IConBMT
The International Conference on Business and Management of Technology

Program Book

The 3rd International Conference on Business and Management of Technology

Online Conference,
July 31st 2021

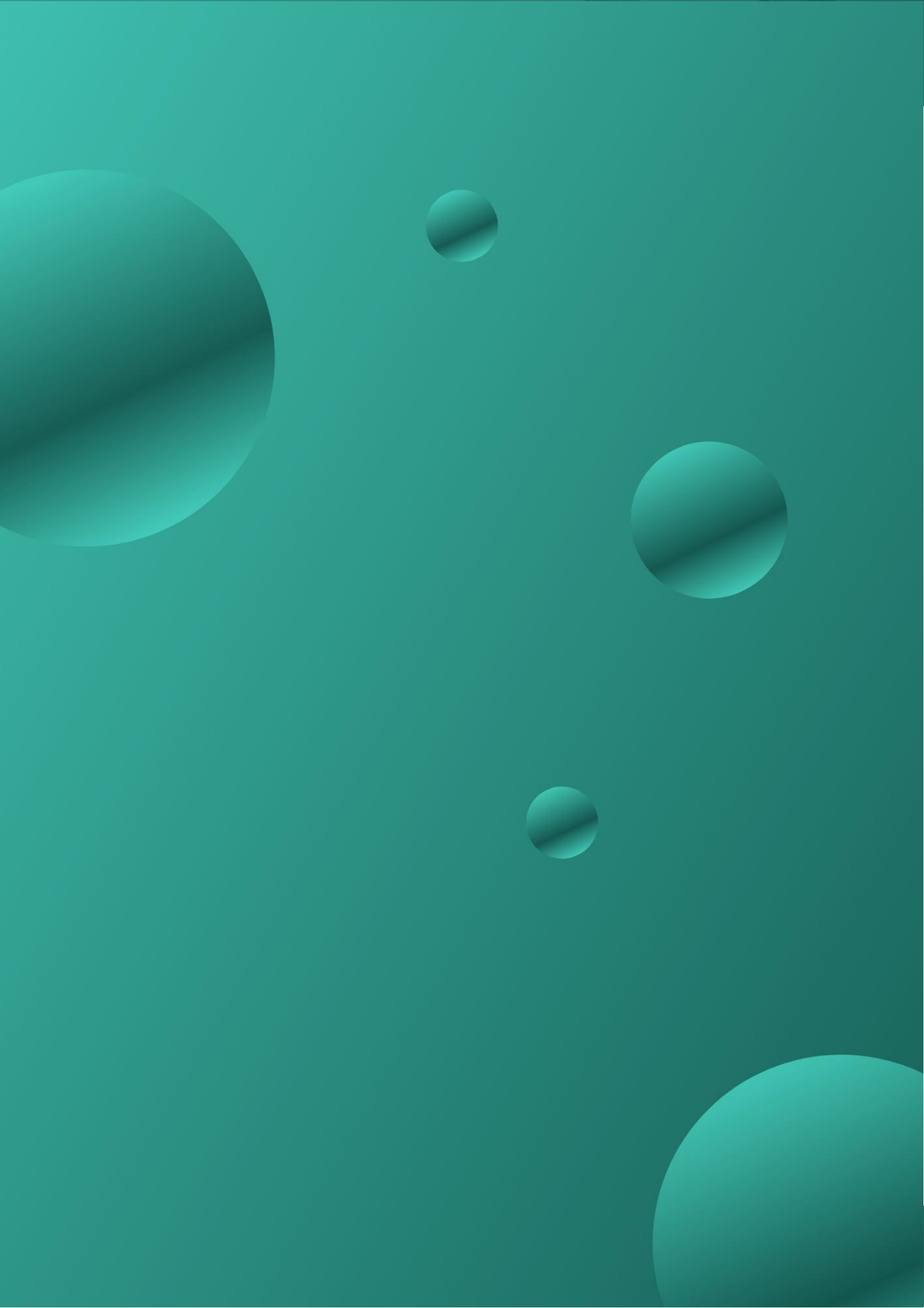
Organized by:

BUSINESS MANAGEMENT
ITS Institut Teknologi Sepuluh Nopember

Co - Host:

Supporting Institutions:

SGU SWISS GERMAN UNIVERSITY



MESSAGE FROM THE CONFERENCE CHAIR

On behalf of the conference committee, we would like to welcome all delegates to the 3rd International Conference on Business and Management of Technology (IConBMT) 2021. This conference is organized by the Department of Business and Management Institut Teknologi Sepuluh Nopember (ITS) Surabaya, and in partnership with Politeknik Negeri Tanah Laut. The conference is also supported by Swiss German University.

The theme of this year's conference is "Back on Track Post COVID-19 Pandemic: How Agile is Your Business?". Since March 2020, we face unprecedented events due to pandemic COVID19. It is not easy for business, both on the supply and demand sides. However, we believe that through intellectual gathering, such as today, we may find ways to recover, and provide a meaningful path to back on track. Innovation in various aspects is essential to overcome this challenge. This conference will bring together ideas, knowledge, problems, research findings, and expert experiences on post covid-19 pandemic. We are so pleased to see many respected colleagues and reputable practitioners in this conference event. The total of 97 papers were registered, representing a wide range of topics from various fields in the Business and Management of Technology. Thank you very much for your participation. We wish to make a meaningful impact on a better aspect of business and management of technology through our discussion today.

We have recorded that five Countries participate in the submission papers such as Indonesia, Australia, Malaysia, Phillipines, and USA. We are also delighted to have three respected keynote speakers. Mr. Tantowi Yahya from Indonesian Ambassador to New Zealand, Samoa, and Tonga. Assoc. Prof. Dr. Yingyot Chiaravutthi from Mahidol University International College, Thailand, and Prof. James Stanworth from National Cheng Kung University, Taiwan. The respected keynotes are well known in practical and great scientists at their area. Finally, this conference runs smoothly because of the contribution of all parties. We sincerely thank the participants, reviewers, keynote speakers, committees, and audiences of this conference who have made this conference possible.

Wishing you all a productive and enjoyable conference.

IConBMT 2021 Conference Chair,
Dr. Ir. Janti Gunawan, M.Eng.Sc., M.Com.IB

THE COMMITTEE

General Chair : Dr. Ir. Janti Gunawan, M.Eng.Sc., M.Com.IB,
Institut Teknologi Sepuluh Nopember, Indonesia

General Co-Chair : Dr. oec. HSG. Syarifa Hanoum, S.T., M.T.,
Institut Teknologi Sepuluh Nopember, Indonesia

Program Chair

- Bahalwan Apriyansyah, S.T., MBA., Institut Teknologi Sepuluh Nopember, Indonesia
- Dewie Saktia Ardiantono, S.T., M.T., Institut Teknologi Sepuluh Nopember, Indonesia
- Gita Widi Bhawika, S.ST., M.MT., Institut Teknologi Sepuluh Nopember, Indonesia

Editorial Committee

- Satria Fadil Persada, S.Kom., MBA., Ph.D, Institut Teknologi Sepuluh Nopember, Indonesia
- Mushonnifun Faiz Sugihartanto, S.T., M.Sc.,Institut Teknologi Sepuluh Nopember, Indonesia
- Prahardika Prihananto, S.T., M.T. , Institut Teknologi Sepuluh Nopember, Indonesia
- Ninditya Nareswari, S.M., M.Sc. , Institut Teknologi Sepuluh Nopember, Indonesia

Treasurer

- Puti Sinansari, S.T., M.M. , Institut Teknologi Sepuluh Nopember, Indonesia
- Nabila Silmina Hakim, S.T., MBA. , Institut Teknologi Sepuluh Nopember, Indonesia

External Affair

- Geodita Woro Bramanti, S.T., M.Eng.Sc. , Institut Teknologi Sepuluh Nopember, Indonesia
- Ni Gusti Made Rai, S.Psi, M.Psi., Psikolog, Institut Teknologi Sepuluh Nopember, Indonesia

External Committee

- Dena Hendriana, B.Sc., S.M., Sc.D, Swiss German University, Indonesia
- Dr. Ir. Henry Nasution, MT, Swiss German University, Indonesia
- Dr. Ir. Gembong Baskoro, M.Sc, Swiss German University, Indonesia
- St. Ayu Diana Lestari, M.Sc, Swiss German University, Indonesia
- Rina Pebriana, S.E, M.Comm, State Polytechnic of Tanah Laut, Indonesia
- Muhammad Ghalih, S.I.Kom., M.Sc, State Polytechnic of Tanah Laut, Indonesia
- Karolina, M.Pd, State Polytechnic of Tanah Laut, Indonesia
- Prof. Dr. Isfenti Sadalia., SE.,ME, University of North Sumatra, Indonesia
- Rulianda Purnomo Wibowo.,S.P., M.Ec., PhD, University of North Sumatra, Indonesia

International Committee

- Dr. Mehdi Toloo, Technical University of Ostrava, Czech Republic
- Dr. Sadar Islam, Victoria University, Australia
- Dr. Biswajit Sarkar, Yonsei University, South Korea
- Dr. Andre A. Pekerti, University of Quensland, Australia
- Dr. Shu-Chiang Lin, Texas Health and Science University, Austin, USA
- Dr. Yogi Tri Prasetyo, Mapua University, Manila, Philliphines
- Dr. Aise Kim, University of south Australia, Australia

KEYNOTE SPEAKERS

Mr. Tantowi Yahya
Indonesian Ambassador
New Zealand, Samoa, and Tonga

How New Zealand SMEs thrive through the COVID-19 Pandemic

SMEs and tourism are a significant part of New Zealand Economy. 97% of industries in New Zealand are SEMs, whereas tourism contributes 20,4% of New Zealand's total export value and NZD 3,8 billion in the form of tax income. The Covid 19 Pandemic severely impacted New Zealand's SMEs and tourism industry. The government had taken some extraordinary measures to mitigate the spread of the virus. Those measures have brought consequences both on the daily life of its people and the economy. The Jacinda Arden's administration manage to contain the spreading of the Covid 19 virus across New Zealand while maintaining the wellbeing of the SMEs and the tourism industry which are important parts of the New Zealand's economy foundation through policies that supports the sustainability of SMEs and tourism industry.

