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Volume 1

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Volume 1

UNIVERSITAS BINA NUSANTARA

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JAKARTA, 2020

Research Catalogue 2020 Volume 1

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Preface

Praise to The Almighty, the first volume of Bina Nusantara University (BINUS) Research Catalogue has been completed. This catalogue is developed following the commitment of BINUS University to boost the quantity and quality of research and publications to realize high impact research. It also supports the achievement of the BINUS University towards a world-class university devoted to fostering and empowering the nation.

The catalogue consists of a compilation of research activities and results carried out by BINUS Faculty Member (FM), Research Interest Group (RIG), and Research Center (RC). We trust this research catalogue would pave the way for research collaboration with industry, government, national and foreign universities that eventually deliver meaningful innovations for society.

The catalogue is compiled and classified based on the BINUS Research Strategic Plan, which is in line with the United Nation Sustainable Development Goals (UN SDGs), under the following topics:

1. Food security, functional food, and agriculture
2. Energy conservation and renewable energy
3. Transportation
4. Health
5. Engineering products
6. Defense and security
7. Maritime
8. Social humanities

The catalogue has been developed by directly collecting data from FM, RIG, and RC. Some of the data are compiled from publications and research grant reports. Following one year of data collection, as many as 105 research activities of BINUSIAN have been compiled into the catalogue. However, I believe the catalogue is not exhaustive and more research is yet to be included in the catalogue. Therefore, we will continue to improve the scale of the catalogue to comprehensively reflect the existing BINUS research.

Finally, we convey our deepest gratitude to those who have contributed to the development of the catalogue, including the Research and Technology Transfer (RTT) team, FM, RIG, and RC.

Jakarta, Desember 2020
Prof. Tirta Nugraha Mursitama, S.Sos., M.M., Ph.D.

Vice Rector – Research & Technology Transfer

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HYDROPONIC AUTOMATION SYSTEM

RESEARCH LEADER: Wiedjaja Atmadja, S.Kom, M.Kom.

TEAM MEMBERS: Dr. Suryadiputra Liawatimena, Rudy Susanto, S.Kom., M.TI., Johannes, S.Kom., M.T.

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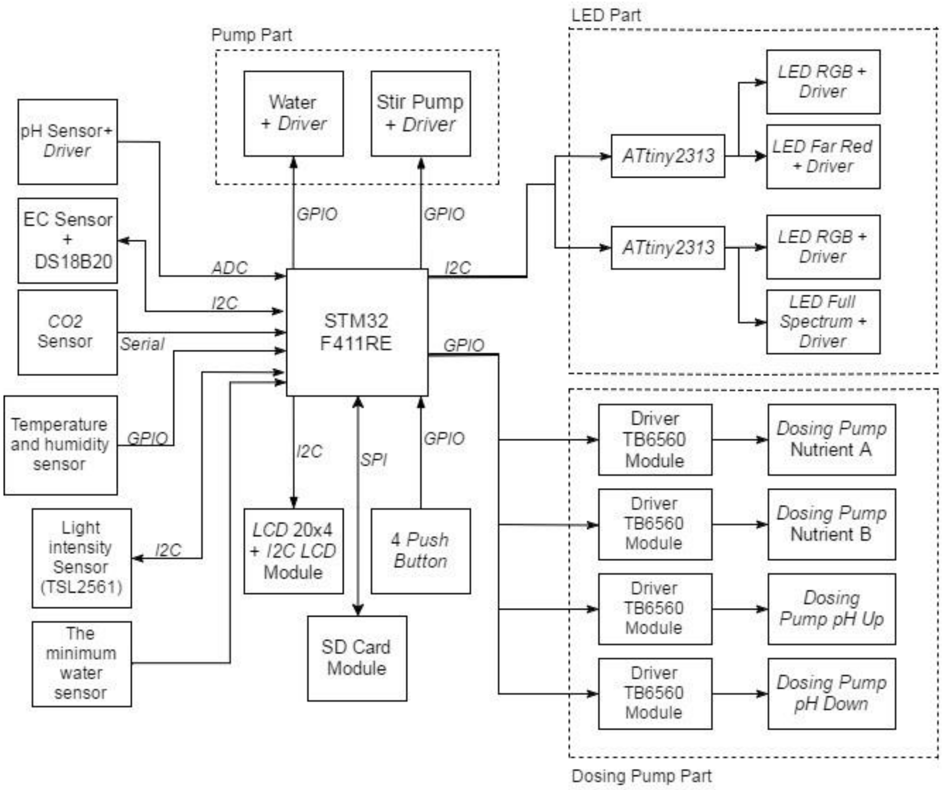
INTRODUCTION

Hydroponic is the process of growing plants without soil, plant root flooded, or moist with nutrient-rich solutions in inert material. Hydroponics has become a reality for greenhouse growers in virtually all climates. Large hydroponic installations exist throughout the world for growing flowers, vegetables, and some short period fruit like tomato and cucumber. In soilless culture, we must maintain stable pH and conductivity level of nutrient solution to make plant grow well, large variation of pH of certain time will poison plant. The research design and build a complete automation hydroponic system using IoT, from maintaining stable nutrient composition (conductivity and pH), grow light, and monitor plant environment such as CO2, temperature and humidity. All data are stored in IoT cloud.

SYSTEM DESIGN



System can perform automatic watering based timer in accordance with the existing selectio; capable of compounding levels of nutrients according to the desired levels; read the levels of pH and nutrients on the nutrient content of hydroponic ; read temperature, humidity, CO2 levels and the intensity of the light in around the system. There are also three lines growing LED light with a different configuration on each line that is used for the lighting of plants in which color of the light can be selected and the configuration of the system can be saved

RESULTS

Results show that all sensor working well and have error < 5%, except pH meter that needs more time to stable. Grow light achieves 120 µmol/m2/s that is enough to grow lettuce and leafy vegetable. System is successfully tested to grow leafy vegetable, and for longer period plant like pepper and melon, we suggest to use fertigation system.

OUTPUT

PUBLICATION

[1] Atmadja, W., Liawatimena, S., Lukas, J., Leo Nata, E. P., & Alexander, I. (2017). Hydroponic System Design with Real Time OS Based on ARM Cortex-M Microcontroller. International Conference on Eco Engineering Development. *Yogyakarta: IOP Conferences*.

[2] Tandil R, Yapson J, Atmadja, W., Liawatimena, S., Susanto R, (2018). Hydroponic System Design with Real Time OS Based on ARM Cortex-M Microcontroller. *2nd International Conference on Eco Engineering Development. IOP Conferences.*

[3] Pratama B.W, Glenn F, Atmadja, W., Liawatimena, S., Susanto R, (2019). Design and Implementation Artificial Grow Light for Germination And Vegetative Growth. *3rd International Conference on Eco Engineering Development. IOP Conferences.*

INTELLECTUAL PROPERTY

[1] HKI Disain Industri: Dosing Pump Nutrient Box Filing No: A00201702038, 2018.

SMART HYDROCULTURE CONTROL SYSTEM BASED ON IOT AND FUZZY LOGIC

RESEARCH LEADER: Dr.Eng. Nico Surantha, S.T., M.T.

TEAM MEMBERS: Dr. Suharjito, S.Si., M.T.

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INTRODUCTION

Currently, agricultural technology is developing rapidly in urban areas. One solution that can be done by the community is to create a farming system that can be done with limited land availability or what is commonly called urban farming or urban agriculture. One of the agricultural techniques used in urban farming is hydroponics. Using hydroponic farming methods requires special care to control water temperature, water level, and acidity (pH) of nutrient solutions. To produce good plants until harvest time, you must carry out these treatments with periodic checks every day. The checks carried out include checking the moisture content in the installation, the nutrients contained, the PH size, the temperature, and humidity of the air, etc. according to the dosage. If there is one of these elements, the size is not correct; either it is insufficient or excessive, it can cause plant growth that does not match the expected results. This routine that must be carried out every day with careful checks causes inefficient farming with the hydroponic method because it requires a long time and requires high maintenance costs. This, of course, will automatically impact the selling price of hydroponic plants, which becomes expensive. Even though the hydroponic method is a solution to current land limitations, it has a complicated level of care, so that it is not an efficient solution in agriculture.

