

# PROCEEDING



**BIRE**  
Bali Institute of Research Excellence



## **MEIT-2018**

**International Conference on  
Management Study, Engineering and  
Information Technology**

**Mercure Bali Harvestland Kuta Bali, Indonesia  
January 23-24, 2018**

# ***CONFERENCE BOOK OF ABSTRACT PROCEEDINGS***

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# **Book of Abstracts Proceedings**

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Indonesia  
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Proceedings of the International Conference on Management Study, Engineering and Information Technology (MEIT)

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*International Conference on Management Study,  
Engineering and Information Technology (MIET)*

**Venue: Mercure Bali Harvestland Kuta Bali, Indonesia**

**Conference Theme:** Aims to share the knowledge of management study in engineering and IT.

## SCIENTIFIC COMMITTEE

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## CONFERENCE TRACKS

- Basic Science
- Civil Engineering
- Economics, Finance & Accounting
- Business Management
- Electrical Engineering
- Life Sciences
- Mechanical Engineering
- Medicine Sciences

## CONFERENCE CHAIR MESSAGE

### **Dr. Ryan Feinstein**

“International Conference of Engineering Science Research and Development Board” is a platform that thrives to support the worldwide scholarly community to analyze the role played by the multidisciplinary innovations for the betterment of human societies. It also encourages academicians, practitioners, scientists, and scholars from various disciplines to come together and share their ideas about how they can make all the disciplines interact in an innovative way and to sort out the way to minimize the effect of challenges faced by the society. All the research work presented in this conference is truly exceptional, promising, and effective. These researches are designed to target the challenges that are faced by various sub-domains of the social sciences and applied sciences.

I would like to thank our honorable scientific and review committee for giving their precious time to the review process covering the papers presented in this conference. I am also highly obliged to the participants for being a part of our efforts to promote knowledge sharing and learning. We as scholars make an integral part of the leading educated class of the society that is responsible for benefitting the society with their knowledge. Let’s get over all sorts of discrimination and take a look at the wider picture. Let’s work together for the welfare of humanity for making the world a harmonious place to live and making it flourish in every aspect. Stay blessed.

Thank you.

Dr. Ryan Feinstein

Conference Chair

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## CONFERENCE AGENDA

**Conference Name: International Conference on Management Study, Engineering and Information Technology (MEIT)**

**Day & Date: Tuesday, January 23, 2018**

**Venue: Mercure Bali Harvestland Kuta Bali, Indonesia**

### Timeline of Day 01

09:00 - 09:15 am	Registration of Participants
09:15 - 09:25 am	Introduction of Participants
09:25 - 09:35 am	Inauguration and Opening address
09:35 - 09:45 am	Grand Networking Session

**Tea/ Coffee Brake: 09:45 - 10:00 am**

## Presentation Session

DAY 01 (January 23, 2018)

Virtual Presentation Session (10:00 am - 11:45 am)

**Venue: Room 1**

**Session Chair: Ryan Feinstein**

**Track A: Business, Humanities and Management Studies**

Mr. Galih Yudha Saputra (MEIT-JAN-BI118)	Development of an Enterprise Resource Planning (ERP) Readiness Adoption Framework for Small Medium Enterprise in Indonesia
Mrs. Hawwin Mardhiana (MEIT-JAN-BI119)	Development Model of Sugarcane Production to Improve Efficiency and Sugarcane Productivity using Dynamic System Framework
Mrs. Nisa Setya Dini (MEIT-JAN-BI120)	Development of Models and Scenarios to Improve Distribution Efficiency of Large Pharmaceutical Traders by Using Dynamic Systems Approach
Mr. Farid Angga Pribadi (MEIT-JAN-BI121)	The Effect of Website Quality on Business Performance, Case Study: Travel Website
Mr. Arnoldus Yansen Friska Danar Yudhistira (MEIT-JAN-BI122)	Effect from Closed-Loop Supply Chain for Increasing Sugar Mills Profitability using Dynamic Systems Simulation Approach
Mr. Ahmad Syafiq Kamil (MEIT-JAN-BI123)	ACSP for EEG Data Classification Using Bandpass Filtering as a Preprocess Method
Anindya Lakshitta (MEIT-JAN-BI124)	Application of Ship Inventory Routing Problem (SIRP) as Efforts Settlement of BBM Distribution in East Indonesia
Tumpal Mulia Simanungkalit (MEIT-JAN-BI129)	Implementing of Lean Manufacturing to Improve Productivity in Wiring Harness Production with Six Sigma Approach (Case Study)