Assoc. Prof. Dr. Yingyot Chiaravutthi
Chair of South East Asia Chapter – Academy of International Business
Mahidol University International College, Thailand

AIB and How the Universities in Thailand Dealing with Covid

The business world has been catching up with the disruption trend, even prior to the COVID-19. The pandemic simply makes it inevitable. The academic world is no exception. The purpose of the presentation is to share the experiences under the roles of the Chair of the Executive Committee of Academy of International Business (AIB): Asia Pacific Chapter and the Associate Dean of Finance and Human Resources at Mahidol University International College, Thailand. In 2019, AIB: Asia Pacific Chapter's Executive Committees met and agreed to hold the annual conference at Phanom Penh, Cambodia. Eventually, the online approach was employed, amidst several challenges and uncertainties. Higher education institutions in advanced economies that rely on international students face a similar challenge when travel is prohibited. The situation in Thailand has not been as severe as in other advanced economies until mid-2021. Students' demand and behavior have changed due to this new health and security concern; and although higher education could overcome several challenges in the short run, it is difficult to predict the long-term consequences.

Prof. James Stanworth
National Cheng Kung University, Taiwan
Professor in Service Management

The Chinese User - Technology Adoption Prospects Post Covid-19

Service is central to the way firms co-create value with their customers. Technology increasingly mediates these interactions - whether it be in self-service technologies or online education, which we can see as a service. Covid-19 amplifies the attention on the role played by technology in service. Prior to Covid-19, there was already a marked difference in the adoption of self-service technologies and online learning between users in the West and Far-East. This relates to fundamental differences in cognitive patterns between Western and Far-Eastern peoples and varying assumptions over the role of interpersonal connections versus institutionalized norms. With these understood we are in a position to consider how users may react to technology in service post Covid-19.

GENERAL PROGRAM

Online, July 31st, 2021

Time (GMT+7)	Agenda
08.30 - 09.30	Prelude
09.30 - 09.35	Opening MC
09.35 - 09.40	Opening Performance
09.40 - 09.45	Opening Remark
09.45 - 09.55	Welcoming Speech by Rektor of ITS
09.55 - 10.00	Intoduction of Co-Host of IconBMT
10.00 - 10.45	**Keynote Speaker 1: Mr. Tantowi Yahya Indonesian Embassy to New Zealand, Samoa and Tonga**
10.45 - 11.30	**Keynote Speaker 2: Assoc. Prof. Dr. Yingyot Chiaravutthi Mahidol University International College, Thailand**
11.30 - 12.15	**Keynote Speaker 3: Prof. James Stanworth National Cheng Kung University, Taiwan**
12.15 – 13.00	Break
13.00 – 15.00	Parallel Session
15.00 – 15.05	Closing Ceremony
15.05 - 15.10	Announcement of Best Presenter and Best Paper
15.10 - 15.15	Compilation Videos of IconBMT 2021

PARALLEL SESSION

July 31st, 2021
13.00 – 15.00 (GMT+7)

PAPER NO	AUTHOR (S)	PAPER TITTLE
Room 1A: Strategic, Operational, and Digital Business **Zoom:** https://zoom.us/j/98158993342?pwd=WktrVk11RzVMcHpoVUtsa1dZdHB4QT09		
18	Reza Hermansyah and Riyanarto Sarno	SENTIMENT ANALYSIS BASED ON QUALITY DIMENSION ASPECTS IN IMPROVING THE QUALITY OF INDIHOME PRODUCTS AND SERVICES PT TELKOM INDONESIA TBK
19	Alvin Syarifudin Shahab and Mohammad Isa Irawan	Non-Container Port Services Bottlenecks Identification Using Process Mining and Simulation Analysis
30	Danica Virlianda Marsha, Riyanarto Sarno and Kelly Rossa Sungkono	Standard Operating Procedure Optimization of Resource Level for Hospital Waste Handling Using Hybrid DES-ABM Simulation, Genetic Algorithm and Goal Programming
36	Akhmad Bajora Nasution and Rr Ratih Dyah	Analysis of Asphalt Refinery Development. Case Study: Production Capacity Planning and Location Determination
46	Bayu Cahyono, Sumarsono Sumarsono, Dena Hendriana, Gembong Baskoro and Henry Nasution	TQM Implementation in an Indonesian Remanufacturing Company with a Long-Term Relationship with Customer Satisfaction and Business Performance
52	Mochamad Aziz, Dena Hendriana and Gembong Baskoro	Strive Reliable Heavy Equipment Main Component Lifetime with Oil Monitoring System in Condition Based Maintenance Implementation through IoT
29	Riza Ali Fikri and Mohammad Isa Irawan	Information Technology Governance Audit At A Regional Genaral Hospital of Sidoarjo Regency With the Cobit 5 Framework
31	Arief Budiman Hervananda	Implementation Of Enterprise Risk Management (ERM) And Organizational Performance: Moderating Role of Organizational Culture at State-owned Indonesian MRO
32	Mushonnifun Faiz Sugihartanto, Syarifa Hanoum and Jovanka Nabilah Hadi	Evaluating hospital efficiency using data envelopment analysis: A Literature Review
Room 1B: Strategic, Operational, and Digital Business **Zoom:**		

PAPER NO	AUTHOR (S)	PAPER TITTLE
https://zoom.us/j/96453318719		
58	Hasanuddin Hasanuddin, Gembong Baskoro and Aditya Pratama	Reducing Scrap of Cement A3CM-05 By Using PDCA (Plan Do Check Action) And QCC (Quality Control Circle) Method In An Indonesia Leading Tire
62	Fatwa Dewi Widyani and Athor Subroto	Comparison of Artificial Neural Network and Seasonal ARIMA to Forecast Intermittent Demand in Telecommunication Company
63	Mahdi Diego and Athor Subroto	De Minimis Impact Towards Lead Time for Global Logistic Industry
71	Putri Asriyah and Nurmala Nurmala	Cause of delay analysis in procuring goods at Geothermal Power Plant Companies
79	Arif Supriyanto, Agustian Noor and Yunita Prastyaningsih	SMART VEST PROTOTYPE FOR SEAT POSITION CORRECTION
34	R Sunni Nugraha Priadi and Udisubakti Ciptomulyono	IMPLEMENTATION OF AHP AND TOPSIS METHODS FOR NON-SIMULATION ENHANCED OIL RECOVERY TECHNIQUES SCREENING IN “X” AND “Y” FIELDS
38	Imam Turmudi and M.Isa Irawan	DETERMINING PRIORITY OF CCTV PACKING FOR MONITORING PHYSICAL DISTANCING COVID-19 PREVENTION IN BATU CITY WITH DEMATEL AND AHP METHODS
40	Warih Puspitasari, Muhardi Saputra and Donny Trihanondo	ISLAMIC BOARDING SCHOOL DIGITALIZATION TO FACE THE ERA OF THE DIGITAL REVOLUTION 4.0
55	Hermawan Aji Utomo, Tanika Sofianti and Sumarsono Sudarto	Improving Quality of Compound Properties Base on Best Sequence of Produce Mixture Using Analytical Hierarchy Process Approach in Rubber Compounding
Room 2A: Marketing Management **Zoom:** https://zoom.us/j/97145089998		
26	Drajad Bima and Riyanarto Sarno	SENTIMENT ANALYSIS BASED ON THE ASPECT OF CULINARY AND RESTAURANT REVIEW USING LATENT DIRICHLET ALLOCATION (LDA) AND SUPPORT VECTOR MACHINE (SVM) TO IMPROVE THE PROFITABILITY OF CULINARY BUSINESS AND

PAPER NO	AUTHOR (S)	PAPER TITTLE
		RESTAURANT IN SURABAYA
50	Dami Dami and Adiyath Randy	The function of the Mendawai Community's Local Language and Wisdom in the Management of the Pontianak Caping Tourism Village
76	Rulianda Purnomo Wibowo, Isfenti Sadalia and Isdiana Syahfitri	Is tourism sector still the main contributor of Local Government Revenue in Samosir Regency?
3	Vilar K. Adhi, Janti Gunawan and Nabila S. Hakim	THE RELATIONSHIP BETWEEN PERCEIVED RISK OF COVID-19 PANDEMIC TOWARD THE INTENTION TO TRAVEL OF INDONESIA DOMESTIC TOURISTS
4	Muhammad Fahmi Nugroho, Janti Gunawan and Mushonnifun Faiz Sugihartanto	THE EFFECT OF PERCEIVED VALUE AND TEAM IDENTIFICATION ON SPECTATORS' PURCHASE INTENTION OF PERSEBAYA LICENSED MERCHANDISE
5	Abdurrafi Maulana Ghani, Janti Gunawan and Mushonnifun Faiz Sugihartanto	DESIGNING PLACE BRANDING ELEMENTS AND INSTAGRAM MARKETING OF FOOD CLUSTERS AS A CREATIVE TOURISM DESTINATION IN SIDOARJO
6	Ghaisani Nadhila Mahmudi, Janti Gunawan and Bahalwan Apriyansyah	THE EFFECT OF CSR FEMVERTISING ABOUT WOMAN EMPOWERMENT TOWARDS PURCHASE INTENTION: A CASE STUDY OF THE BODY SHOP IN INDONESIA
7	Dani Bergas, Janti Gunawan and Bahalwan Apriyansyah	ANALYSING YOUTUBE MID-ROLLS ADVERTISING FACTORS ON WATCHERS' PURCHASE INTENTION OF ONLINE TRAVEL AGENT DURING COVID-19 PANDEMY
8	Naurah L. Fithriyah, Janti Gunawan and Nabila S. Hakim	THE ONLINE SECOND-HAND SHOPPING MOTIVATION (OSSM) TOWARDS PURCHASE INTENTION OF FASHION PRODUCTS IN THE COVID-19 PANDEMIC PERIOD
11	Syarifatul Aisah, Janti Gunawan and Nabila Silmina Hakim	ADOPTING DESIGN THINKING APPROACH FOR ECOTOURISM PRODUCT DEVELOPMENT AND SEGMENTATION (CASE STUDY : JATILUHUR VALLEY & RESORT)
12	Ika Diyah Candra Arifah	E-COMMERCE GAMIFICATION: THE EFFECT OF GAMEFUL EXPERIENCE (GAMEX) AND GAME DESIGN ON THE SELF-BRAND CONNECTION OF E-