METHODOLOGY

To solve the above problems, the researchers tried to solve it by combining hydroponic farming methods using IoT technology to create a smart controlling system using fuzzy logic to control all plant needs automatically. By utilizing the internet of things (IoT) technology, each hardware device in the form of sensors such as PH, temperature, and water level sensors will communicate or send data to a cloud server to be processed and monitored in real-time. Each existing sensor will be connected to Arduino to control the crop needs automatically using fuzzy logic. How the sensor works, for example, a water level sensor to measure the water content in the installation tub, if the water content decreases, the system will immediately turn on the pump to increase water. Then the EC sensor will work if the nutrient level in the installation decreases. The system will automatically add nutrients to the installation. The cloud server's data processing results will be beneficial information for farmers as an evaluation material to continue to improve their agriculture. The architecture of system is shown by Fig. 1

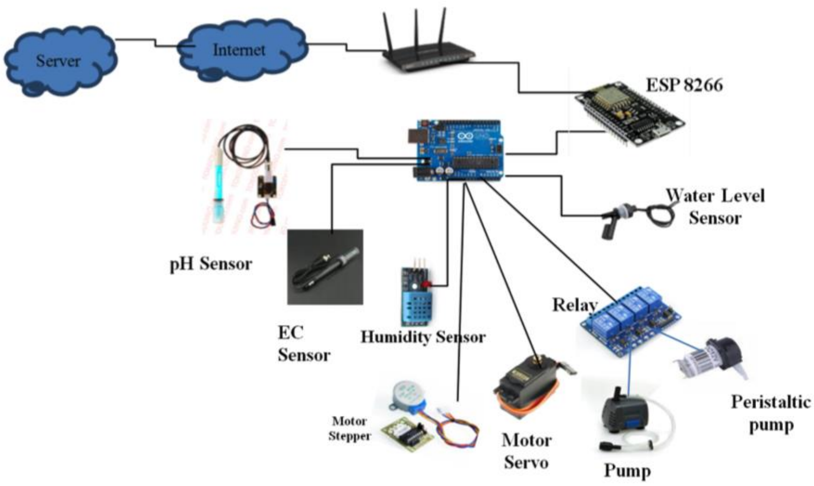

Fig. 1 System Architecture

RESULTS

This study's results are prototypes of monitoring and control tools for hydroponic plant nutrition based on IoT and fuzzy logic that have been validated in a laboratory environment. After a series of tests carried out both on the sensor and the smart controlling system based on the desired scenario, the researchers conducted experiments applying this smart controlling system directly to the plants. In this experiment, the researchers compared two installations; the first installation was a hydroponic planting which was controlled manually and the second is hydroponic con- trolled automatically using IoT. In the system controlled manually, measurements and records on nutrition and pH are carried out manually using EC meter and pH meter. If the conditions in the installation require additional water, pH nutrients will be given manually as well. This manual measurement is done every 3 days. The plants planted in these two installations are lettuce and bok choy. The experiment result shows the smart controller produces significant growth in terms of leaf width and plants height.

OUTPUT

PUBLICATION

[1] SURANTHA, N. (2020). SMART HYDROCULTURE CONTROL SYSTEM BASED ON IOT AND FUZZY LOGIC. *International Journal of Innovative Computing, Information and Control, 16*(1), 207-221.

[2] Herman and N. Surantha, "Intelligent Monitoring and Controlling System for Hydroponics Precision Agriculture," *2019 7th International Conference on Information and Communication Technology (ICoICT)*, Kuala Lumpur, Malaysia, 2019, pp. 1-6, doi: 10.1109/ICoICT.2019.8835377.

INTELLECTUAL PROPERTY

[1] N. Surantha, “Ez-Hydroponix application”, copy right, EC00201979356, 1 November 2019

THE RODENT TUBER SUPERIOR MUTANT PLANT AS ANTICANCER FOR DEVELOPMENT OF THE STANDARDIZED HERBAL MEDICINES

RESEARCH LEADER: Dr. Nesti F. Sianipar, S.P., M.Si.

TEAM MEMBERS: Prof. Idris Gautama So, Ph.D, Yuni Elsa Hadisaputri, MBS., Ph.D., Apt., Dr. Ragapadmi Purnamaningsih, S.P., M.Si, Khoirunnisa Assidqi, S.Pi., M.Si

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INTRODUCTION

Rodent tuber (Typhonium flagelliforme Lodd.) is an herbal plant that has anticancer activity so that it has potential as a source of raw material for anticancer drugs. Research activities have been carried out through in vitro biotechnology (somaclonal variation) in combination with gamma ray irradiation to produce mutant plants. These mutant plants have been detected to have genetic changes in first generation (MV1)1. The second generation (MV2) and third generation (MV3) mutants have genetic changes through RAPD molecular markers compared to their mother plant[2] and the fourth generation mutant clones (MV4) are selected to produce stable mutants as superior rodent tuber mutants[2, 3].

The mutation results obtained by new superior mutant plants that have high anticancer active ingredients compared to the mother plant[3]. The superior mutant clone which has high anticancer content is superior rodent tuber mutant[4]. GC-MS analysis showed that the leaf of MV4 mutant clones contained 5 types of anticancer compounds whose quantity was higher than the mother plant[5]. Anticancer bioactive compounds in tubers are hexadecanoic acid etyl ester, octadecanoic acid, squalene, eicosane and octacosane and 5 types of anticancer compounds on leaves such as hexadecanoic acid ethyl ester, hexadecanoic acid methyl ester, squalene, eicosane and octacosane. Rodent tuber mutant clones KB 6-1-3-4 and KB 6-9-5 were extracted with ethanol have high activity to kill breast cancer cells[6]. The ethanol extract, ethyl acetate fraction and water fraction in rodent tuber superior mutant were tested for anticancer activity against MCF-7 breast cancer cells[7]. The extract of rodent tuber mutant plant have been known to encourage apoptosis in some cancer cells in vitro.

This study has been purposed for the last five years to develop commercialization products as anticancer drugs and functional beverages from the extract of rodent tuber superior mutant plant. There are many opportunities for commercialization to encourage the result of this study. The commercialization products can be generated as functional beverages, anticancer standardized herbal medicines, and anticancer drugs. The development of standardized herbal medicines has been in the early phase to determine the toxicity acute, subchronic, the side effects and to obtain the lethal dose 50% (LD50) of the rodent tuber superior mutant plant on testing animals (mice) in vivo. On the other side, functional beverages have a great occasion to sell the product from the leaves of rodent tuber superior mutant plant as ready-to-drink tea. It can be directly consumed and has an impact on the health of human body to prevent cancer.

PROPOSED METHOD

The proposed method of this study should be ensuring the standardized herbal medicine products with rodent tuber superior mutant plant ingredients that must go through preclinical and clinical studies, as seen in Figure 1. The standardized herbal formulations that have curative or curing effects and have gone through toxicological tests (formal proof of drug safety requirements), in vivo efficacy tests, safety tests through acute toxicity tests and teratogenic tests, clinical trials (prevention and cure of disease or symptoms, and pharmacological tests (proving the effect or effect of the drug).

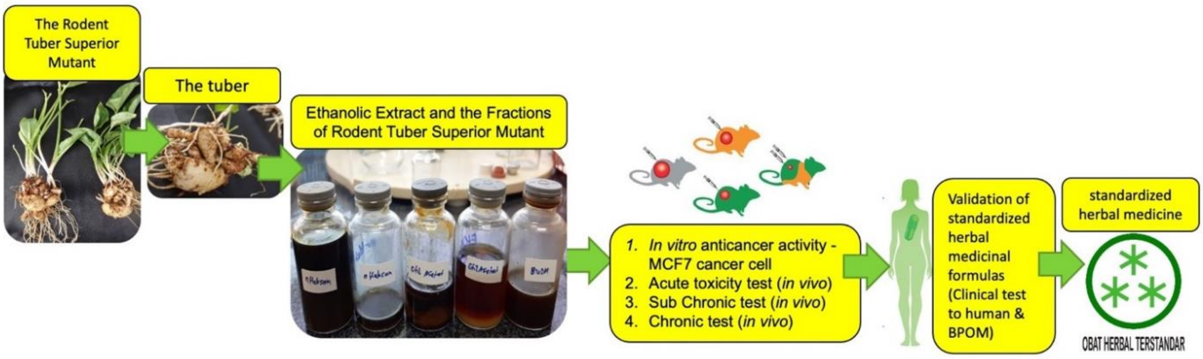

Figure 1 The flow chart of the standardized herbal medicine from rodent tuber superior mutant plant.

RESULTS

The IC_{50} values of the sample are calculated based on the regression equation of the percentage of cell viability versus the extract and fraction concentration. IC_{50} values of samples in ethanol extract and ethyl acetate fraction showed strong cytotoxic activity, as shown in Figure 2 and 3. IC_{50} values in ethanol extracts of rodent tuber superior mutant were 1.60 µg mL^{-1}, whereas for the IC_{50} value in the ethyl acetate fraction was 1.09 µg mL^{-1}.

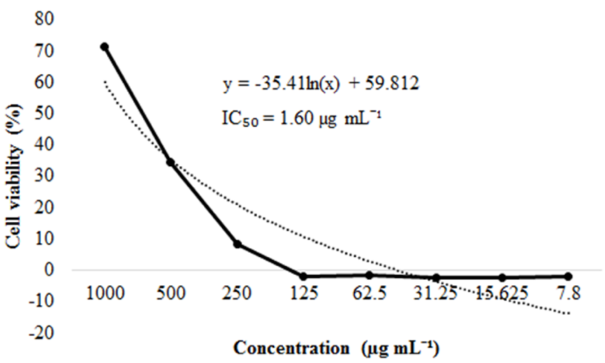

Figure 2 The inhibition of cell viability of rodent tuber mutant plant in ethanolic extract on MCF-7 cell line.

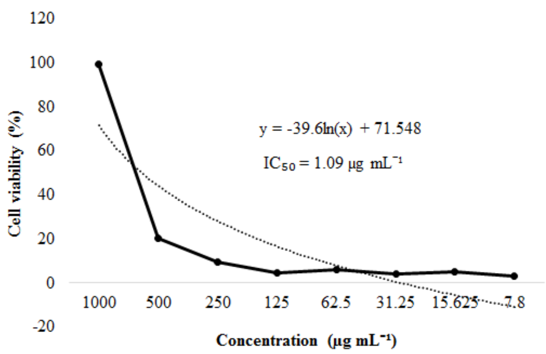

Figure 3 The inhibition of cell viability of rodent tuber mutant plant in ethyl acetate fraction on MCF-7 cell line.

