Quimio, Maria Angelica D. Bare, Francee Mae F. Castro, and Ma.Janice J. Gumasing, School of Industrial and Engineering Management, Mapua University, Intramuros, Manila

**ID 656      COVID Risk Assessment: A Case of Employees in Academic Sector**

William Davin D. Perez, Angelo Luis S. Doctora, Abigail B. Vasquez, Ma. Janice J.Gumasing, School of Industrial Engineering and Engineering Management, Mapua University, Muralla St., Intramuros, Manila

**ID 657      Machine Learning-based Customer Churn Prediction and Sentiment Analysis Models for Online Educational Service**

Ritzke Aisyarah, Pradiya Ajidarma, and Dradjad Irianto, Industrial Engineering Program Study, Faculty of Industrial Technology, Institut Teknologi Bandung (ITB), Bandung, Indonesia

**ID 658      Understanding Heterogeneity in CRM Chatbot User Preference**

Rifki Ryandra Wijaya and Hasrini Sari, Department of Industrial Engineering, Institut Teknologi Bandung, Bandung 40132, Indonesia

**ID 661      Residential Swimming Pool Design with Smart Lighting System**

Steve Burns, Pieter-Jon Williams, Shaquille Kerr, Theo Salmon, Amonike Crossdale, Hopeton Irwin, Junior A. Bennett & Shanroy Dennis, School of Engineering, University of Technology, Jamaica

**ID 662      Solar Powered Swimming Pool with Smart Lighting System**

Shavae Scale, Adrian Francis, Rohando Malcolm, Lamanja Ellis, Kemar Green, Junior A. Bennett, and Glendon Lewis, School of Engineering, University of Technology, Jamaica

**ID 664      Use of Blockchain in Vehicle Manufacturing Life Cycle Concept**

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**ID 665 Indonesian Health Insurance: Application of Digital Mobile Technology**

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**ID 666 Termination of Employment as an Economic Impact in Indonesia Due to the Covid-19 Pandemic is Reviewed from the Perspective of Employment Law**

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**ID 667 Regulation of Sales Tax Relaxation on Luxury Goods (PPNBM) Based on Regulation of the Minister of Finance Number: 20/PMK.010/2021**

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**ID 668 Does the Government Cyber Public Relations Influence to Public Attitudes And Intentions Vaccine?**

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**ID 669 Determinants of Tax Avoidance: Evidence from Indonesian Listed Companies**

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**ID 670 Development of Personality and Organizational Justice Models in Improving Teacher Service Quality in the Educational 4.0**

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**ID 671 Does The Bank Soundness Reflect The Firm Value?**

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**ID 672 Perceptions of Instagram Social Media Accounts Users about Curug Cibulao Tourism Objects in Bogor Regency**



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**ID 673 Usability Testing on Student Document Management Application using Retrospective Think Aloud (RTA) and USE Questionnaire Methods**

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**ID 674 The Effect Of Work Discipline On Performance In Educational Institutions**

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**ID 675 Forecasting The Spread of Covid-19 Disease Patients to Allocate The PPE for Medical Hospital Staffs in Indonesia**

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**ID 676 What Are The Factors That Encourage People To Keep Buying Newspapers In The Digital Age?**

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**ID 677 Performance of the Markowitz Model Investment Portfolio in Some Mining and Energy Sector Stocks**

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**ID 678 Calculation of Pension Funds with Entry Age Normal and Attained Age Normal Approaches in the Projected Benefit Cost Method**

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**ID 679 Forecasting the Number of Active Cases of COVID-19 in West Java Using the Multilayer Perceptron Feedforwards Neural Networks Method**

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**ID 680 Forecasting Covid-19 Active Cases in Bandung City Using the Long Short Term Memory**

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**ID 681 Predicting Potential Cases of Natural Disasters in Indonesia Using the Homogeneous Poisson Process**

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**ID 682 The Effect of Financial Ratios on Firm Value: Empirical Evidence from Property and Real Estate Sector Companies Listed on the IDX**

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**ID 683 The Effect of Earnings Management, Liquidity Ratio, Solvency Ratio and Profitability Ratio on Bond Ratings in the Property Sector Listed on the IDX**

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#### **ID 684 Underwriting Factor for Determination of Health Insurance Premium Based on Generalized Linear Models (GLMS) Procedure**

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#### **ID 696 in Indonesia from Rome 2021 Risk Management Software Platform ZOTY for SMEs**

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#### **ID 697 Techno-Economic Feasibility Analysis of Agricultural Drone Business in Indonesia**

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#### **ID 700 A Bibliometric Analysis in the Topic of Economic Resilience and Disturbance**

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#### **ID 701 ARMA-GJR-GARCH Model for Determining Value-at-Risk and Back testing of Some Stock Returns**

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#### **ID 702 Heuristic Algorithm to Minimize Maximum Lateness for Job-shop Scheduling Problem in Automotive Industry**

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#### **ID 703 The Influence Of Good Corporate Governance, Audit Quality, Profitability, And Leverage On Financial Statement Integrity (Empire Study On Basic Industry & Chemicals Manufacturing Companies In Bei):**

Saiful Anam, Nurrohman Hari Mulyono, Inuk Wahyuni Istiqomah, Ade Setia Pratama, Ahmad luthfi, Putri Ambarwati,  
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**ID 704 Effect of Good Corporate Governance, Profitability, Firm Size, and Intellectual Capital on Company Value (Empirical Study of NON-Financial Companies LQ45 Index Listed on Indonesia Stock Exchange)**