PAPER NO	AUTHOR (S)	PAPER TITTLE
		COMMERCE CONSUMERS
14	Yubel Pandu, Janti Gunawan and Puti Sinansari	CONSUMER PREFERENCES AND THEIR INTENTION TO BUY ELECTRIC MOTORCYCLES IN INDONESIA
15	Ihsan Firdaus, Janti Gunawan and Nabila Hakim	THE INFLUENCE OF MEMORABLE TOURISM EXPERIENCE (MTE) ON REVISIT INTENTION OF LOMBOK TOURISM DESTINATION DURING COVID-19 PANDEMIC
25	I Gusti Ayu Mirah Andi Saraswati and Daniel Tumpal Hamonangan Aruan	The Antecedents of Customers' Intention to Use e-Marketplace in Indonesia: The Moderating Role of Gamification
Room 2B: Marketing Management **Zoom:** https://zoom.us/j/96914144337		
78	Jaka Permadi, Herfia Rhomadhona and Winda Aprianti	Digital Marketing to Support Business in Covid-19
80	Muhammad Yunus, Muhammad Ghalih and Eni Suasri	EVALUATION OF SALES USING THE TOPSIS AND ENTROPY METHODS
27	Putri Indiartri Nasution and Yeshika Alversia	Analyzing The Influence of Customer Journey on Customer Loyalty: A Study of Omni-Channel Shopping Experience in Retail Industry
43	Tiophani Naomi and Gita Gayatri Phd.	THE INFLUENCE OF SITUATION-DEPENDENT FACTOR ON INTENTION TO USE AIRPORT SELF-SERVICE TECHNOLOGY AND TRAVEL INTENTION: DEVELOPING AN EXTENDED MODEL OF GOAL-DIRECTED BEHAVIOR
53	Farhah Izzah Dinillah, Janti Gunawan and Bahalwan Apriyansyah	Exploring the Role of Virtual Try On use Mobile Augmented Reality (MAR) in Indonesia Consumer's Online Buying Behaviour during Covid-19 Pandemic
56	Adinda S Billa, Satria F Persada and Bahalwan Apriyansyah	IDENTIFICATION OF ITS STUDENTS BEHAVIORAL INTENTION IN USING CAMPUS WEB-BASED SERVICES THROUGH UTAUT APPROACH: CASE STUDY MY.ITS.AC.ID
57	Emilleo Boby Erlangga, Satria Fadil Persada and Bahalwan Apriyansyah	The Effect of Consumer Intrinsic Factors on Impulsive Buying Behaviour in Online Marketplace: Case Study of Shopee Consumers

PAPER NO	AUTHOR (S)	PAPER TITTLE
61	Saskia Dila Sagata and Fitri Aprilianty	Effective Strategy Planning of Instagram Influencer Endorsements for Indonesian Beauty Company
64	Muhammad Ghalih, Mufrida Zein and Ines Saraswati Machfiroh	Implementation of Digital Marketing to Develope Minimarket Syariah Insan Nurul Muhibbin Tanah Laut
66	Prahardika Prihananto, Satria Fadil Persada and Maria Paquita Naulia	Customers Purchase Intention in Social Commerce: A Descriptive Study
93	Ni Gusti Made Rai, Erica Meilina, Maziya Atika, Melani Febrianti and Rofifah Aisy	Analysis of Factors Affecting Intention to Use E-wallet Services Sustainably During the COVID-19 Pandemic
95	Nabila Silmina Hakim, Syarifa Hanoum, Mushonnifun Faiz Sugihartanto, Winaldo Mandiri Putra, Raga Pamor Alam, Harits Dymawafie and Aliifah Tsabitah Nur Annisa	The Influence of Brand Equity on Smartphone Purchase Decisions for Female College Students in Surabaya
96	Sara Veronica, Satria Fadil Persada	Analysis the effect of Viral Marketing on Brand Image and Purchase Intention of Furniture Products During The Covid-19 Pandemic
97	Anggit Akbar Yudisaputra, Satria Fadil Persada	ANALYSIS OF BUSINESS DEVELOPMENT & MARKETING STRATEGY CASE STUDY MULTINATIONAL TRADING COMPANY (PT. XYZ)
Room 3A: Human Resource Management **Zoom:** https://zoom.us/j/98540039238		
23	Rr. Putri Intan Paramaeswari and Riyanarto Sarno	Technology Acceptance Model Analysis of M-Banking Using UTAUT2 Method
24	Rhamadina Fitrah Umami and Mohammad Isa Irawan	Application of UTAUT2 for Analysis of Use Behavior Sistem Informasi Manajemen Barang Milik Daerah (SIMBMD) in Distric Government XYZ

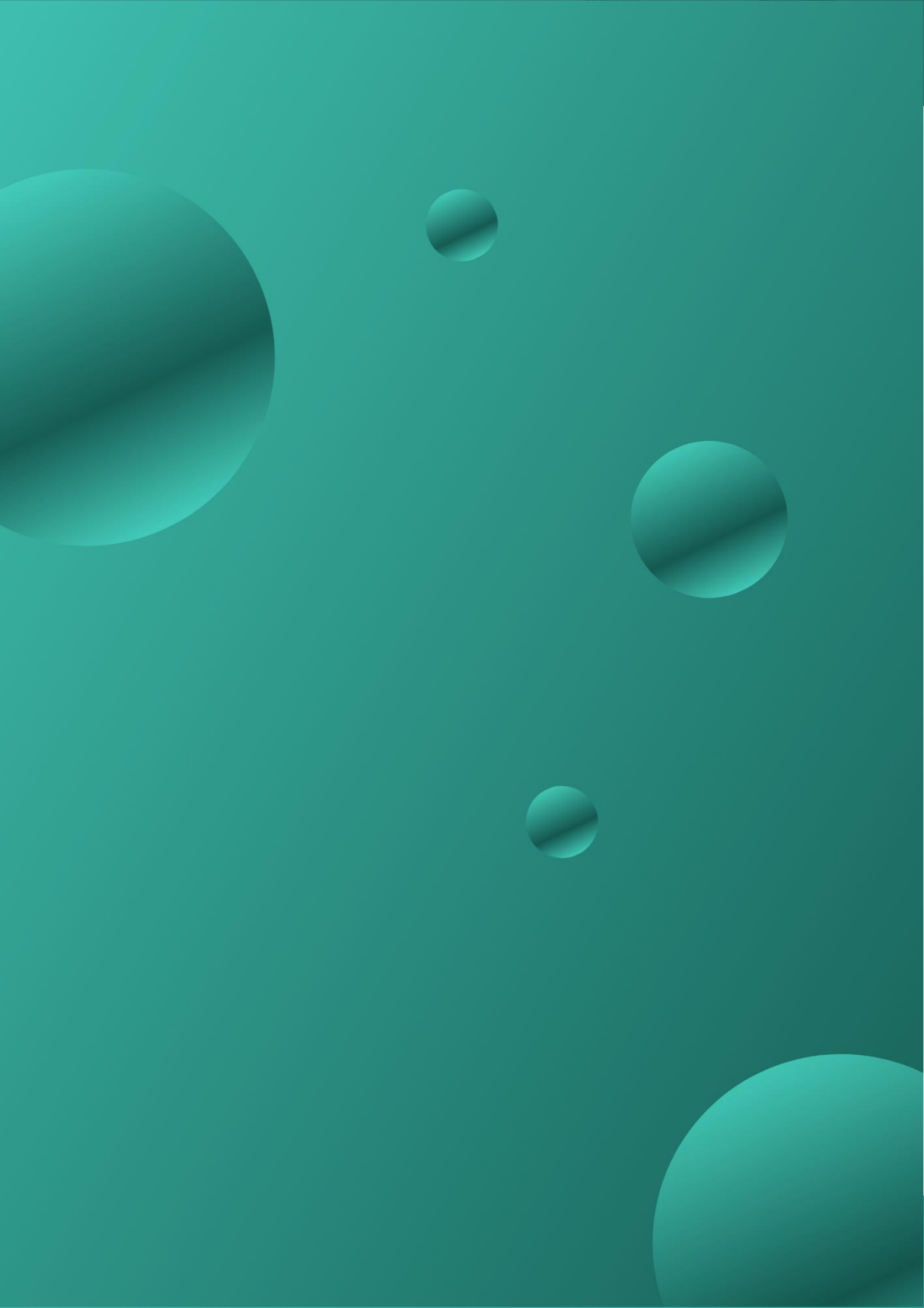
PAPER NO	AUTHOR (S)	PAPER TITTLE
42	Dina Widiana and Budi W Soetjipto	THE ROLE OF PSYCHOLOGICAL CAPITAL, TRUST, AMBIDEXTERITY AND STRATEGIC FLEXIBILITY ON ORGANIZATIONAL RESILIENCE AND SURVIVAL IN DEALING WITH COVID-19 PANDEMIC
47	Edhie Sarwono, Gembong Baskoro, Sumarsono Sumarsono, Dena Hendriana and Henry Nasution	The Effect of Working from Home During the Covid-19 Pandemic on Human Capital Organizational Effectiveness in an Indonesian Heavy Equipment Company
48	Teguh Setiono, Dena Hendriana, Henry Nasution, Gembong Baskoro and Edi Sofyan	The Effect of Increasing Mechanic Competence via Competence-Based Curriculum on Product Support Performance in Leading Indonesian Heavy Equipment Manufacturers
49	Yohanes Eka Prayuda, Sumarsono Sumarsono, Edi Sofyan, Gembong Baskoro, Aditya Tirta Pratama and Henry Nasution	Choosing an Intervention for Implementing Behaviour-Based Safety (BBS) in a Building Construction Project
20	Adnin Diba Purnomo and Mohammad Isa Irawan	ANDROID BASED EMPLOYEE PERFORMANCE ASSESSMENT SYSTEM USING MANAGEMENT BY OBJECTIVE (MBO) AND BEHAVIORALLY ANCHORED RATING SCALE (BARS) METHOD
39	Ermy Rizkawati	Job Crafting Analysis As The Impact Of Working Condition Changes In The Covid-19 Pandemic
45	Angga Hendharsa and Puty Febriasari	Measuring the Organizational Citizenship Behavior on Petugas Penyuluh Koperasi Lapangan (PPKL) during the Covid-19
Room 3B: Human Resource Management **Zoom:** https://zoom.us/j/92418112587		
67	Dianing Ratna Wijayani and Dwi Ratmono	Early Warning Of Organizational Ethical Culture In Accounting Fraud
69	Yasmin Chairunisa Muchtar, Yeni Absah, Isfenti Sadalia and Elisabeth Siahaan	The Role of Innovative Work Behaviour As The Mediator Between Inclusive Leadership and Subjective Career Success
70	Yasmin Chairunisa Muchtar and Linda Trimurni Maas	Employee Performance Analysis: The Influence of Local Wisdom-Based Communication Strategy and Employee Engagement on Employee Performance