## **Presentation Session**

**Oral Presentation Session (11:45 am - 12:30 pm)**

**Venue: Room 1**

**Session Chair: Ryan Feinstein**

**Track A: Business, Humanities and Management Studies**

Mr. Jimmy Juliandhika T Samara (MEIT-JAN-BI108)	NUI Playground Optimization at Offshore UKL Flow Station Based on Production and Maintenance Cost with Integration of AHP and Goal Programming Methods
Mr. Budhi Refa Anjani (MEIT-JAN-BI110)	Comparative Analysis of Financial Production Sharing Contract (PSC) Cost Recovery with PSC Gross Split, Case Study in One of The Contractor of SKK Migas
Mr. Octoviano Permata Sura (MEIT-JAN-BI113)	Risk Analysis for Main Generator Replacement at Lima Flow Station Offshore Java Sea Platform Using Analytic Hierarchy Process (AHP) Method

**Lunch & Closing : 12:30 - 01:30 pm**

## **Attendee / Listener**

The following Scholars/ practitioners who dont have any paper presentation, however they will attending the conference as delegates & observers.

**Official ID: MEIT-JAN-BI112A**

**Name: Abhradeep Maiti**

**Affiliation: Indian Institute of Management Kashipur, India**

**Official ID: MEIT-JAN-BI130A**

**Name: Sabyasachi Patra**

**Affiliation: Indian Institute of Management Kashipur, India**



**Day 02 (January 24, 2018)**

Second day of conference will be specified for touristy. Relevant expenses are borne by Individual him/herself.



*International Conference on Management Study, Engineering  
and Information Technology (MEIT)*

Indonesia

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***TRACK A***

***BUSINESS, HUMANITIES AND MANAGEMENT STUDIES***



## **NUI Playground Optimization at Offshore UKL Flow Station Based on Production and Maintenance Cost with Integration of AHP and Goal Programming Methods**

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**Keywords:** Oil, Offshore, AHP, Goal Programming.

Since mid of 2015, global oil price has a negative trend which decreased gradually. PT. PWJ is one of the contractors that hold oil and gas Production Sharing Contract (PSC) in Indonesias Ardjuna Block. The production facilities could be categorized as ageing facility. The facilities should be maintained related to safe and reliable operations which affect the continuity of production process. Asset management needs to be done by considering aspects of production and maintenance cost. There are sets of priority for facility maintenance activity specific to its remote production platform named as Normally Un-maned Installation (NUI). The priority is stated as NUI Playground. Beside its oil and gas production criteria, this NUI Playground will be also assessed and optimized based on complexity of each processing facility and routine maintenance cost within three criteria which are Inspection, Maintenance & Repair, and Operational. Inspection criteria divided into Pressure System and Structural as sub-criteria. While Outsource and Swakelola sub-criteria are derived from Maintenance & Repair criteria. This research is focusing on optimization for UKL flow station which operations area belongs to PT. PWJ. UKL flow station operates 8 NUI that treated as alternative in this research. Early prioritization for NUI Playground is already developed. Analytic Hierarchy Process (AHP) method gave weight for the criteria, sub-criteria, and alternatives. Operational criteria are top priority which has weight of 0.387. New set of priority for NUI Playground is the result from AHP. Approach using Goal Programming then used prior to get the best solution for alternatives selection. Since the efficiency is up to 20%, the result showed that six alternatives are selected to receive the budget allocation; however the oil and gas production volume in a year probably would not be achieved. Sensitivity test is done in range 15%, 10%, and 5% of cost budget. After comparing the result related to the ranges, management shall consider to implement the budget efficiency up to 15%. Six alternatives are selected and having more advantage in production target achievement and potentially more income.



## **Comparative Analysis of Financial Production Sharing Contract (PSC) Cost Recovery with PSC Gross Split, Case Study in the one Contractor of SKK Migas**

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**Keywords:** Production Sharing Contract, Gross Split NPV, IRR

The new PSC Gross Split has been implemented in Indonesia since early 2017. The new regulation impacts directly to contractors who have expired or renewed their contracts with the Indonesian government, posing a new challenge not only for investors but also the government. The investors have to recalculate the economics of oil and gas field development projects; furthermore, government must maintain the stability of oil and gas exploration and production activities in Indonesia, so that both new and existing investors remain interested with the new scheme of Indonesian production sharing contract. This study is using financial comparison method between two schemes, calculating the net share between contractors and the government, and using the capital budgeting method to calculate project economical using NPV, IRR, and payback periods in project development case study in the one of SKK Migas contractors located in the North West of Java Sea. The results of the study, X project with gross split scheme get a positive NPV of 59.86 million USD, whereas with cost recovery scheme of only 48.08 million USD. In project Y with NPV gross split scheme 37.49 million USD, and with cost recovery NPV 21.62 million USD. In conclusion, the IRR result is higher in the gross split scheme compared to cost recovery, while the payback period in the same year between the two PSCs. From case studies of the two stand-alone projects, the economic outcomes for contractors are much better with the gross split scheme compared to the cost recovery scheme; consequently, government revenues are much smaller than the old schemes. Nevertheless, the risk of project development of oil and gas is entirely in the hands of contractors and the government no longer bears the risk as well as the cost of cost recovery that has been burdening the state finances.