Nurrohman Hari Mulyono, Saiful Anam, Inuk Wahyuni Istiqomah, Ade Setia Pratama, Rizki Arvita, Risa Mayasari, Munzidahtul Aidha, Accounting Study Program, Faculty Economy, STIE Al Anwar Mojokerto, Indonesia

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**ID 705 Risk Management for Frozen Food Halal Supply Chain (an Indonesian Company Case Study)**

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**ID 707 Analysis and Design of Precast Concrete Product Quality Improvement at PT. XYZ using the DMAIC and FMEA Method**

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Wahyudi Sutopo, Professor, Department of Industrial Engineering, Past Head of Department of Industrial Engineering, Head of Industrial Engineering and Techno-Economics Research Group, Vice Dean for Human Resources, Finance, and Logistics, Faculty of Engineering, Universitas Sebelas Maret (UNS), Surakarta, Indonesia and President, IEOM Indonesia Chapter

**ID 708 The Effect Of Strategic Flexibility, Strategic Innovation, Job Satisfaction And Employee Performance In The Covid-19 Pandemic: Study On Small And Medium Clothing Industry In East Java Province**

Mirhamida Rahmah, Noermijati Noermijati, Achmad Sudiro, Mintarti Rahayu, Doctorate Program Management Department, Faculty of Economics and Business, University Brawijaya, Malang, Indonesia

**ID 710 Utilizing Local Wisdom Community towards a Healthy Food Industry: a Preliminary Research of Torbangun Leaves Biscuit**

Donal Nababan, Department of Public Health, Universitas Sumatera Utara  
Medan, Indonesia

Rizabuana Ismail, Master's of Sociology Program, Universitas Sumatera Utara, Medan, Indonesia

Ivana Tiar, Universitas Negeri Jakarta, Jakarta, Indonesia

**ID 711 Warehouse Arrangement Improvement Based on 5S Method for CV Javatech Agro Persada**

Muhammad Tohari, Manik Mahachandra, Department of Industrial Engineering, Faculty of Engineering, Universitas Diponegoro

Jl. Prof. Soedarto, SH, Kampus Undip Tembalang, Semarang, Indonesia 50275

#### **ID 715 Factors Influencing the SME Performance in The United Arab Emirates**

Saeed Khalifan RASHEED GHANEM, and Nor Aziati Abdul Hamid, Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia 86400 Parit Raja, Batu Pahat, Johor.

#### **ID 716 The Relationship Technological, Organizational, and Environmental Factors, Social Media Adoption and SMEs Performance**

Saeed Khalifan RASHEED GHANEM, Nor Aziati Abdul Hamid, Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia 86400 Parit Raja, Batu Pahat, Johor.

#### **ID 719 Implementation Decision Support System on Decision Making in the Organization of Himpunan Mahasiswa Islam**

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Ibnu Hajar Sainuddin, Sekolah Tinggi Agama Islam Darud Dakwah Wal-Irsyad Makassar, Indonesia

Muhammad Makbul, Institut Sains dan Teknologi An-Nuriyah Makassar, Indonesia

#### **ID 720 Roles of Competence on the Effect of Training and Development Systems on Work Productivity at Universal Corporation Human Resource Management**

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#### **ID 721 Analysis of Potential Regeneration and Dispersal Patterns of Sago Palm (Metroxylon Sagu Rott ver molat (Becc)) in Natural Habitat, Bajo Barat District, Indonesia**

Hadijah Azis Karim, Universitas Andi Djemma, Palopo, Indonesia

Ashar Ashar, Universitas Andi Djemma, Palopo, Indonesia

Witno Witno, Universitas Andi Djemma, Palopo, Indonesia

Andi Dewi Angreyani, Universitas Andi Djemma, Palopo, Indonesia

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#### **ID 722 Emotional Intelligence on Students' Learning Achievement in High School of Makassar, Indonesia**

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Matahari Muhizar Manaf, Universitas Pendidikan Muhammadiyah Sorong, Indonesia

#### **ID 723 After the Forest Burning: Where Should the Malind's Tribe in Papua Belong?**

Tarmizi Abbas, Universitas Gadjah Mada, Indonesia

Rudihartono Ismail, Universitas Amal Ilmiah Yapis wamena, Indonesia

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Muhammad Makbul, Institut Sains dan Teknologi An-Nuriyah Makassar, Indonesia

### **ID 725 Factors Influencing SME Performance: The Mediating and Moderating Role of Social Media Adoption and Organizational Culture**

Saeed Khalifan RASHEED GHANEM, Nor Aziati Abdul Hamid, Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia 86400 Parit Raja, Batu Pahat, Johor.

### **ID 726 Communication Skills during Online Learning among Business Students: Does it Match with Business Case Method?**

Cut Irna Setiawati, Business Administration Department, Telkom University  
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Ade Irma Susanty, Business Administration Department, Telkom University  
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### **ID 731 Speaker 1**

DR. REKHA PRASAD, RETIRED PROFESSOR, IM BHU

### **ID 732 Speaker 2**

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### **ID 733 Speaker 3**

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### **ID 734 Speaker 4**

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### **ID 735 Speaker 5**

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### **ID 736 Speaker 6**

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