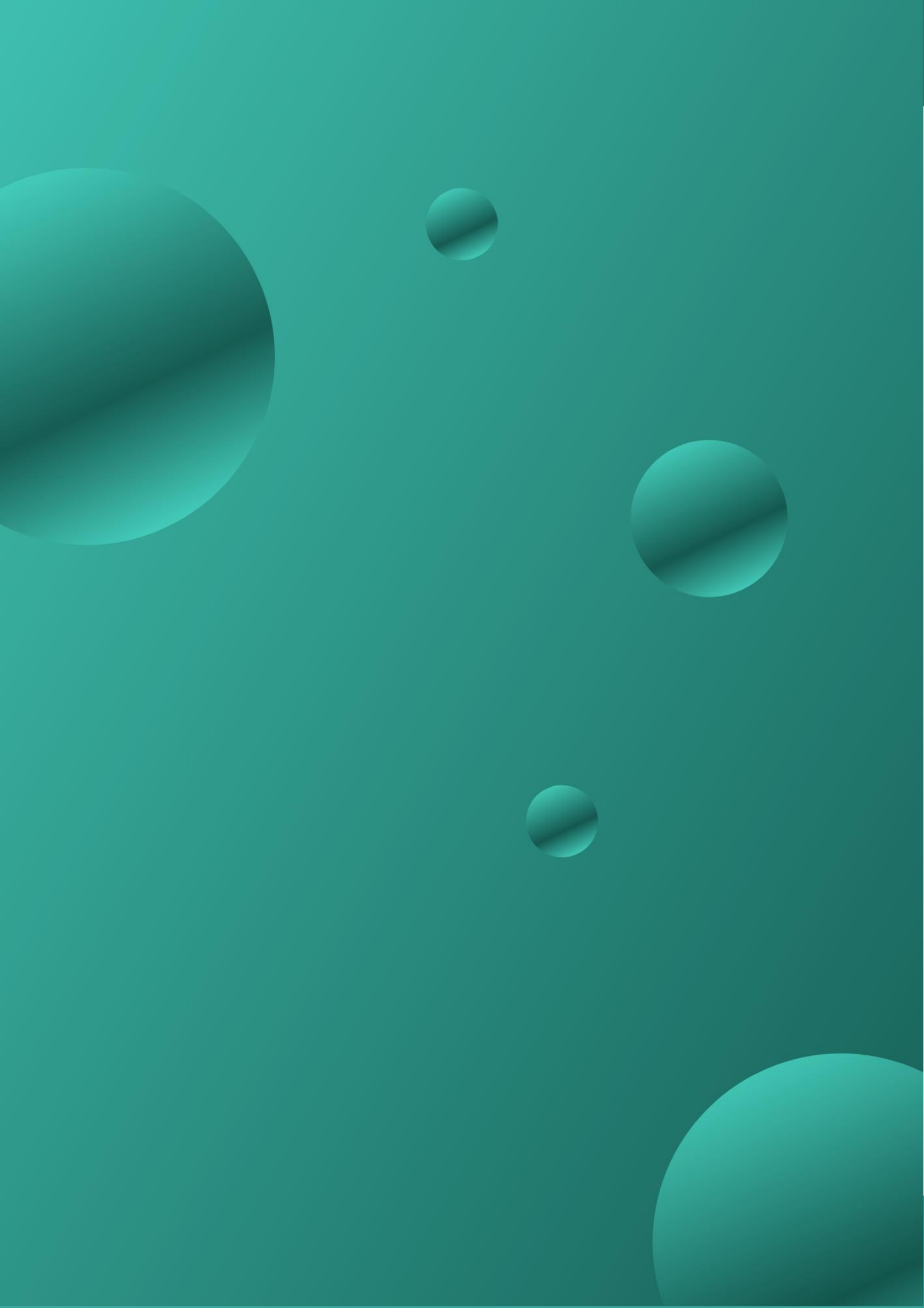
PAPER NO	AUTHOR (S)	PAPER TITTLE
77	Ferhat Husein and Irwan Adi Ekaputra	Analisa Kinerja Exchange Trade Fund Berbasis Environment, Socially Responsible dan Governance
89	Inneke Qamariah and Yasmin Chairunisa Muctar	The Influence of Strategic Leadership, Intrapreneurship Orientation, and University Support on the Commercialization Capability of Academics in Higher Education at USU
68	Prahardika Prihananto, Syarifa Hanoum and Odrifaza G. Wedhatama	Bibliometric Studies on Human Resource Management Research in the Health Care Sector
87	Syarifa Hanoum, Josua Hasiholan Munthe, Prahardika Prihananto, Aldi Arhab Al Khawarizmi, Dwika Zain Magenda, Muhamad Ady Nugroho and Oktavihana Manalu	The Relationship of Social Media Networking and Human Resource Recruitment: A Literature Review
91	Nabila Silmina Hakim, Syarifa Hanoum, Hayyu Salma Mu'azaroh, Ni Gusti Made Rai, Puti Sinansari and Bustanul Arifin Noor	Investigating the Role of Communication, Employee Engagement, and Organizational Commitment in the Organization during the Covid-19 Pandemic in Indonesia
92	Helmi Fitrananda Putra, Ni Gusti Made Rai and Nabila Silmina	THE EFFECT OF WORK CONFLICT AND JOB STRESS ON EMPLOYEE PERFORMANCE (CASE STUDY: MAINTENANCE & ENGINEER DIVISION AT PT. PAITON OPERATION & MAINTENANCE INDONESIA)
Room 4A: Accounting and Financial Management **Zoom:** https://zoom.us/j/98779111961		
10	I Dewa Made Adi Baskara Joni, Shamsul Anuar Mokhtar and Bazilah A. Talip	Conceptual Framework of Smart Banjar: A Synergize of The Micro-enterprise, Microfinance, and The Banjar Institution
51	Hafidz Syihab and Zuliani Dalimunthe	Why did borrowers apply for debt restructuring during the covid-19 pandemic
59	Kautsar Primadi Nurahmad and Irwan Adi Ekaputra	Quality investing in Indonesian stock market
35	Ninditya Nareswari, Geodita Woro Bramanti and Aang Kunaifi	The Effect of Behavioral Biases on Risk Perception