## **Risk Analysis for Main Generator Replacement at Lima Flow Station Offshore Java Sea Platform Using Analytic Hierarchy Process (AHP) Method**

<sup>1\*</sup> Octoviano Permata Sura, <sup>2</sup> Prof. Dr. Ing. M. Isa Irawan MT

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**Keywords:** Main Generator, Risk Analysis, Risk Matrix, Analytic Hierarchy Process (AHP).

Lima Flow Station is one of production platform owned by PHE ONWJ with average 4.500 BOPD (Barrel Oil per Day) oil production and 25 MMSCFD (Million Standard Cubic Feet per Day) gas production. Located at east of Tanjung Karawang with 92,6 Km distance from Marunda Shorebase.

Gas Engine Generator is one of the main production equipment which supplies electricity for LIMA Flow Station. The Gas Engine Generator unit is a vital part of production facility which currently degrading as the running hours increasing. Company decided to perform a Replacement Project for 6 unit of Gas Engine Generator to maintain reliability of electricity supply and anticipating down-time caused by obsolete spare parts.

Risk analysis is performed as part of project risk management by confirming the context boundary, risk identification, risk analysis, risk evaluation and risk mitigation. Several criteria have also been established by the company for the replacement unit such as: vendor reputation, maintainability, reliability, cost, safety and after sales service.

Risk management approach according to ISO 31000:2009 will be utilized in this research to identify the risks of the project while risk evaluation will be performed using PHE ONWJ Risk Matrix and Analytic Hierarchy Process (AHP) will be utilized to select Main Generator Replacement scenario



## Development of an Enterprise Resource Planning (ERP) Readiness Adoption Framework for Small Medium Enterprise in Indonesia

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**Keywords:** Small Medium Enterprise, Enterprise Resource Planning Adoption, Pre-Implementation, Readiness, Framework.

SMEs in Indonesia grow very rapidly every year and contribute to the economy and employment. In order for SMEs to compete with large companies SMEs should have its own advantages. One of the options for this case is to adopt Enterprise Resource Planning (ERP) to integrate existing business processes in SMEs in order to minimize costs and maximize profits. However, in adopting ERP is very vulnerable to failure, it takes careful preparation, especially in the pre-implementation phase. Therefore, it is necessary to conduct an organizational readiness assessment before implementing ERP, so that later can know the current condition of the organization. This research proposes a framework for assessing the readiness of SMEs in Indonesia before implementing ERP. The framework is built on validated literature studies with expert judgment methods experienced in ERP implementation in SMEs so that the built framework can be used and in accordance with the existing conditions and culture of SMEs in Indonesia. The built framework has a seven-dimensional utama with three factors that fill each dimension. Based on the results of expert judgment there are three factors that are not needed to assess the readiness of an organization prior to the implementation of ERP, the factors are vision and mission, CIO position, and human resource management.



## Development Model of Sugarcane Production to Improve Efficiency and Sugarcane Productivity using Dynamic System Framework

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**Keywords:**Cane Productivity, Sustainable Sugarcane Cultivation, Dynamic System

Sugar produced by sugarcane is one of the strategic commodities in sugar economy and industry in Indonesia which until now still depends on the supply of sugar cane. Sugar became one of the basic needs after rice and still a problem due to shortage of domestic production. In addition, depending on population and sugar demand is also one of the reasons for the government to increase sugar production. To fulfill the basic needs of sugar, the government has a challenge in increasing the productivity of cane to the maximum in sustainable cultivation. The challenge is the uncertain weather and because of it, the sugarcane become easily attacked by pests and diseases and this case can reduce sugar cane production by an average 30% for all pests and diseases. In addition to weather, the land area also factor to increase sugar production. Potential land that unused recently can be used to sugarcane planting. In this study, increasing the productivity of cane is modeled by using a system dynamic approach and develop model to estimates sugar production for some scenarios. The land expansion scenario use improved seeds to fulfill the demand for sugar in the future. Dynamic system frameworks can be used to build models, analyze and develop the scenarios, improve the work of the system because of its ability in the form of information backflow information that can be used as a decision. The results of this research is a develop model with intensification scenario and extensification scenario. Development of the model with the scenario ekstensification with changes in model structure is improve sugar production by an average 14.10% per year in Java. The effect of intensification and intensification scenarios also decreased production cost by an average 11%. The model developed in this study can be used by the government to fulfill sugar demand and help to make a policy.