The cytotoxic activity of ethanolic extracts of rodent tuber superior mutant against normal cells or healthy cells had an IC_{50} value of -81.72 µg mL^{-1} (Figure 4). This indicates that the ethanolic extract of rodent tuber superior mutant does not inhibit cell proliferation and does not have toxicity to normal cells. The effect of death that occurs on MCF-7 cells is probably caused by the content of secondary metabolites, the major compounds found in ethanol extracts of the rodent tuber superior mutant through GC-MS analysis such as hexadecanoic acid and squalene[6].

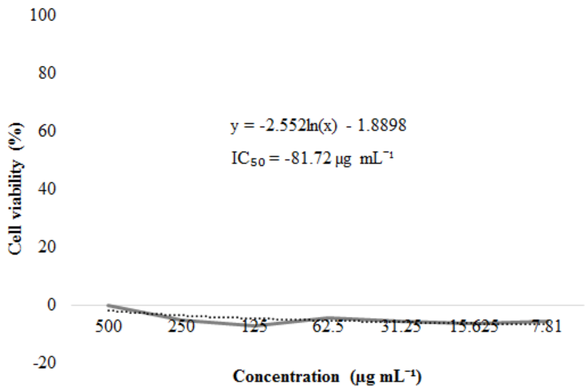

Figure 4 The inhibition of cell viability of rodent tuber mutant plant in ethanolic extract on CV1 cell line (normal cell).

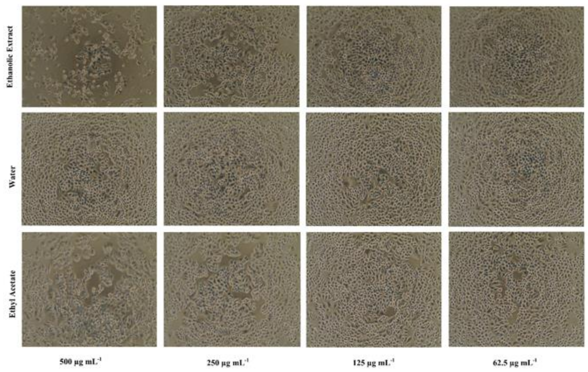

Figure 5 The effect of ethyl acetate and water fraction of rodent tuber mutant plant on the morphology of MCF-7 cell. The cells were incubated for 24 h in the different of concentrations 500, 250, 125, 62.5 µg mL^{-1}. The magnification is 200x.

The morphology of MCF-7 cells in the ethyl acetate fraction shows anticancer activity against breast cancer cell lines by inducing apoptosis, cells shrinking (Figure 5). The superior ethanol extract of rodent tuber superior mutant not toxic to healthy cells. This proves that the ethyl acetate fraction of superior mutant can be a potential anticancer agent by having an effect for cancer chemotherapy, which can be very important for human health. This is a great opportunity for the pharmaceutical research area in the development of standardized herbal medicines to overcome cancer problems.

OUTPUT

PUBLICATION

[1] N. F. Sianipar, Ariandana, W. Maarisit, *Procedia Chemistry*, 14, 285-294 (2015).
[2] N. F. Sianipar, R. Purnamaningsih, D. L. Gumanti, V. M. Rosaria, *Pertanika Journal of Tropical Agricultural Science*, 40, 185-02 (2017).
[3] N. F. Sianipar, R. Purnamaningsih, Chelen, *Jurnal Teknologi*, 78, 35-40 (2016).
[4] N. F. Sianipar, R. Purnamaningsih, *Pertanika Journal of Tropical Agricultural Science*, 41, 305-20 (2018).
[5] N. F. Sianipar, R. Purnamaningsih, I. Darwati, D. Laurent, *Jurnal Teknologi*, 78, 1-7 (2016).

[6] N. F. Sianipar, K. Assidqi, R. Purnamaningsih, T. Herlina, *Asian Journal of Pharmaceutical and Clinical Research*, 12, 185-189 (2019).

INTELECTUAL PROPERTY

1. Sianipar, N. F., & Purnamaningsih, R. 2020. Keladi Tikus Tanaman Penghasil Obat Kanker. Penerbit ANDI, Yogyakarta (Book).
2. Sianipar, N. F., Purnamaningsih, R., Darwati, I. Binus University. Plant Variety Protection (PVP) Rights. Typonesiaraga. No. HKI: 00490/PPVT/S/2020. Center for Plant Variety Protection and Agricultural Licensing, Ministry of Agriculture of the Republic of Indonesia.
3. Sianipar, N. F., Purnamaningsih, R., Darwati, I. Binus University. Plant Variety Protection (PVP) Rights. Tipobio. No. HKI: 00489/PPVT/S/2020. Center for Plant Variety Protection and Agricultural Licensing, Ministry of Agriculture of the Republic of Indonesia.

TEMPEH EXTRACT PROTECTS HePG2 CELLS AGAINST OXIDATIVE STRESS-INDUCED CELL DEATH

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TEAM MEMBERS: Andreas Romulo, S.T.P., M.Sc., Ph.D.

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INTRODUCTION

Tempeh is an Indonesian fermented traditional food made from soybeans inoculated with Rhizopus oryzae and/or Rhizopus oligosporus. It exerts antioxidant activities mainly due to the presence of bioactive compounds known as isoflavones. We previously observed that tempeh ethanol extract increased the basal expression of some cellular antioxidant enzymes including catalase and superoxide dismutases in HepG2 cells in vitro. In this study, we showed that pretreament with tempeh extract protected HepG2 cells from oxidative stress triggered by TBHP (tert-butyl hydroperoxide) by reducing cellular ROS (reactive oxygen species) generation, TBARS (thiobarbituric acid reactive species) levels, caspase-3 activity and eventually cell death. We hypothesize that the resistance of cells pretreated with tempeh extract towards the toxicity of TBHP was in part due to the upregulation of cellular antioxidant enzymes.

METHODOLOGY

All assays were performed by fluorimetry according to the instructions of their respective manufacturer using a fluorescence spectrometer (VersaFluor, Bio-Rad Laboratories, CA, USA). Cellular ROS were quantified with a fluorogenic dye DCFDA/H2DCFDA-Cellular ROS detection assay kit (Abcam). Cellular TBARS (thiobarbituric acid reactive substances) were analyzed with OxiSelect TBARS assay kit (Cell Biolabs). The analysis of caspase-3 activity was done using caspase3 activity assay kit containing a fluorogenic substrate Ac-DEVD-AMC (Cell Signaling Technology). Cell viability was quantified with resazurin cell viability kit (Cell Signaling Technology). The percentage of viable cells was determined by dividing the RFU (relative fluorescence unit) of the corresponding sample with the RFU of control (untreated cells at t=0 h).

RESULTS

Our results show that pretreatment with tempeh ethanol extract strongly protects HepG2 cells against TBHP-induced oxidative stress by reducing ROS generation, TBARS formation, caspase3 activity and, eventually, cell death. We suggest that such protective effects would be due to the upregulation of cellular antioxidant enzymes mediated by tempeh extract during pretreatment, as observed in our previous study. As a whole, our findings provide a novel insight into developing tempeh as a functional food offering potential health-related benefits to humans beyond nutritional benefits.

OUTPUT

PUBLICATION

[1] Surya, R., & Romulo, A. (2020, October). Tempeh Extract Protects HepG2 Cells Against Oxidative Stress-Induced Cell Death. In *Journal of Physics: Conference Series* (Vol. 1655, No. 1, p. 012110). IOP Publishing.

SIMULATING OFF-GRID PV SYSTEM FOR REMOTE AREA WITHOUT ELECTRICITY

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INTRODUCTION

The Photovoltaic (PV) system has gained significant interest in recent years due to concerns on green energy production to save the earth for future generations. As the PV system is cleaner and more sustainable as an energy source, it grows faster than other renewable energy sources, such as wind turbines. Therefore, a simulation of the off-grid PV system is needed to assess the performance of the PV system before the installation.

METHODOLOGY

An off-grid PV model system configuration is used, as depicted in Figure 1. The simulation model consists of the PV model, battery model, converter model, controller model, inverter model, and load model.

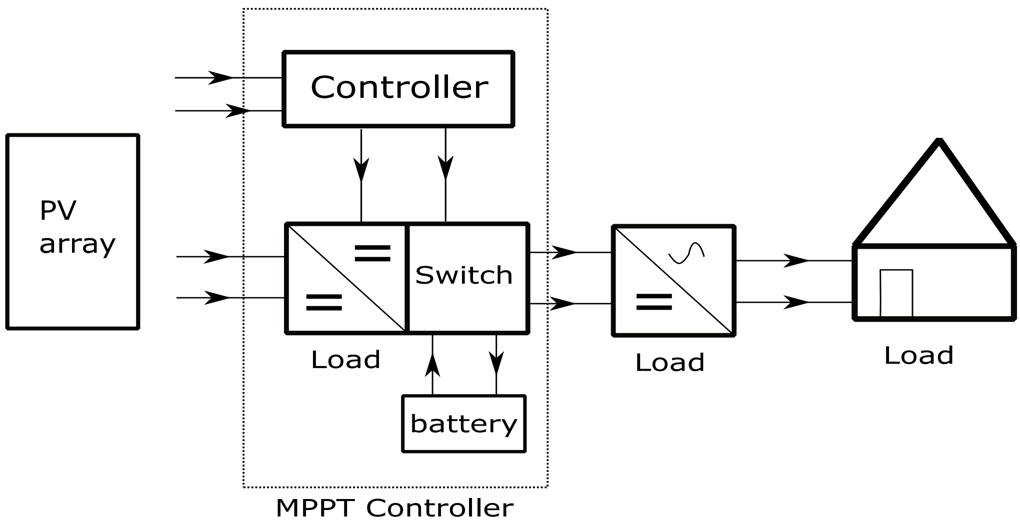

Figure 1 Solar Off-Grid PV System

RESULTS

This research is in preliminaries state. Therefore, there are no paper results yet.