PAPER NO	AUTHOR (S)	PAPER TITTLE
81	Annisa Ridha Fasya, Bella Puspita Rininda and Radna Nurmalina	PERFORMANCE EVALUATION OF PT. KAPUAS PRIMA COAL, Tbk. 2017-2019 PERIOD USING LIQUIDITY RATIO AND ACTIVITY RATIO ANALYSIS
Room 4B: Accounting and Financial Management **Zoom:** https://zoom.us/j/96446197840?pwd=aGNZWDhzZ3JLUElxaWtaQzBMMlA5UT09		
60	Zahra Nurkarima Budiwati Attori, Udisubakti Ciptomulyono and Satria Fadil Persada	Analysis of Green Information Technology Business Value Based on Companies' Financial Performance in Indonesia
72	Rico Nur Ilham, Isfenti Sadalia, Nisrul Irawati, Abdul Nasser Hasibuan and Mangasi Sinurat	Conjuncture Fluctuation Effect From Commodity Supercycle Pattern: Empirical Case Between Velocity and Risk Factor on Return Cryptocurrency in Indonesia
33	Ninditya Nareswari, Nuraini Desty Nurmasari and Latifah Putranti	Financial Constraints of Micro, Small, and Medium Enterprises in The Creative Industry
83	Rina Pebriana, M. Riduan Abdillah and Maulida Hirdianti Bandi	The moderation of stock performance on the influence of corporate governance toward comprehensive income in the period of covid-19
75	Geodita Woro Bramanti, Ninditya Nareswari, Maydawati Fidellia Gunawan, Aang Kunaifi and Nugroho Priyo Negoro	Descriptive Analysis of Environmental Performance, Sustainability Report, and Financial Access In Non-Financial Sector Companies
86	Adi Saputro, Abdul Muta Ali and Marliza Noor Hayatie	ANALYSIS OF FINANCIAL PERFORMANCE USING ECONOMIC VALUE ADDED (EVA) METHOD IN PT DARMA HENWA Tbk. 2017-2019 PERIOD
Room 5: Entrepreneurship, Sociopreneurship, and Social Sciences **Zoom:** https://zoom.us/j/97642592683		
1	Amdi Ariefianto and Avanti Fontana	Business Model Development A Study Case of SOP and Digital Marketing on MSMEs

PAPER NO	AUTHOR (S)	PAPER TITTLE
2	Gembong Baskoro	Tertiary (higher) education in Indonesia under pressure: innovation towards the next normal as a consequence of pandemic Covid 19.
13	Seprianti Eka Putri	Assessment Consumer Intentions to Use e-Wallet During COVID-19 Outbreak in Indonesia
21	Desanty Ridzky and Mohammad Isa Irawan	Public Perception for the use of Digital Wallet in Indonesia using Social Network Analysis
41	Teuku Rian Aulia and Budi W Soetjipto	Effect of Openness to Change, Empowerment, Customer Orientation, and Marketing Innovation to Resilience and Survival of a Convenient Store Business in the Midst of Covid-19 Pandemic
44	Bilqis Oktaviani Putri, Vegyta Tresya Putri Sukmana and Nadila Pradana Fahyan	Embarking The Indonesia National Police (POLRI) Investment on Overseas Postgraduate Education Eminence
73	Rico Nur Ilham, Isfenti Sadalia, Sugiharto Sugiharto, Linda T.Maas and Mangasi Sinurat	Opportunity Funding Model To Increase Economic Value Added MSMEs Sector at Moment of Pandemic Covid-19: How to MSMEs Sector Practice Using Acceleration Board and Initial Public Offering Method in Indonesia
74	Isfenti Sadalia, Nisrul Irawati and Isdiana Syahfitri	The Impact of Strategic Intelligence on Entrepreneurial Behavior and Organizational Development
84	Billy Sabella, Wiwik Kusrini and Eka Wahyu Sholeha	SENTIMENT ANALYSIS ABOUT THE COVID-19 VACCINE USING THE NAÏVE BAYES CLASSIFIER METHOD
16	Janti Gunawan, Berto Mulia Wibawa and Imam Baihaqi	Exploring Women Ecopreneurship: a preliminary study from Lombok - Indonesia
28	Tigor Pantoro Hamonangan and Daniel Tumpal Hamonangan	The Antecedents of Customer Intention to Use Mobile Health: An Application of Extended Technology Acceptance Model
82	Hendrik Setyo Utomo, Veri Julianto and Ahmad Rusadi Arrahimi	Analysis of Online Learning by Using Usability Testing During the Covid-19 Pandemic
88	Pramesty Widya Zulkarnain, Anindya Safa Estralita, Chusnul Khotimah, Sutansyah Maulana, Ni Gusti Made Rai Wikananda and Syarifa Hanoum	Strategy Analysis of Using Instagram as a Communication Media for Digital Marketing of SMEs Subyung

PAPER NO	AUTHOR (S)	PAPER TITTLE
Room Industry Session **Zoom:** https://zoom.us/j/96196735754		
54	Abdul Hamid, Tri Weda Raharjo, Herrukmi Septa Rinawati, Kristian Buditiawan, Farhah Izzah Dinillah and Bahalwan Apriyansyah	The Impact of Forest Damage Due to Human Economic Activities on Water Availability in Tahura (Case Study in R Soerjo Tahura East Java)
65	Sungging Pintowantoro, Fakhreza Abdul and Yuli Setiyorini	The Importance of Mineral Industry (Smelter) for the Future Industrial Development in East Java
22	Janti Gunawan, Agnes Tuti Rumiati and Aise Kim	Sustainable Forest Tourism at Sekawan Sejati, West Lombok - Indonesia: Potentials and Challenges
94	Agnes Tuti Rumiati, Janti Gunawan and Andy Mappa Jaya	Making the Design Concept and Pre-design of the Sekawan Sejati Tourist Area





Advances in Economics, Business and Management Research, volume 202
3rd International Conference on Business and Management of Technology (ICONBMT 2021)

The Effect of Increasing Mechanic Competence via Competence-Based Curriculum on Product Support Performance in Leading Indonesian Heavy Equipment Manufacturers

Teguh Setiono[1,2] Dena Hendriana[2,*] Henry Nasution[2] Gembong Baskoro[2] Edi Sofyan[2]

[1] *United Tractors. Tbk., Jakarta - Indonesia*
[2] *Master of Mechanical Engineering Swiss German University, Tangerang - Indonesia*
[*]*Corresponding author. Email: dena.hendriana@sgu.ac.id*

ABSTRACT
The amount of product support determines the availability and readiness of heavy equipment. Product support as after-sales service is essential for customers to ensure that the heavy equipment purchased is always ready to use and generates optimal output. Leadtime and mechanic speed in resolving equipment problems and the so-called On Time in Full Solution (OTIF Solution) impact the usability and productivity of the equipment. Product Support Performance is affected by the OTIF Solution, which in turn influences customer satisfaction. The development of mechanic competencies through competency-based training and problems in the field regarding the Special Work Competency Standards is a technique to strengthen mechanics' ability and speed to solve machine problems to achieve good OTIF Solution performance. The purpose of this study is to determine the impact of improving competence. Mechanic via product performance support training with competency-based curriculum Teaching machines carried out this study with poor OTIF Solution performance using the blended learning method and training modules. The findings revealed that once mechanics were trained, the OTIF Solution increased from the previous two years. Specifically, 89 and 88% fell short of the planned range of 90 to 93%.

Keywords: *Product Support, Competency Based Curriculum, Specific Work Competency Standards, Training Need Analysis, Blended Learning.*

1. INTRODUCTION

Heavy equipment is a large size machine and can do serious work such as earthmoving, coal moving. Common types of rich prayers are bulldozers, excavators, wheel loaders, motor graders and heavy dump trucks.

The heavy equipment population is spread across four sectors, namely Forestry, Mining, Construction and Agro. According to data released by one of the Komatsu heavy equipment distributors in Indonesia, Komatsu heavy equipment sales volume from 2014 to 2019 reached 19,411 units of heavy equipment [1].

Competition in heavy equipment sales to dominate the market is very tight. Each distributor will maintain and even increase market share with a pricing strategy and a product support strategy.

Customers as owners of heavy equipment certainly expect their heavy equipment to always be in a good performance and highly efficient so that their heavy equipment can produce optimal production.

Figure 1 Mechanics handling an Excavator that was damaged while operating in the field

For distributors who are leaders in the market, increasing product support is an essential strategy. Leadtime and mechanic speed in solving problems that occur in equipment and the so-called On Time in Full Solution (OTIF solution) affect the equipment's usability and productivity. Performance OTIF solution

affects Product Support Performance, and this affects the level of customer satisfaction. Figure 1 shows several Mechanics handling heavy equipment that was damaged while operating in the field.

The achievement of the OTIF solution is shown in Figure 2, the target so that the customer is not satisfied with the mechanic's ability to identify the problem and service result quality [1].

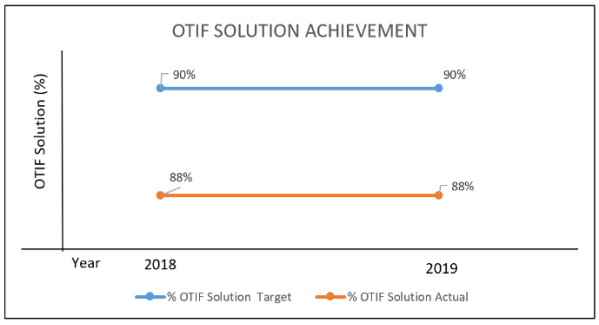


Figure 2 OTIF solution achievement

The readiness of mechanics who have reliable technical skills and knowledge is part of improving product support performance. For this reason, mechanic training is needed following operational needs and training programs that can enhance mechanic competence [2-3].

Training is an essential component in the development of human resources (HR) in an institution to improve the knowledge, skills and positive attitude of human resources to improve the performance of institutions in the face of change and external competition [4].

Training programs can be interpreted as learning experiences that focus on individual efforts to obtain specific skills that can be immediately used.

A training program that is carried out effectively and efficiently will positively contribute to the development and progress of the company. Therefore, the training carried out must be following training need analysis [5-6].

An effective and efficient training program will positively contribute to the development and progress of the company. Therefore, the training must follow the training needs analysis and a competency-based curriculum [7-8].