## **Development of Models and Scenarios to Improve Distribution Efficiency of Large Pharmaceutical Traders by Using Dynamic Systems Approach**

<sup>1\*</sup>Mrs. Nisa Setya Dini, <sup>2</sup> Erma Suryani

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**Keywords:** Drug Distribution; Dynamic System; Simulation; Efficiency

Drugs are the main commodities that human use to support their health, and human can not avoid illness during their life. The development of the increasingly sophisticated era as now, there are many diverse foods that will eventually affected the health, for that medicine is needed in human life. Drug is very vital in human life, so the manufacture process must also meet many criteria such as efficacy, safety, and quality. The high need for medicines and pharmacies must be streamlined in order to minimize the cost of the company in the distribution process. In general, 41% of logistics costs are transportation cost. Efficiency is needed in this distribution process. Changes in system behavior over time, complex system dynamics, the existence of this feedback provides the latest information about the system that will eventually produce a decision. Based on these characteristics, this study uses a dynamic system approach to simplify the process of drug distribution in Indonesia. This research develops a dynamic simulation model that provides an overview of the current process and the use of policy scenarios that can be used to improve efficiency of drugs distribution. The result of this research is that it can simplify the distribution process by changing the way of renting the vehicle abruptly to renting the vehicle from the beginning of every 5 years with cheaper rate and reducing the cost up to 11%. And also reduce the backlog of the order to 14% by adding the desired backlog variable.





## The Effect of Website Quality on Business Performance Case Study: Travel Website

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**Keywords:** Website Quality, Analytic Hierarchy Process (AHP), WebQual, Business Performance, Travel

Website is a part of our daily life and is used to exchange and share information between user groups. Website conveys information in different types, languages and forms and combination of texts, images, sounds and videos intended to inform, persuade, sell and give perspective or even change attitudes or beliefs. It is no less important to note by the travel is the usability of the travel website itself. The usability of the travel website is part of website quality that is closely related to the quality of service that impacts on customer satisfaction. To know the quality of the website, there should be measurement of the website. The main theory to be used in this research is WebQual theory. In this study will be identified the factors that affect the quality of the website by using the domain of WebQual and several other domains resulting from literature studies. The domains are Usability, Information Quality, Service Interaction, Website Functionality and Customer Relationship. The purpose of this research is first, to identify the factors that become a priority in measuring travel website quality. Then, analyze the gap between measuring website quality through user surveys with measuring website quality through expert-based evaluation. The last is to analyze the effect of website quality on business performance of e-travel. This research uses approach with AHP method. Data is processed using AHP method and generate local and global weight for each domain and its supporting parameters. One of the results of this study is the parameters which are in domain Usability dominate by placing four parameters in the order of the top five. The result is the parameters which are in domain Usability dominate with the sequence of Positive Experience (Global Weight: 0.071) in the first position, Easy To Use (Global Weight: 0.067) parameter in the second position, Interaction Understandable (Global Weight: 0.066) in the third position and Easy Navigate (Global Weight: 0.063) in the fourth position. Then, in fifth place is the parameter from domain Information Quality is Accurate (Global Weight: 0.048). From this research, it can be known that website quality is directly proportional to business performance. This is evidenced by the website in the first position in terms of quality of the website is the same with the website in the first position in terms of business performance.



## **Effect from Closed-Loop Supply Chain for Increasing Sugar Mills Profitability using Dynamic Systems Simulation Approach**

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**Keywords:** Sugar Mill Profitability, closed-loop supply chain, Dynamic System

There are several problems to increase sugar profitabilities which lead to supply chain uncertainty. Previous research proposed a dynamic system method for analyzing the supply chain thoroughly. Dynamic systems are used as strategic decision support tools. The developed model incorporates all real variables (stock and demand) and inventory and capacity planning policies. In order to improve the capacity planning system it is proposed to incorporate a capacity plan in a closed-loop supply chain. However, the research with the completion of the model has the limitations of the value of sugar cane storage capacity and the distance has discrete value, it can cause low utilization so that it will deviate from reality. Dynamic systems are the best method for solving supply chain problems with complex problem characteristics and changing variables. The developed model incorporates stock, demand and capacity planning. To improve the capacity planning system it is proposed to incorporate a capacity plan in the repetition of supply chain turnover so that if there is a change in the supply of the sugar factory it still benefits. It can be used to increase production capacity while still taking into account the company's revenue and demand as supporting variables. The contribution of this research is a design of production capacity which is expected to increase sugar mills profitability. And from the revenue generated will be allocated for additional capacity by taking into account the demand and processing factor of the closed-loop supply chain which aims to increase capacity utilization.