ECONOMIC ANALYSIS ON THE APPLICATION OF SOLAR PANELS ON AN AQUACULTURE

RESEARCH LEADER: Religiana Hendarti, S.T., M.T., Ph.D

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INTRODUCTION

An initial economic feasibility study of solar panels application for electricity energy source of an aquaculture in Jakarta was conducted to investigate the potential solar panel as the energy alternative for the electricity source. Currently, the source of electricity is mainly from gasoline. Therefore, the aims of this study include the investigation of the improvement of the life cycle cost (LCC), the net present value (NPV) and The Saving Investment Rate (SIR), as well as the payback period. In order to fulfill these objectives, software namely "Building Life Cycle Cost" or BLCC is applied. The results show that the SIR is more than 1, which means the use of solar panels is considerably beneficial for the aquaculture. The type of solar panels used in this study is a transparen panels made of amorphous solar cell with the efficiency of 0.079.

METHODOLOGY

This study applies a software called Building Life Cycle Cost (BLCC) version 5 which is developed by the US Department of Energy. This software is particularly useful for analyzing and predicting the "cost" and benefits of energy conservation-oriented projects. In addition, another advantage is to evaluate two or three alternative systems to see the lowest life cycle cost. The aspects required for the calculation of this study are energy cost and capital component. The capital component is include: (a) investment cost, (b) replacement cost and (c) operating, maintenance and repairs, including annually and non-annually recurring costs. As for the analysis, the parameters are service life, inflation rate and discount rate

RESULTS

This study has simulated a large production of electricity from a solar panel made of transparent amorphous silicone technology with an efficiency of 7.9% and 56 Watt peak. The use of the roof of solar panels is "cost effective", this advantage is seen from the improvement of Life cycle cost value of 7.7% and SIR value of more than one or 1.09. Another benefit is that after 11 years the return value of investment and the rest for 14 years (from service life time of solar panel which is 25 years old) the user can reap the result from the electricity production. The SIR is slightly improved since the use of solar technology, amorphous transparent solar panel. Essentially, this technology is still low in the efficiency. However, since the need of light for the Keramba, only this technology that is possible to be applied at the aquaculture.

OUTPUT

PUBLICATION

[1] Hendarti, R., & Septiafani, L. G. (2020). Economic analysis on the application of solar panels on an aquaculture. *E&ES*, 426(1), 012073.

INFLUENCE OF TEMPERATURE ON FORCE VALUE CHANGES IN BRIDGE CABLES

RESEARCH LEADER: Dr.Eng. Ir. Made Suangga, M.T.

TEAM MEMBERS: Irpan Hidayat, S.T., M.T, Ir. Juliastuti, M.T.

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INTRODUCTION

Cable/wire is the main element of a bridge structure. The temperature changes that occur in the bridge elements can affect the the cable force value. In assessing the magnitude of the force change that occurs in the cable, it is necessary to consider the influence of the ambient temperature. The results of this study provide a reference in determining the amount of cable force in assessing the overall condition of the bridge and provide a better understanding in interpreting the measurement results. With this research, it is hoped that a better approach will be obtained in making 3-dimensional simulations of the entire bridge. so that it can be used as a reference in assessing the condition or carrying capacity of the bridge based on changes in temperature and the magnitude of the cable tensile force. This is very useful for evaluating the condition of the bridge and handling that must be done immediately, to maintain the comfort and safety of bridge users.

METHODOLOGY

The stages of the research are described as follows: a) This research begins by identifying the problems carried out in relation to the topic of this research discussion. b) After identifying the problem, the next step is to find a theoretical basis or study literature. Reference material for literature studies is in the form of books that contain the theoretical basis of the previously identified problems. c) The next step is to determine the bridge to be analyzed by collecting field data in the form of bridge geometry and analyzed cable dimensions. One alternative research location is Jembatan Merah Putih. d) Calculating the effect of temperature on the tensile force in the 1 cable system with simple calculations/ formulas and the finite element model of the 1 cable system e). Creating a 3-dimensional model of the bridge structure to be studied f). Perform validation on the 3-dimensional model of the bridge that has been made. g) Calculating the effect of temperature changes on the force in the cable based on the 3-dimensional model of the bridge structure that was created. h) Compare the results obtained in step (d) and step (g) and make conclusions. i) Analyze the effect of temperature changes in the elements of girders, pilons and cables on changes in tensile forces in cables using a 3-dimensional model of the bridge. j) Collecting field data on air temperature variations, temperature variations on cable elements, temperature variations on bridge pylons and temperature variations on bridge girders. k) Determine the amount of cable force variation on the bridge based on changes in temperature from field measurements using the finite element model of the bridge. i) Collects force data on the same wire as measured by an Electromagnetic Sensor (EM). m) Knowing the comparison of cable force analysis using cable force calculations with computer application programs and direct measurement results with Electromagnetic (EM) sensors. n) Formulate a bridge cable force conclusion based on the temperature change value that occurs based on the testing method that has been done.

RESULTS

This study shows that the results of the analysis of the effect of changes in air temperature on the red and white bridge using the Midas / Civil program can be explained using the elasticity equation. The results of the program analysis is almost close to the calculation results using the elasticity equation. However, for this calculation, the value added in the length of the cable is required due to changes in air temperature. The pattern of change in cable force resulting from the Midas/Civil program analysis is similar to the pattern of change in cable force from the electromagnetic sensor measurement.

OUTPUT

PUBLICATION

[1] M. Suangga & I. Hidayat, "Temperature effect on cable tension forces of cable-stayed bridge," In *IOP Conference Series: Earth and Environmental Science*, vol. 195, no. 1, p. 012009. IOP Publishing, December 2018.

[2] M. Suangga, "Temperature effect on tension force of stay cable of cable-stayed bridge," *International Journal of Engineering and Advanced Technology (IJEAT)*, vol. 9, no. 1, 2019. ISSN: 2249 – 8958 https://www.ijeat.org/download/volume-9-issue-1/

THE DIFFERENCES OF WORKLOAD, FATIGUE, EMOTIONAL INTELLIGENCE AND DRIVING BEHAVIOR BASED ON AGE, EXPERIENCE, TIME ON TASK PER TRIP AMONG INDONESIAN INTER-CITY BUS DRIVERS

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TEAM MEMBERS: Prof. Ir. Bahtiar S. Abbas, M.Sc., Ph.D.

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INTRODUCTION

One of the factors affecting road accidents is driving behavior. The driving behavior influences by demographic aspects, fatigue, work condition, and others. To correct a behavior tendency, it is important to enhance the understanding of the influence of the demographic aspect to some factors related to the behavior tendency. This study was intended to measure the effect of age, driving experience, and time on task per trip to the workload (WL), fatigue (F), recovery needs (KP), and emotional intelligence (EI) as factors that influence driving behavior (DD).

METHODOLOGY

To develop the research, a literature study was conducted to list contributing factors for driving behavior. In this research, several factors were chosen to confirm previous findings. A set of questions as a research instrument was composed based on various literature. The instrument distributed to inter-city bus drivers from several bus companies. A total of 201 responds to questionnaires were obtained, but only 167 data processed further. The reliability of this instrument is quite good as indicated by the Cronbachalpha of 0.733 and the significant internal consistency result.

RESULTS

The Kruskal Wallis test result showed that there were no differences among the above variables based on age groups (<35 y, 35-45 y, and> 45y). However, emotional intelligence differed between driving experience groups (<5 y, 5-10 y,> 10 y) and between time on task per trip (<3 hr, 3-5 hr, > 5 hr). The fatigue level also expressed differently of times on task per trip. Based on the result, it suggested to include emotional intelligence assessment in a corrected tendency behavior. The result also emphasized on time on task as a primary factor in fatigue mitigation to minimize risk accident.

OUTPUT

PUBLICATION

[1] Zuraida, R., & Abbas, B. S. (2020). *"The differences of workload, fatigue, emotional intelligence and driving behavior based on age, experience, time on task per trip among Indonesian inter-city bus drivers."* E&ES, 426(1), 012132.

PROTOTYPE AND APPLICATION OF PORTABLE SLEEP QUALITY MONITORING BASED ON CLOUD COMPUTING AND MACHINE LEARNING

RESEARCH LEADER: Dr. Eng. Nico Surantha, S.T., M.T.

TEAM MEMBERS: Dr Sani Muhamad Isa S.Si, M.Kom; Benfano Soewito, M.Sc., PhD.

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INTRODUCTION

Sleep quality is one of the most important factors for human physical and mental health. Poor sleep quality can increase the risk of chronic physical and mental illnesses such as heart failure, coronary heart disease, depression, and bipolar-disorder. Daily monitoring is one way to maintain sleep quality. The gold standard for sleep quality monitoring is polysomnography (PSG) which is impossible to be conducted in daily basis due to high cost and complexity in implementation. The emergence of wearable and contactless sensor technology introduces the possibility of daily sleep monitoring system. With a reliable daily monitoring system that is easy to implement, medical personnel and users can obtain comprehensive sleep quality data and analysis. The results of this monitoring can later be used to improve the users' lifestyle related to sleep quality. In this study, researchers will use cloud computing technology, machine learning, and wireless sensors to build prototypes and sleep quality monitoring applications that are reliable and easy to implement. By implementing a sleep quality monitoring system, users can make preventive efforts against the negative effects that can be caused by poor sleep quality.