The first step in creating a competency-based curriculum is to identify these problems in handling machine problems taken from trouble machine data to be analysed so what competencies the mechanic needs to get the job done. The next step is to use the competency requirements to make a training needs analysis and create a competency-based curriculum.

2. METHODOLOGY

2.1. Training Need Analysis and Competency Requirement

Mechanic competency development activities begin with a Training Need Analysis following the operational needs of mechanic abilities. The gap between current mechanic abilities and required mechanic abilities may indicate a problem that can translate into training needs. The condition for mechanic competence is reflected in the achievement of the OTIF solution.

Figure 3 show the machine problem data, and the OTIF solution per machine, both the problem and the OTIF solution for Excavator machines are the biggest problems with 1371 problem. The OTIF solution machine excavator has only been achieved 88% [1].

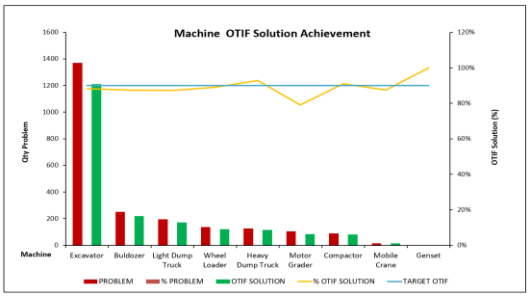


Figure 3 Machine OTIF solution achievement

The machine Problem and OTIF solution data are focused on Machine Excavator for the mechanic's development pilot project. There are nine components and systems used as a reference for measuring the OTIF solution machine in the excavator machine. Each element and method is also measured how much the OTIF solution has achieved. There are three main components and systems for excavators, namely Engine, Hydraulic and Electric is shown in Figure 4 [9-10].

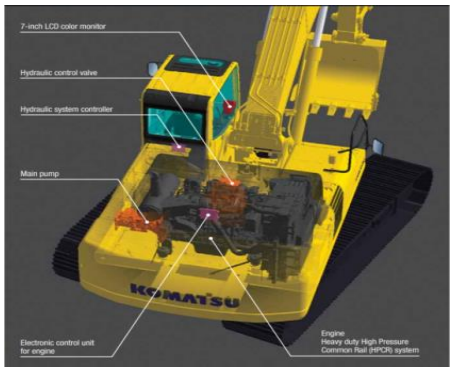


Figure 4 Component and system excavator

From the data on machine system problems and OTIF Solution components on the excavator for OTIF Solution performance in Figure 5, the three parts and systems, namely Engine, Hydraulic and Electrical, are in bad condition. Henceforth, the three competencies will be detailed in specific work competencies. So that

for the development of competency mechanics on machine excavators that will become a pilot project, namely:

1. Troubleshooting engine control system excavator.
2. Troubleshooting hydraulic control system excavator.
3. Troubleshooting electrical control system excavator.

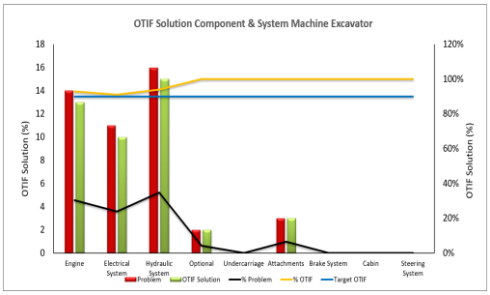


Figure 5 OTIF solution component excavator

2.2. Training Program and Development

2.2.1. Specific Work Competency Standards

Specific work competency standards are competency standards developed and used by organizations to meet their internal organizational goals and meet the needs of other organizations that have a cooperative relationship with the organization concerned. The development of particular work competency standards is based on the need to fulfil the mechanic's competency development activities for the operational needs of the mechanic's abilities as outlined in the training needs analysis. Specific work competency standards may consist of one or several competency units.

Table 1. Matrix of specific work competency standards for trouble shooting engine control system excavator

Competency Unit Title : Implement Trouble Shooting Engine Control System Excavator.
Unit Description : *This unit identifies the competencies required to implement the Trouble Shooting Engine Control System on Excavator heavy equipment.*

No	Competency Element	Performance Criteria	User		
			Mechanic	Instructor	Operator
(1)	(2)	(3)	(4)	(5)	(6)
1	Doing trouble shooting job preparations	1. Damage symptom information has been obtained.	√	√	√
		2. A manual, literature and PM Tune Up form were prepared.	√	√	-
		3. Personal protective equipment and Job Safety Analysis Form prepared.	√	√	-
		4. The machine is parked on a level and safe place.	√	√	√
		5. The machine is ensured to be in a safe condition to do the job.	√	√	-
2	Prepare equipment and tools for trouble shooting work	1. Common tools, measuring tools and diagnostic tools are prepared	√	√	-
		2. Equipment and equipment are certainly suitable for use	√	√	-
3	Doing trouble shooting	1. General Inspection is carried out before the engine is started.	√	√	√
		2. Check the condition of the engine when it starts up	√	√	√
		3. Abnormal machine symptoms are identified.	√	√	-
		4. Check and measure the condition of engine components.	√	√	-
		5. The results of the engine component condition check are stated in the PM Tune Up form.	√	√	-
		6. The results of checking the condition of the engine components are analyzed	√	√	-
		7. Check the components on the engine causing the failure.	√	√	-
		8. The components that cause damage are repaired.	√	√	-
		9. Improvement to prevent the cause of damage done.	√	√	-
4	Create work reports	1. Reports for customers are generated	√	√	-
		2. Technical Service Report created	√	√	-

One example of a specific work competency standard is seen in Table 1, where there are four competency elements, namely making troubleshooting job preparation, prepare equipment and tools for troubleshooting work, making trouble shooting and create work reports. Each competency element in the specific work competency standard will be detailed in performance criteria and user positions that match those competencies [1].

2.2.2. Curriculum and Syllabus

The Curriculum is structured based on competency elements and performance criteria that have been made in specific work competency standards by providing more detailed indicators of the success of each performance criterion and the time needed to study, which in turn can determine the training modules required is shown in Table 2 [8].

Table 2. Training curriculum structure matrix

Training Name : Trouble Shooting Engine Control System Excavator
Total Training Hours : Theory (480 hours), Practice (630 hours)
Training Objectives : Participants are able to perform the Excavator Trouble Shooting Engine Control System according to the Procedure

No	Competency Element	Performance Criteria	Success Indicators	Time Allocation T	Time Allocation P	Training Module
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Doing trouble shooting job preparations	1. Damage symptom information has been obtained.	Obtain and obtain information about symptoms of damage	60		Preparation of equipment and trouble shooting work tools
		2. A manual, literature and PM Tune Up form were prepared.	Able to prepare manuals, literature and PM Tune Up forms	30		
		3. Personal protective equipment and Job Safety Analysis Form prepared.	Able to prepare Personal Protective Equipment and Job Safety Analysis forms	30		
		4. The machine is parked on a level and safe place.	Able to do machine parking work in a level and safe place	30		
		5. The machine is ensured to be in a safe condition to do the job.	Able to ensure the machine is in a safe condition to do the job.			
2	Prepare equipment and tools for trouble shooting work	1. Common tools, measuring tools and diagnostic tools are prepared	Able to prepare common tools, measuring tools and diagnostic tools completely.	15		
		2. Equipment and equipment are certainly suitable for use	Able to ensure the appropriateness of the equipment and equipment to be used.	15		
3	Doing trouble shooting	1. General Inspection is carried out before the engine is started.	Able to do a general inspection, namely a walk-around check / visual check before the engine is turned on	15	15	Engine Control System and trouble shooting procedures
		2. Check the condition of the engine when it starts up	Able to carry out checks, namely through the monitor panel and tool work equipment when the engine is turned on	30	60	
		3. Abnormal machine symptoms are identified.	Able to identify symptoms of abnormal symptoms found during machine checking.	30	60	
		4. Check and measure the condition of engine components.	Able to check and measure the performance of engine components.	30	90	
		5. The results of the engine component condition check are stated in the PM Tune Up form.	Able to pour data from performance on engine components in the PM Tune Up form.	15	45	
		6. The results of checking the condition of the engine components are analyzed	Able to perform analysis obtained from inspection of engine components and determine possible causes of damage.	120	300	
		7. Check the components on the engine causing the failure.	Able to check components that are likely to cause damage to the engine.			
		8. The components that cause damage are repaired.	Able to make repairs to components that have been damaged by means of presenting conditions and / or replacing.			
		9. Improvement to prevent the cause of damage done.	Able to make standard standards for the prevention of repeated damage.	30	30	
4	Create work reports	1. Reports for customers are generated	Able to create reports for customers that contain minutes of job completion.	30	30	Technical Report
		2. Technical Service Report created	Able to make a Technical Service Report			

The syllabus is a learning plan for a particular group of training subjects, including competency standards, descriptions of training subjects, essential competencies, performance criteria, performance indicators, training materials, assessments, methods, time allocation and information sources are shown in Table 3.

Table 3. Training syllabus preparation of equipment and troubleshooting work tools

Training Module : Preparation of equipment and trouble shooting work tools
Time Allocation : Theory (180 hours), Practice (0 hours)
Competency standards : Able to prepare the machine and its accessories before doing trouble shooting work according to the procedure.
Training Module Description : This training Module learns about the procedures that must be done to prepare the machines and equipment needed to do trouble shooting work.