## ACSP for EEG Data Classification Using Bandpass Filtering as a Preprocess Method

<sup>1\*</sup> Mr. Ahmad Syafiq Kamil, <sup>2</sup>Dr.Eng. Febriliyan Samopa, <sup>3</sup> S.Kom., M.Kom.  
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**Keywords:** EEG, Brain Computer Interface, Data Preprocessing, Adaptive Common Spatial Pattern, Bandpass Filter

Brain activity can be described in the presence of brain waves. Brain activity can be observed using specialized recording devices that can be found in hospitals and laboratories. Brain Computer Interface (BCI) is an interface that provides a tool for the brain to communicate without the use of muscles. There are several studies related to BCI, in this study focusing on adaptive common spatial pattern (ACSP) method proposed by Song. Song did research using ACSP method. This method is used to examine unregistered EEG data from research subjects to study spatial filters. This method can be used to classify EEG data from one or from various objects. Song's developed method was evaluated using EEG multi-subject motor imagery data from BCI Competition III and IV . In this research, the method of praprocess data that is bandpass filter is used to eliminate noise in EEG signal. the use of such methods can improve the accuracy of the ACSP method.



## **Application of Ship Inventory Routing Problem (SIRP) as Efforts Settlement of BBM Distribution in East Indonesia**

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**Keywords:** Optimization, Inefficiency, Fuel, Simulation

Fuel Oil is the most commercially used petroleum energy source. While the increase in fuel consumption continuously must be accompanied by warnnya. PT Pertamina (Persero) is a State-Owned Enterprise (Persero) engaged in the Oil and Gas sector, is currently in the theme of BBM distribution and meets the requirements of MOR V Surabaya's target and distribution of trying to overcome inefficiency potency BBM in NTT. Therefore, improvements are needed that can improve effectiveness and efficiency. The purpose of this study is to describe in detail the possible causes of potential inefficiency and lack of supply backloading pattern in TBBM Supply Point Kupang in NTT region to the problem with the pattern of fuel distribution at PT. Pertamina (Persero) MOR V Surabaya and the determination of a viable scenario in efforts to improve the potential supply of inefficiency and supply backloading in TBBM Kupang Supply in NTT region. Based on the 5 factors causing problems in the fishbone diagram, the most severe factor to the potential problem of inefficiency is in terms of Machine and Method. With the knowing factors causing it, then the preparation of improvement scenarios. Using Arena software, proven test results Scenario 1 (Supply Point in TBBM Kupang and TBBM Maumere) show the best performance from others as evidenced by higher service levels and lower ship operational costs of both existing and existing distribution systems comparative scenario.



## **Implementing of Lean Manufacturing to Improve Productivity in Wiring Harness Production with Six Sigma Approach (Case Study)**

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**Keywords:** Lean Manufacturing, VSM, Six Sigma

The increasingly competitive business competition conditions require companies to continue to increase competitive advantage. Increasing productivity by reducing waste is one way that companies use to win the competition. Applying Lean Manufacturing with Six Sigma approach is one of the techniques used by a company to increase productivity by reducing the waste that occurs in the production process. This paper illustrates the application of Lean Manufacturing with problem solving using Six Sigma tool with DMAIC step in decreasing cycle time and reducing defect and rework product. In Six Sigma stage DMAIC is performed identification of existing problems by using value stream mapping so that the main causes of low productivity in the production line are examined. Next do the calculation and comparison between the target and the actual. Identify the root of the problem with tools, Line Balancing and Fishbone Diagram and propose corrective measures to reduce the problems that occur. In this paper also illustrated the improvements that have been made. In the analysis phase it is indicated that the operator's ability problem, uneven workload and the different way of processing is the root cause of the low productivity of the production line being studied. After performing improvement steps for each root of the problem and improving overall using FMEA, there is an increase in daily output by 48% from the previous daily output of 205 sets / day in the 4th week of October to be 286 sets / day in the second week of December-2017. This paper can be used as a reference for managers and engineer in running specific program improvement productivity by combining between lean and six sigma.



## ***UP COMING EVENTS***

You can find the details regarding our upcoming events by following below:

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