SYSTEM DESIGN

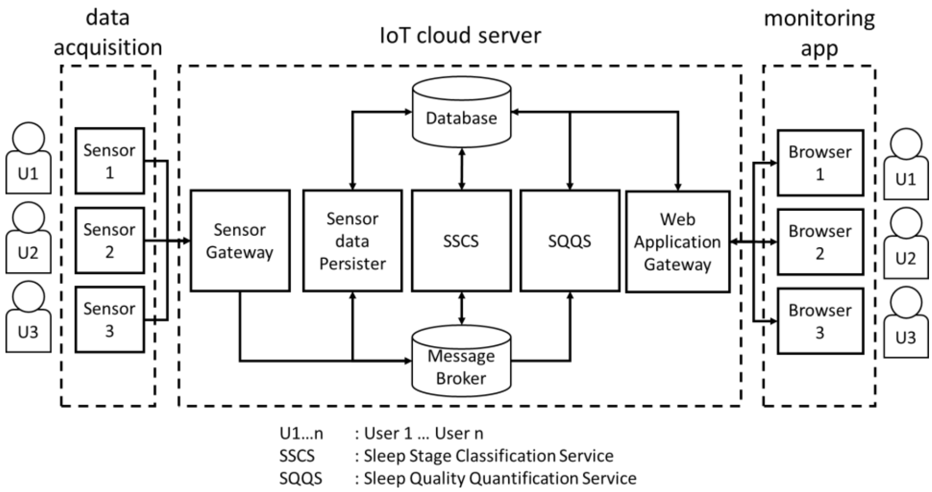

Figure 1. Architecture of IOT Plaform for Sleep Quality Monitoring

Figure 1 shows the overall micro-services architecture of the proposed sleep quality monitoring system. There are three main parts, namely data acquisition, IoT cloud server, and monitoring application. The system obtains input from the data acquisition component, which is a wireless sensor. The IoT cloud server as a data processing center consists of five services, one message broker, and one database. On the users' side, there is a monitoring application which is a client-side web application that provides administrative functions and displays a dashboard. For the IoT cloud server, we propose a sleep stage classification algorithm method, which is a combination of weighted-extreme learning machine (WELM) and particle swarm optimization (PSO). This method is used to classify the stages of light sleep, deep sleep, REM, and awake which will later be displayed in the monitoring application dashboard.

RESULTS

There are several evaluations conducted in this study, including evaluating system performance (throughout, response time, memory / RAM usage), and evaluating the accuracy of the classification of sleep stages. Figure 2 shows a comparison of memory consumption compared to conventional architectural models. The results show that the proposed architecture produces the most efficient use of memory per additional sensor gateway. While Table 1 shows that the proposed WELM-PSO method achieves the highest classification accuracy for 3 classes of sleep stages, which is 78.78%.

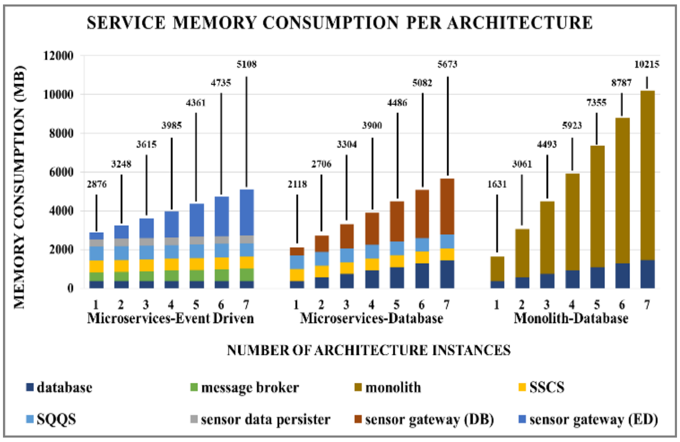

Figure 2. Comparison of Memory Consumption

Table 1. Performance of Sleep Stage Classification Method

Method	Number of features	Accuracy
ELM-PSO (Lesmana et al., 2018)	18	76.77%
Deep neural network (Wei et al., 2018)	11	77%
Random-Forest (Yücelbaş et al., 2018)	15	77.02%
WELM-PSO (Proposed method)	**10**	**78.78%**

OUTPUT

PUBLICATION

[1] Surantha, N., Lesmana, T. F., & Isa, S. M. (2021). Sleep stage classification using extreme learning machine and particle swarm optimization for healthcare big data. Journal of Big Data, 8(1), 1-17.

[2] Surantha, N., Utomo, O. K., & Isa, S. M. (2020). High-Performance and Resource-Efficient IoT-based Sleep Monitoring System. In 2020 IEEE 91st Vehicular Technology Conference (VTC2020-Spring) (pp. 1-5). IEEE.

[3] Utomo, O. K., Surantha, N., Isa, S. M., & Soewito, B. (2019). Automatic Sleep Stage Classification using Weighted ELM and PSO on Imbalanced Data from Single Lead ECG. Procedia Computer Science, 157, 321-328.
[4] Arif, N. H., & Surantha, N. (2019). IoT Cloud Platform Based on Asynchronous Processing for Reliable Multi-user Health Monitoring. In Conference on Complex, Intelligent, and Software Intensive Systems (pp. 317-330). Springer, Cham.

INTELLECTUAL PROPERTY

[1] N Surantha, O.K. Utomo. ”GoodSleep Aplikasi Pemantau Kualitas Tidur,” Hak cipta EC00201979174, 000161697, 31 Oktober 2019.

MICROENCAPSULATION INCREASES SURVIVAL OF THE PROBIOTIC LACTOBACILLUS PLANTARUM IS-10506, BUT NOT ENTEROCOCCUS FAECIUM IS-27526 IN A DYNAMIC, COMPUTER-CONTROLLED IN VITRO MODEL OF THE UPPER GASTROINTESTINAL TRACT

RESEARCH LEADER: Prof. Ir. Ingrid Suryanti Surono, M.Sc., Ph.D.

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INTRODUCTION

Dadih is a traditional fermented buffalo milk consumed by the Minangkabau people in West Sumatera Province, Indonesia, especially in Bukittinggi, Padang Panjang, Solok, Lima Puluh Kota, and Tanah Datar districts. The aim of this study was to test the effect of microencapsulation on the survival of two probiotic strains isolated from Dadih in a dynamic, computer-controlled in vitro model of the upper gastrointestinal (GI) tract (TIM-1), simulating human adults

METHODOLOGY

Free or microencapsulated probiotics, Lactobacillus plantarum IS-10506 or Enterococcus faecium IS-27526, resuspended in milk were studied for survival in the complete TIM-1 system (stomach + small intestine) or in the gastric compartment of TIM-1 only. Hourly samples collected after the ileal-caecal valve or after the pylorus were plated on MRS agar (for Lactobacillus) or S&B agar (for Enterococcus). Survival of the free cells after transit through the complete TIM-1 system was on average for the E. faecium and L. plantarum 15·0 and 18·5% respectively. Survival of the microencapsulated E. faecium and L. plantarum was 15·7 and 84·5% respectively. The free cells were further assessed in only the gastric compartment of TIM-1. E. faecium and L. plantarum showed an average survival of 39 and 32%, respectively, after gastric passage.

RESULTS

The result of this study shows that there is similar sensitivity to gastric acid as well as survival after complete upper GI tract transit of free cells, but microencapsulation only protected L. plantarum. Survival of microencapsulated L. plantarum IS-10506 is increased compared to free cells in a validated in vitro model of the upper GI tract. It increases its use as an ingredient of functional foods.

OUTPUT

PUBLICATION

[1] Surono, I., Verhoeven, J., Verbruggen, S., & Venema, K. (2018). Microencapsulation increases survival of the probiotic Lactobacillus plantarum IS-10506, but not Enterococcus faecium IS-27526 in a dynamic, computer-controlled in vitro model of the upper gastrointestinal tract. *Journal of applied microbiology*, 124(6), 1604-1609.

INTEGRATED BATCH PRODUCTION SCHEDULING AND MAINTENANCE SCHEDULING TO MINIMIZE TOTAL PRODUCTION AND MAINTENANCE COSTS IN JUST IN TIME ENVIRONMENT

RESEARCH LEADER: Dr. Zahedi, SSi., MT.

TEAM MEMBERS: Dr. Rinto Yusriski, ST., MT., Dr Ashadi Salim, Haris, H., SE., MAk.

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INTRODUCTION

Delay in delivering the order in a manufacturing company to the consumer can be caused by several factors, such as no coordination between production and maintenance divisions in the manufacturing system. The following conditions may also cause it. First, the operation of a busy machine has to be stopped as the scheduled maintenance activity should be started. Second, the machine can break down if the scheduled maintenance activity is not conducted.

The following case describes a real example. Company X gets some orders of machinery works in large quantities from its partner industries. It processes the orders in batches with constant sizes determined by the production division. Meanwhile, the maintenance division carries out the machine repair only when a failure of the machine occurs (reactive maintenance). Late delivery orders to consumers cannot be avoided if machine repair time takes a long time because the machine is broken down or the busy machine should be stopped for maintenance. This condition frequently occurs.