No	Competency Element	Performance Criteria	Success Indicators	Training materi	Assessment	Method	Time Allocation T	Time Allocation P	Information Resources
1	Doing trouble shooting job preparations	1. Damage symptom information has been obtained.	Obtain and obtain information about symptoms of damage	8 Step Troubleshooting	Observation & Interview	Lecture	60		Shop Manual
		2. A manual, literature and PM Tune Up form were prepared.	Able to prepare manuals, literature and PM Tune Up forms	Manual Handbook & PM Tune Up Report	Observation & Interview	Lecture	30		Shop Manual
		3. Personal protective equipment and Job Safety Analysis Form prepared.	Able to prepare Personal Protective Equipment and Job Safety Analysis forms	Work safety on the machine	Observation & Interview	Lecture	30		Operation & Maintenance Manual
		4. The machine is parked on a level and safe place.	Able to do machine parking work in a level and safe place	Basic Driving & Operation Procedure	Observation & Interview	Lecture	30		Operation & Maintenance Manual
		5. The machine is ensured to be in a safe condition to do the job.	Able to ensure the machine is in a safe condition to do the job.						
2	Prepare equipment and tools for trouble shooting work	1. Common tools, measuring tools and diagnostic tools are prepared	Able to prepare common tools, measuring tools and diagnostic tools completely.	Methods for selecting and using common tools, measuring tools and diagnostic tools	Observation & Interview	Lecture	15		- Shop Manual - Quality Assurance
		2. Equipment and equipment are certainly suitable for use	Able to ensure the appropriateness of the equipment and equipment to be used.	Calibration methods and standardization of equipment and supplies.	Observation & Interview	Lecture	15		- Shop Manual - Quality Assurance

2.2.3. Blended Learning

For mechanic development programs using Blended Learning, a method is shown in Figure 6. To implement the blended learning program supported by the United Tractors Learning Management System (UT LMS) infrastructure with the name “TOP UP”. United Tractors Learning Management System (UT LMS) is a software application for activities in the network, electronic learning programs (e-learning programs), distributing training materials and enabling collaboration between mechanics and instructors. UT LMS can manage every aspect of the training, from registering participants to storing test results.

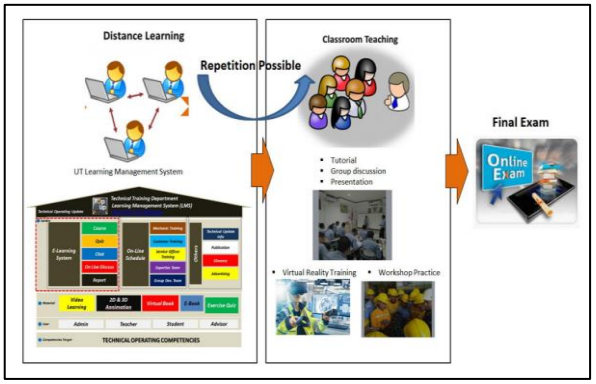


Figure 6 Structure of blended learning

According to the schedule, administrators will register Participants and Course Instructors in the UT Learning Management System called "Top Up" according to the program.

3. RESULTS AND DISCUSSIONS

To determine the mechanics and branches that will be given training, it is determined based on the performance of the OTIF solution where the branch with the Bad category of OTIF solution performance becomes a priority for technical development.

Table 4 shows the 11 (eleven) branches that have OTIF solution performance in the "Bad" category, namely Pakanbaru, Surabaya, Padang, Makassar, Sampit, Tarakan, Pontianak, Manado, Jambi, Bandar Lampung and Palu with a total mechanic of 130 people.

Table 4. OTIF solution machine excavator per branch vs number of mechanic and machine

No	Cab/Site	QtY Mechanic Excavator	QTY Machine Excavator	Problem	OTIF Solution	%	Performance OTIF Solution
1	PAKANBARU	28	429	125	109	87%	Bad
2	SURABAYA	16	254	189	164	87%	Bad
3	PADANG	15	53	33	27	82%	Bad
4	MAKASAR	14	498	59	51	86%	Bad
5	SAMPIT	11	175	69	58	84%	Bad
6	TARAKAN	11	120	80	65	81%	Bad
7	PONTIANAK	10	240	100	83	83%	Bad
8	MANADO	9	174	7	6	86%	Bad
9	JAMBI	8	319	46	40	87%	Bad
10	BANDAR LAMPUNG	5	44	35	25	71%	Bad
11	PALU	3	196	27	23	85%	Bad
12	JAKARTA	13	324	117	106	91%	Good
13	SAMARINDA	33	166	64	58	91%	Good
14	BALIKPAPAN	18	77	141	128	91%	Good
15	SORONG	7	175	23	21	91%	Good
16	PALEMBANG	14	401	14	13	93%	Good
17	JAYAPURA	8	112	117	110	94%	Good
18	MEDAN	11	91	51	50	98%	Good
19	BANJARMASIN	16	213	62	61	98%	Good
20	SEMARANG	7	162	12	12	100%	Good
	Grand Total	257	4223	1371	1210	88%	Bad

The training is carried out using the blended learning method, where the mechanic will train online. Then after the online training, it is continued with tutorials and on-machine practice. Tutorials are conducted online and shown in class with a discussion method facilitated by an instructor [11]. This tutorial event is also a place for sharing mechanics experiences to increase knowledge and skills knowledge among mechanics. After deepening the material through tutorials, with the guidance of an instructor, the training is continued with hands-on practice at the machine excavator to ensure troubleshooting is carried out with the correct procedures, both regarding the procedures for using tools and techniques for solving problems. In this practical training, the mechanic will also try to solve a troubleshooting case study based on the trouble that often occurs in operation and also the trouble simulated by the instructor, which can be detected from the error code on the monitor panel.

3.1. Training Achievement

All mechanics have carried out online training and tutorials in eleven branches for three training modules, namely the engine control system, hydraulic control system and electric control system, to achieve training coverage of 100%.

Table 5 shows the engine control System module all 100% of mechanics passed with the passed training category, the hydraulic control system passed with the given training category of 99.2% or 129 mechanics from

130 mechanics and the electric control system passed with 95.4% passed training categories or 124 mechanics from 130 mechanics.

Table 5. Mechanic training coverage

No	Cab/Site	Participants vs Module						
		Mechanic Plan	Engien Control System		Hydraulic Control System		Electric Control System	
			Actual	%	Actual	%	Actual	%
1	PADANG	15	15	100%	15	100%	15	100%
2	SAMPIT	11	11	100%	11	100%	11	100%
3	PONTIANAK	10	10	100%	10	100%	10	100%
4	BANDAR LAMPUNG	5	5	100%	5	100%	5	100%
5	PAKANBARU	28	28	100%	28	100%	28	100%
6	JAMBI	8	8	100%	8	100%	8	100%
7	MANADO	9	9	100%	9	100%	9	100%
8	TARAKAN	11	11	100%	11	100%	11	100%
9	SURABAYA	16	16	100%	16	100%	16	100%
10	PALU	3	3	100%	3	100%	3	100%
11	MAKASAR	14	14	100%	14	100%	14	100%
TOTAL		130	130	100%	130	100%	130	100%

Figure 7 shows the theory test results provide an overview of all mechanics as training participants who have conducted online theory tests. Mechanics that are declared passed training are mechanics that get a score above 80. In contrast, mechanics who earn a score below 80 are reported not to pass and will be given the opportunity to remedial once with a value above 80, later categorized as passed by corrective.

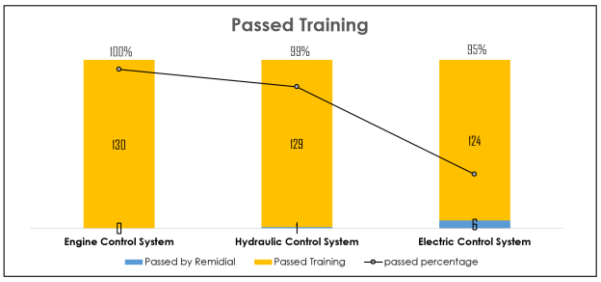


Figure 7 Theory test results

The practical implementation test is carried out directly on the machine excavator and is tested one by one by the trainees by an instructor.

Table 5 shows the practical test results were obtained for three competencies, namely engine control system, hydraulic control system and electrical control system in Good3 position, meaning that proven mechanics can perform troubleshooting well and correctly starting from preparing to solve the problem to the problem is resolved and can be included in technical reports.

Table 6. Trouble shooting assessment skill test result

Competency Elements	Ability Category											
	Engine Control System				Hydraulic Control System				Electric Control System			
	Good1	Good2	Good3	Excelency	Good1	Good2	Good3	Excelency	Good1	Good2	Good3	Excelency
Trouble shooting job preparations	0	0	130	0	0	0	130	0	0	0	130	0
Prepare and using equipment & tools for trouble shooting work	0	3	127	0	0	0	130	0	0	0	130	0
Doing trouble shooting Machine Inspection Program	1	4	125	0	0	0	130	0	0	7	123	0
Doing trouble shooting Machine Trouble Analysis	1	7	122	0	0	6	124	0	0	18	112	0
Create work reports	0	0	126	4	0	6	124	0	0	0	130	0

3.2. Training Program Evaluation

To evaluate whether the program has accommodated the need for increased competency mechanics and the implementation of this program is going well, it is necessary to get input from mechanics as training participants to create a mechanic questionnaire, as shown in Table 7.