This research deals with integrating a model of batch scheduling and maintenance scheduling on a single deteriorating machine that produces many parts of multiple items to be delivered on a common due date. The decision variables are the number and schedule of preventive maintenance, the length of the interval between two successive preventive maintenances (production run), and the number and schedule of batches in each production run. The model objective is to minimize total cost consisting of the holding cost of the work in process, the holding cost of finished parts, setup cost, preventive maintenance cost, corrective maintenance cost, and rework cost.

METHODOLOGY

This research develops the models that integrate batch production and maintenance scheduling. It considers any change in each production and the total holding cost for multiple items processed on a single machine for g production and g PM intervals (see Figure 1). Moreover, Figure 2 demonstrates batches position for two machines that include preventive and corrective maintenance in just in time environment.

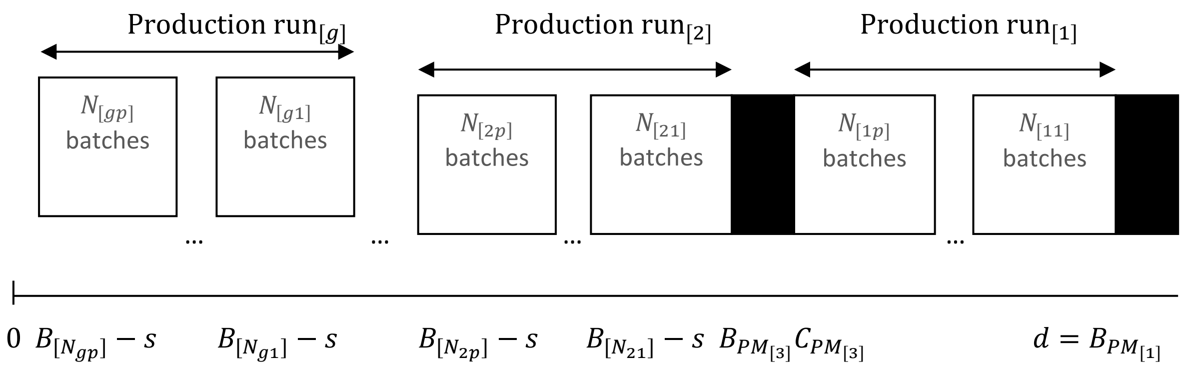

Figure 1. Batches Position in Multiple Items Single Machine
with g Production Running in Total Actual Flow Time Criteria

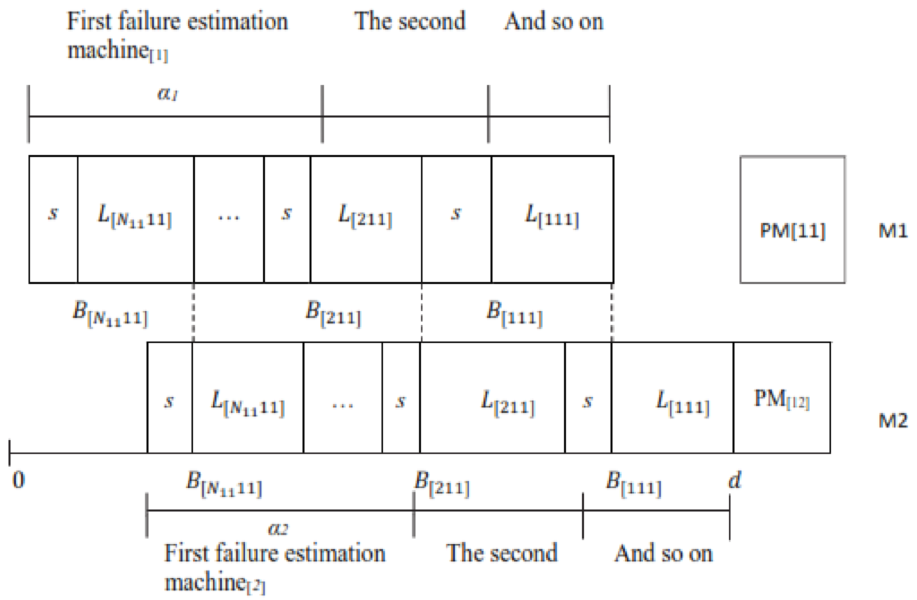

Figure 2. Batches Position for Two Machines in Total Actual Flow Time Criteria

RESULTS

The model integrates batch scheduling and maintenance scheduling to minimize total cost consisting of inventory holding cost, setup cost, maintenance costs, and rework cost for non-conforming parts. The problem in the model is divided into two. First, it determines the batch production schedule. Second, it determines the expected number of corrective maintenance and the expected number of non-conforming parts obtained from determining the production schedule. The solution is to accommodate a trade-off in the following two things. An increase in the number of batch (length of production run) up to a certain limit will minimize the total inventory holding cost. Meanwhile, an increase in the production length will imply an increase in the number of non-conforming parts and corrective maintenance.

OUTPUT

PUBLICATION

[1] Z. Zahedi, A. Salim, R. Yusriski, and H. Haris, "Optimization of an Integrated Batch Production and Maintenance Scheduling on Flow Shop with Two Machines," *Int. J. Ind. Eng. Comput.*, vol. 10, no. 2, pp. 225–238, 2019..

[2] Z. Zahedi, "Integrated Batch Production and Maintenance Scheduling to Minimize Total Production and Maintenance Costs with a Common Due Date Constraint," in *Industrial Engineering*, IntechOpen, 2019.

CUSTOMIZABLE INTEGRATED SMART FOOD CABINET AND REFRIGERATOR

RESEARCH LEADER: Dr. Rinda Hedwig

TEAM MEMBERS: Rico Wijaya, S.Kom, MTI.

LEADER EMAIL: rinda@binus.edu

INTRODUCTION

Innovation, according to Oxford Advanced Learner's Dictionary, introduces new things, ideas, or ways of doing something; or a new idea, way of doing something, and others that have been introduced or discovered (Hornby et al., 2010). The definitions refer to innovation as a finished product, new idea, or new method. To innovate, it does not mean that one must create something new. It is more about re-thinking old ideas, tweaking it, looking at it from different angles until discovering that more potentials can be drawn from these old and tired ideas. As a result, there has to be a process involved in innovation. This research presents an implementation of the design thinking process developed by IDEO and Riverdale Country School in New York. It is also discussed in a book by Vogel, (2014). The framework of the design thinking process will be applied to create new and more modern motifs of one of traditional Indonesian cloth, batik. Specifically, it is the Chinese-influenced Lasem Batik which is a traditional batik found in Lasem, Rembang, Central Java.

METHODOLOGY

The researchers focus more on the smart food cabinet since the smart refrigerator is discussed in different papers. As seen in Figure 1, the load cell data are sent and processed in Arduino. The result is sent directly to Raspberry Pi to be combined with the data from the smart refrigerator. The combined data are processed into information about the availability and the weight measured for each item. The information can be seen in both Android-based smartphone and LCD. The users can order the items from the stores by sending short messages (SMS) or using WhatsApp (WA) application. Instead of information on the available items, the smart food cabinet shows the recipes according to the combined available items from both smart refrigerators. It can be accessed only from LCD temporarily.

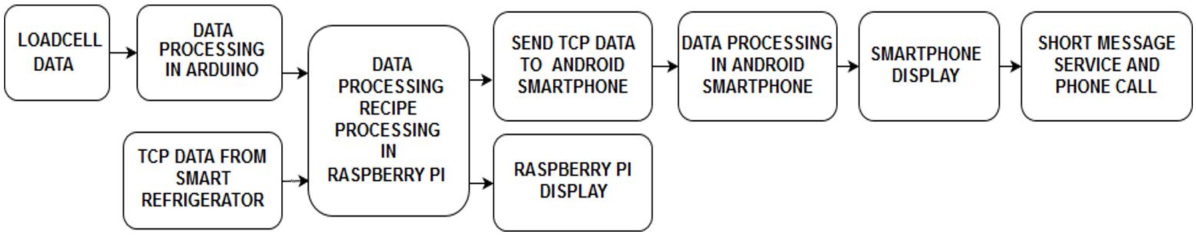

Figure 1 Diagram Block of the System

RESULTS

Designing and building a smart food cabinet system that can receive data from the smart refrigerator have been successfully done. The data from each sensor are successfully transmitted to the embedded system based on Arduino and Raspberry Pi in real-time transmission. The information about the availability of items in the smart food cabinet and smart refrigerator can be accessed from LCD or smartphone. It also leads to the selection of the desired recipe according to the available items. The user can customize the smart module in this project by using the current cabinet and refrigerator without buying new ones. In the future, the system will be combined with a smart table for calories information to make the users have additional benefits from this project.

OUTPUT

PUBLICATION

[1] T. L. Pratama, I. R. Akbar, W. Hartanto, and R. Hedwig, "Smart Refrigerator that Guides User to Provide Recipe in Accordance to Items Availability," *Internetworking Indones. J.*, vol. 10, no. 1, pp. 23–28, 2018.

[2] C. Manuel, J. Avila, L. Budiman, R. Wijaya, and R. Hedwig, "Customizable Smart Food Cabinet and Refrigerator.," *Pertanika J. Sci. Technol.*, vol. 27, no. 1, pp. 143–157, 2019.

INTELLECTUAL PROPERTY

[1] H.Rinda, "Modul Pintar Multifungsi Untuk Lemari Penyimpan Bahan Makanan Dan Bumbu Dapur Yang Terintegrasi Dengan Lemari Pendingin Multifungsi", patent, S00201806060, 2018

[2] H.Rinda, "Lemari Pendingin Multi Fungsi", patent, S00201701365, 2017

UTILISING SMART MIRROR TECHNOLOGY ON INTERNET OF THINGS TO IMPROVE INTERACTIVE LEARNING

RESEARCH LEADER: Mochammad Haldi Widianto, ST., MT

TEAM MEMBERS: Ranny, ST., MT.

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INTRODUCTION

Nowadays, the development of IoT (*Internet of Things*) runs very rapidly. Various household appliances gradually have the nickname "SMART." Another case with a mirror which is one of the most common things in life, especially in the field of education, it is still in a state of relatively primitive. The possibility of using mirrors is still not in demand, so its innovation in IoT has not been acknowledged. Several studies involving microcontrollers have been applied using mirrors, called "Smart Mirror" in which the use of microcontrollers involve innovation through mirrors. Smart Mirror is developed based on traditional mirrors in the households that has scheduling automation systems, turning on video, music ,etc. to meet the needs of students in smart education. Smart Mirror provides students with a range of intelligent experiences, such as device control, information acquisition, environmental monitoring, entertainment, and remote operations. This technology is designed to solve many learning problems. Based on the development of a microcontroller, unidirectional mirror, frame and other hardware devices, a smart mirror, as a mirror display screen, offers a safer, more convenient, faster, faster and smarter,based on living space infomation for for households in the intellectual district.

PROPOSED METHOD

Industrial innovation has rapidly developed, especially in the field of microcontrollers and IoT (Internet of Things). This causes an increase in the growth of community trends and the income of experts in those fields. One branch of growths in the world of science is smart device. With the increasing need for smart device technology, the world of education shows an increasing interest in improving the quality of teaching, so that teachers can easily carry out various learning innovations using complementary intelligence devices (Evans, 2011), (Johri et al. 2018). According to a study, the use of technology in one of the universities in Indonesia indicates that their lives will be convinient by the existence of technology (Nurseha & Pradany, 2014). This smart device has been used by almost all Indonesian citizens It helps some people to solve everyday problems by providing efficient and effective solutions.

In a previous study (Bruno, 2019), the use of a smart mirror was placed on home appliances so that it helped people to work by utilizing a mirror, where settings such as the latest information, video and also high-speed internet access were available. . Smart Mirror is a mirror that allows users to freely interact with the display of important information on the screen, while also providing text and messaging features.

This is supported by innovative technology to achieve interactive and effective education. A screen that has reflective properties, such as a mirror, makes school and university students more curious when the learning process occurs. Based on the development of a microcontroller, unidirectional mirror, frame and other hardware devices, a smart mirror, as a mirror display screen, offers a safer, more convenient, faster, more precise and smarter type of information, based on information to support quality education . Therefore, hopefully this tool will help students be more creative, innovative, and more interested in all subjects (Evans, 2011), (Yusrizal, 2016), (Murphy,2016)

RESULTS

After setting up some tools and making this technology, researchers conducted several schemes to meet the objectives.

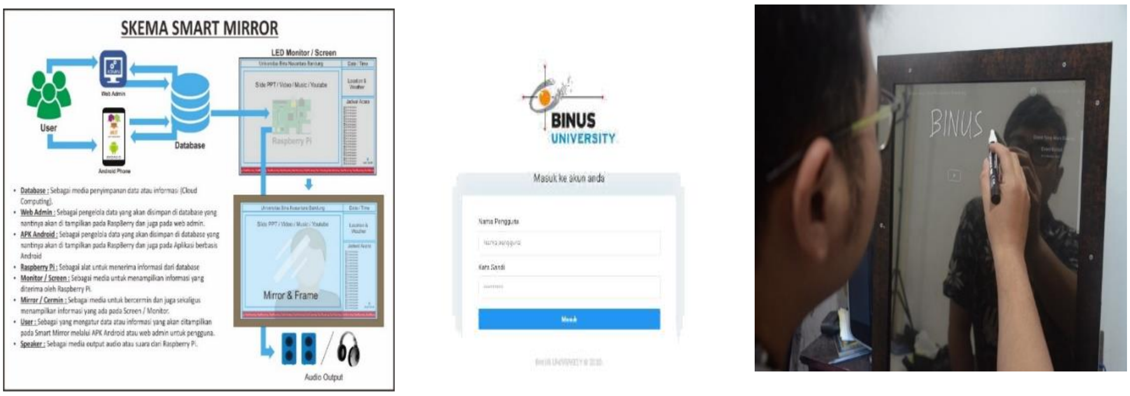

Figure 5. Smart Mirror Scheme

A smart mirror can be used for interactive classes because it can also be drawn with particular glass markers. The study is interactive and has student-teacher involvement, carried out by increasing conscious interaction between the two. With the use of this smart mirror, the interaction between student-teacher can be granted.

With the provision of smart mirrors as a hardware framework, it can also increase creativity for both of them to continue to innovate on this tool.

ALGORITHM FOR PROPERTY PREDICTION IN FRICTION STIR SPOT WELDING (FSSW)

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TEAM MEMBERS: Dr. Ho Hwi Chie, M.Sc., Dr. Juri Saedon, Dr. Mohd Shahriman Adenan
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INTRODUCTION

Facing the issue of cost and efficiency in experiments, and tests in determining the properties of the welded structure are the challenges in friction stir spot welding (FSSW) optimization. Employing the machine learning technique of artificial neural network (ANNs) to develop a prediction model with fewer experiments and tests is a gentle solution to forecast the properties of the spot weld structures. In this research, the extended full factorial design with respect to the tool speed, plunge depth, and dwell time are applied to the FSSW specimens of Aluminium A5052-H122 2mm thick through 27 experiments and evaluated via tensile shearing load testing. The multilayer neural network of feed-forward and back-propagation (FFBP) algorithm was engaged to learn and train the neural network iteratively with a set of weights and bias of 27 variations of inputs to fit the predicted tensile shear loads of the spot weld structures. The results of regression plot shows that the correlation coefficient (R) is perfect for training with the value of 0.999 and for testing the correlation coefficient (R) is reached to 0.958. However, the correlation coefficient is relatively good for validation with R equal to 0.921. For all data sets, the correlation coefficient is good with R of 0.833. It can be seen that the ANNs prediction model is relatively good since the correlation coefficient relatively is close to 1.

METHODOLOGY

The topology of the ANN network model as depicted in Figure 1 was developed having one input layers consists of three neurons which corresponds to three inputs of main parameters i.e. spindle speed (v), tool plunge depth (d), and tool dwell time (t). Two hidden layer with each 15 and 7 neurons are set. A neuron was set in the output layer corresponds to output response of the tensile shear load (TSL). The data sets of 27 input-output patterns were then trained, tested and validated in Matlab environment. 70% of data was used for training, 15% for validation, and 15% for testing the model. The tensile shear load was considered as an output of neural networks. The conceptual structure for this proposed ANN is represented in the Figure 1.

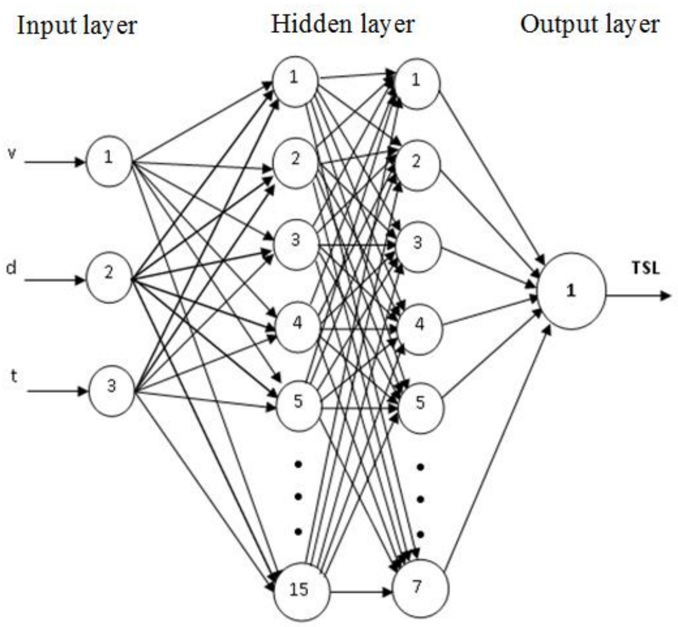

Figure 1. Topology of the structure for a network.

In the network, back propagation algorithm is involved which consists of two processes i.e. forward process and backward process. The forward process propagate input vector through the network to provide output at the output layer, and backward process propagates the error values back through the network to determine how the weights are to be changed during the training. The BP algorithm is used with a double hidden layer improved with training function called Trainlm with number of neurons of 15 for hidden layer-1 and 7 neurons for hidden layer-2.

RESULTS

The prediction model of the tensile shear load had been developed through ANN model. The resulted plot shows that the correlation coefficient (R) is perfect for training with the value of 0.999 and for testing the correlation coefficient (R) is reached to 0.958. However, the correlation coefficient is relatively good for validation with R equal to 0.921. For all data sets, the correlation coefficient is good with R of 0.833. It can be seen that the ANNs prediction model is considered good since the correlation coefficient is relatively close to 1.

OUTPUT

PUBLICATION

[1] Armansyah, H. H. Chie, J. Saedon, M. S. Adenan, "Feed-forward back-propagation (FFBP) algorithm for property prediction in friction stir spot welding of aluminum alloy". In *IOP Conference Series: Earth Environment Science*, 2020. 426 012128.