Table 7. Mechanic questionnaire result

NO	STATEMENT	CATEGORY				
		Strongly agree	Agree	Disagree less	Disagree	Strongly Disagree
1	The quality of training materials can increase your level of knowledge and skills	343	47	0	0	0
2	The material provided is in accordance with what is needed to support excavator machine troubleshooting	358	32	0	0	0
3	The material provided can be understood and understood well	344	46	0	0	0
4	The material provided can be applied in the workplace and supports excavator troubleshooting work	372	18	0	0	0
5	Online learning time as needed	329	57	4	0	0
6	Tutorial learning time and practice as needed	300	82	8	0	0
7	Practical materials and tools in troubleshooting practice correspond to troubleshooting work	382	8	0	0	0
8	The guidance provided by the instructor in the Tutorial and Practice is easy to understand.	383	7	0	0	0
9	After training are you able to smoothly perform trouble shooting procedures and read trouble shooting charts.	366	24	0	0	0
10	After training are you able to smoothly use the tools to complete touble shooting	379	11	0	0	0

The input of 130 mechanics as responders stated that the program was following the needs of increasing mechanical competence and implementing the program following the mechanic's requirements. As reflected in the majority of respondents said strongly agree and agree. Four responders gave disagree less input at the time allocated for the online learning implementation, and eight respondents gave disagree less information during the tutorial and practical implementation.

To evaluate the program as a whole, starting from the specific work competency standards to whether the curriculum is made, whether it accommodates the need for increasing mechanical competence, and the implementation of this program is running well, it is necessary to get input from the instructor as a teacher in training so that an Instructor Questionnaire is made, as shown in Table 8.

Table 8. Training instructors questionnaire result

NO	STATEMENT	CATEGORY				
		Strongly agree	Agree	Disagree less	Disagree	Strongly Disagree
1	Specific Job Competency Goals and Standards Easy to understand	14	6	0	0	0
2	The learning experiences in the curriculum are appropriate or can support mechanic work	16	4	0	0	0
3	The objectives and competencies are formulated in the curriculum according to the needs of mechanics for operational support	18	2	0	0	0
4	The learning experiences in the curriculum are appropriate or can support mechanic work	17	3	0	0	0
5	Learning experiences are defined in the curriculum according to the amount of time required.	14	3	3	0	0
6	The training programs contained in the curriculum and sylabus can support success in achieving mechanic competencies.	18	2	0	0	0
7	The training programs contained in the curriculum and sylabus can encourage active learning mechanics.	15	5	0	0	0
8	Online training methods, tutorials and practice have been effective	20	0	0	0	0
9	The curriculum and sylabus can be easily understood and understood by the instructor.	17	3	0	0	0
10	The curriculum and sylabus in the training program can be carried out by the instructor	19	1	0	0	0
11	The curriculum and sylabus in the instructor are in accordance with the learning program	20	0	0	0	0
12	The overall implementation of the curriculum and sylabus runs effectively and efficiently	18	2	0	0	0

Of the 20 instructors who taught in this program assessed that the program could be implemented well in increasing mechanic competence according to operational needs. Reflected in the questionnaire results,

most of them stated strongly agree and agree with each statement on the questionnaire.

After the mechanic gets training on the machine excavator, every time there is a problem with the excavator machine, to solve the problem, priority is given to mechanics who have received this training intending to know the increase in mechanical competence have received training in problem-solving and also to improve the performance of the excavator's OTIF solution machine. From the data taken from the HEAT System (Helpdesk Expert Automation Tools) after the mechanic received training on November 9, 2020, to December 10, 2020, 46 problems occurred and were resolved with the appropriate time as many as 43 problems so that the OTIF solution achievement was 93%. Details of the number of the issues and OTIF Solution per component and system can be seen in the OTIF solution achievement Table 9.

Table 9. OTIF solution achievement

No	Component & System	2020 (One Month)				Performance OTIF Solution
		Problem		OTIF Solution		
		Qty	%	Qty	%	
1	Engine	14	30%	13	93%	Good
2	Electrical System	11	24%	10	91%	Good
3	Hydraulic System	16	35%	15	94%	Good
4	Optional	2	4%	2	100%	Good
5	Undercarriage	0	0%	0	0%	
6	Attachments	3	7%	3	100%	Good
7	Brake System	0	0.0%	0	0%	
9	Cabin	0	0.0%	0	0%	
8	Steering System	0	0.0%	0	0%	
	Grand Total	46	100%	43	93%	Good

The results also show that the development of a mechanic competence with a competency-based curriculum impacts improving product support performance, significantly increasing the performance of OTIF solutions. Figure 8 is a reflected that there has been an increase in OTIF solution above the 90% target for components and systems for the engine control system, hydraulic control system and electric control system on machine excavators so that the excavator's OTIF solution machine has increased from 89% in 2018 and 88% in 2019 to 93% in 2020.

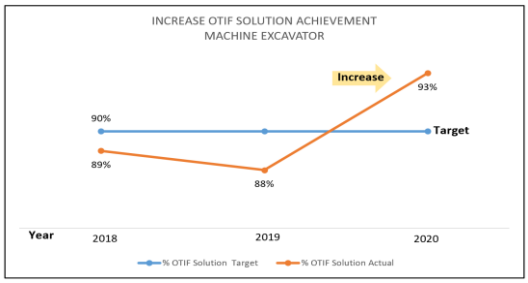


Figure 8 Increase OTIF solution achievement on excavator

4. CONCLUSIONS AND FURTHER IMPROVEMENT

4.1. Conclusions

a. The research results show that the development of mechanic competence through competency-based training and problems in the field can increase the ability and speed of mechanics to solve problems that occur in machines. The knowledge and speed of mechanics to solve machine problems will affect the performance of OTIF solutions. The more issues that are resolved from problems that occur in the machine and the completion time is below the specified time standard, and the OTIF solution performance will be good. Conversely, the more problems are resolved, but the time to solve them is above the specified time standard, the OTIF solution performance will be wrong. A good performance of the OTIF solution reflects good product support performance and vice versa.

b. The research results that have been carried out show that the development of mechanics that refers to the competency standards for particular work and pour in more detail into a competency-based curriculum can align training programs. Competency needs to be required in operations.

c. The research results that have been carried out show that the development of mechanics using the blended learning method, namely mechanic learning independently through online and tutorials containing discussions and direct practice in machines with the guidance of an instructor, is an effective learning method.

4.2. Further Improvement

From the research that has been done, several things need to be further improved and developed to obtain more accurate data and testing of a mechanic competency development program with a competency-based curriculum to increase the performance of the OTIF solution. The following are some recommendations that can be made to optimize this research:

a. To get the accuracy of the relationship between the improvement of mechanic competence and the performance of the OTIF solution, the OTIF solution data is more accurate if taken at least within six months to obtain OTIF solution data from more problem machines.

b. To obtain a more precise training program and following the need for increasing mechanical competence, the preparation of specific work

competency standards, curriculum and syllabus is carried out in collaboration with experts in each machine such as Instructors, Technical Consultants, Quality Assurance and Senior Mechanics.

c. Training with the blended learning method can be carried out in other training modules to accelerate the improvement of mechanic competence across branches by adding time to tutorial and practice sessions.

AUTHORS' CONTRIBUTIONS

Teguh Setiono made contributions as first authors. Data was collected and analysed by Teguh Setiono and Dena Hendriana. All authors (Henry Nasution, Gembong Baskoro, and Edi Sofyan) made contributions to the design of the study and the writing of the manuscript.

ACKNOWLEDGMENTS

I Want to thank Mr Edi Sofyan, B.Eng, M.Eng, PhD and Mr Dena Hendriana B.Sc, S.M., Sc.D and all Lecturers who have guided me while studying at Swiss German University. And also, to Mr Edhie Sarwono and Mr Idot Supriadiand, PT United Tractors Tbk's management allowed me to take a Master's degree.

REFERENCES

[1] United Tractors, Book of Mechanic, Jakarta: United Tractor, 2016.

[2] E. Mulyasa, Kurikulum Berbasis Kompetensi, Konsep, Karakteristik, dan Implementasi, Bandung: Remaja Rosdakarya, 2006.

[3] B. A. Pribadi, Desain dan Pengembangan Program Pelatihan Berbasis Kompetensi, Jakarta: Prenadamedia Group, 2014.

[4] P. L. Smith, and T.L. Ragan, Instructional Design, New York: Wiley Jossey-Bass Education, 2007.

[5] J. Barbazette, Training Need Assessment: Methods, Tools and Technniques. San Francisco: John Wiley, 2006.

[6] P. Donovan and J. Townsend, The Training Need Analysia Pocketbook, United Kingdom: Management Pocketbooks Ltd, 2005.

[7] P. Boahin and P. Boahin, Competency Based Curriculum: A framework for Building Assessment and the world of work, International Journal of Vocational and Technical Education Research, Vol.4, No.2, May 2018, pp.1-15.

[8] J. Kim, Competency-based Curriculum: An Effective Approach to Digital Curation Education, J. of Education for Library and Information Science, Vol. 56(4), October 2015, pp.283-297. doi:10.12783/issn.2328-2967/56/4/2.

[9] S. Haryadi, D. Hendriana, H. Nasution, G. Baskoro," Monitoring of Thermostat Performance in Heavy Equipment Diesel Engine Cooling System Using an Ultrasonic Flow Meter, 2nd Proceedings of The Conference on Management and Engineering in Industry (CMEI 2020), Vol. 2, pp. 1-6, Tangerang, Indonesia, September 2020.

[10] S. Sadono, C.S.A. Nandar, D. Hendriana, H. Nasution, G. Baskoro. Modeling, Simulation, and Analysis of Auto Warming Up and Overheat Prevention System in Komatsu Hydraulic Excavator PC 200-8, 2nd Proceedings of The Conference on Management and Engineering in Industry (CMEI 2020), Vol. 2, pp. 1-6, Tangerang, Indonesia, September 2020.

[11] L. Vanderkam, Blended Learning, Washington: The Philanthropy Roundtable, 2013.