AUTOMATIC SPEAKER IDENTIFICATION/VERIFICATION SYSTEM TO SUPPORT ACCOUNT OWNER OR DEVICE AUTENTICATION

RESEARCH LEADER: Dr. Amalia Zahra, S.Kom.

TEAM MEMBERS: Benfano Soewito, M.Sc., Ph.D.

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INTRODUCTION

It is commonly known that biometric checking is a security checking method that has the smallest risk of being hacked by irresponsible parties. One of the biometric information that can be used is voice. This media is the main type of data in this study. The process of checking the identity of a system user or the owner of a device or account is based on the identity of the owner of the voice. This research focuses on the development of a speaker identification or verification system.

METHODOLOGY

Holistically, this research is part of a larger research plan, namely as a leading component of a smart home system. There are six stages of research activities carried out this year: 1) literature study, 2) data collection, 3) data pre-processing, 4) feature extraction, 5) classification model development, and 6) system optimization and testing. The final result of this research is a speaker identification/ verification system prototype which will be used as the front component of a voice-based smart home system and also as a layer of checking the identity of the account owner.

RESULTS

The research produces a model that is quite good in accent recognition. This is known by evaluating the results of the application of parameters in feature extraction and classification. The following conclusions can be drawn: a) The results showed that the addition of the Mel-frequency Cepstral Coefficients (MFCC) method using *Cepstral Mean and Variance Normalization (CMVN)* was less effective in accent recognition, b) This is because CMVN is commonly used for speech recognition with long sample duration (long utterances), c) Meanwhile, for accent classification using Gaussian Mixture Model (GMM), it can be seen that the number of Gaussian components 16 and 32 can work relatively better, d) The duration of the dataset used is a long utterance to get optimal results, e) The use of Per-Channel Energy Normalization (PCEN) shows quite good results with an increase in accuracy of 1.30 ~ 1.38%, and f) This is because PCEN can adapt to heterogeneous environments.

OUTPUT

PUBLICATION

[1] L. Damayanti & A. Zahra, "Accent detection task to classify accented and non-accented speech," *International Journal of Recent Technology and Engineering (IJRTE)*, vol. 8, no. 3, 2019. ISSN: 2277-3878.

METHOD OF RECOGNITION OF OBJECTIVES AS CONNECTORS OF REAL OBJECTS WITH DIGITAL CONTENT

RESEARCH LEADER: I Gede Putra Kusuma Negara, B.Eng., PhD

TEAM MEMBER: Dr. Suharjito, S.Si., M.T.

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INTRODUCTION

Object recognition methods through image display can be a link between real objects and information about these objects in the form of digital content. This object recognition method is very useful in developing information retrieval applications. For example, digital learning through the introduction of historical objects in museums, digital recognition of batik motifs, or getting information on plant diseases and how to treat them from leaf image recognition. There are two specific object recognition approaches that produce fairly good accuracy, namely the local feature method with geometric verification and the deep learning method. Both approaches have the potential to be further developed to produce a more accurate method of identifying specific objects. From the literature review, there are two approaches that have the potential to improve the accuracy of the specific object recognition method, namely: (1) further development of the deep learning method, and (2) combining the deep learning approach to assist the local feature extraction process with the verification method. geometric as a filter from the resulting feature pairs. In general, the aim of this study is to develop an information retrieval application based on a specific object recognition method that is better than the existing ones.

METHODOLOGY

The stages of research carried out include: (1) literature study and formulating improvement ideas, (2) formulating specific object recognition methods, (3) implementing methods into software, (4) developing information retrieval applications, (5) data collection and experiments, and (6) analysis of experimental results and writing reports.

RESULTS

Research has also been conducted to develop better specific object recognition methods based on the local feature method with geometric verification. Previously, the Best Increasing Subsequence (BIS) method was proposed as an improvement to the Weighted Longest Increasing Subsequence (WLIS) method. Based on our observations, although the BIS method already has better performance than the WLIS method, the BIS method still has some shortcomings. Based on these shortcomings, we propose several improvements to the BIS method. We call the new improved method from BIS as the Best Score Increasing Subsequence (BSIS) method. Based on the experimental results, the BSIS method on average has a performance of 4.53% better than the BIS method and 9.43% better than the WLIS method.

OUTPUT

PUBLICATION

[1] G. P. Kusuma, K. D. Harjono and M. T. Dwi Putra, "Geometric verification method of best score increasing subsequence for object instance recognition," *2019 6th International Conference on Information Technology, Computer and Electrical Engineering (ICITACEE)*, Semarang, Indonesia, 2019, pp. 1-5, https://doi.org/10.1109/ICITACEE.2019.8904344

[2] G. P. Kusuma, E. K. Wigati, & E. Chandra, "A review of recent advancements in appearance-based object recognition," *Procedia Computer Science*, vol. 157, pp. 613-620, 2019.

[3] I. G. P. K. Negara and Suharjito, "Classification of C2C e-commerce product images using deep learning algorithm," *International Journal of Advanced Computer Science and Applications*, vol. 10, no. 9, 2019.

DEVELOPMENT OF ANDROID MULTI ROBOT BASED ON IOIO DEVICE FOR SERVICE AND SUPERVISION IN OFFICES

RESEARCH LEADER: Dr. Ir. Alexander Agung Santoso Gunawan, S.Si., M.T., M.Sc., IPM, CIRR

TEAM MEMBERS: Prof. Dr. Ir. Widodo Budiharto, S.Si., M.Kom., IPM.

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INTRODUCTION

The main obstacle in robot research is the cost of making the robot. Building a robot with limited capabilities will generally cost a lot of money. Moreover, building a robot for intelligent systems research requires a lot more investment. In this study, this robot will be developed using an Android smartphone. Not only it is affordable, but it also has strong computing capabilities. Robot mechanics and Android smartphones are connected to the IOIO device as an interface between the motor and sensors. It uses the Android smartphone via Bluetooth or USB. This IOIO device is useful so that Android smartphones can interact with other external actuators and sensors. The built robot will take advantage of the availability of sensors in smartphones (camera, accelerometer, and GPS) and additional external sensors (IR sensor and ultrasound sensor). The application of the Android robot in this research will be developed into a smart wheelchair and smart trolley, not just as an office supervisor. This Android robot can be a smart wheelchair that the user can control. In addition, on a wider scale, it can become a smart trolley that can help users shop at supermarkets automatically, starting from following users, providing information to users, and coordinating with other trolleys. In the future, the developed robot based on the Android smartphone can become a multifunctional and inexpensive robot platform to be a reliable foundation for further robot research.

METHODOLOGY

The used method in designing software (applications) in this study is Rapid Application Development (RAD), which has been studied in the literature review. There are four stages in making software using the RAD: requirement planning phase, user design phase, construction phase, and cutover phase.

RESULTS

The main result of this research is that the software uses the Java programming language and the hardware consisting of a robot based on an Android smartphone. The prototype of science and technology products from this research is a supervisory robot model that can work well under certain conditions. Furthermore, the appropriate technology from this study results is a prototype of a smart wheelchair and smart trolley.

OUTPUT

PUBLICATION

[1] A. A. S. Gunawan, D. A. Tanjung, and F. E. Gunawan, “Detection of Vehicle Position and Speed Using Camera Calibration and Image Projection Methods,” *Procedia Comput. Sci.*, vol. 157, pp. 255–265, 2019.

DESIGN OF OBJECT TRACKING AND CONTROLLER FOR MILITARY ROBOT USING PID AND COMPUTER VISION

RESEARCH LEADER: Prof. Dr. Ir. Widodo Budiharto, S.Si., M.Kom., IPM.

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INTRODUCTION

Control systems and vision-based robot technology have been used in the development of autonomous military robots. A sophisticated military robot should be needed by the military/police because it can be deployed to the battlefield or the eradication of terrorism in a remote or autonomous manner. PID controller is known as a reliable and robust control system for servo motors as an actuator of the gun. Wi-Fi Technology with long distance capability and Bluetooth are important feature for controlling a military robot.

METHODOLOGY

Many methods have been proposed by scientists for controlling the motor for tracking an object in computer vision. A digital controller utilizing the preview information of the desired trajectory has been proposed by [Y. Wang et al. 2018]. In this study, we propose an autonomous tank-based military robot model that wants to be developed as shown in Figure 1, where firearms will be used to be able to shoot targets in long distances. This robot model can also be controlled remotely (teleoperated).

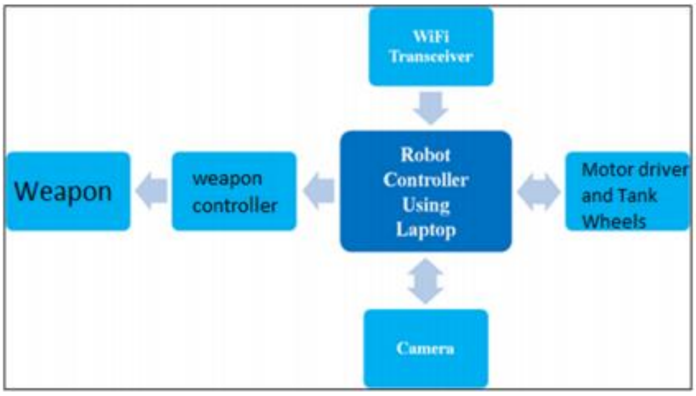


Figure 1. The architecture of tank-based military robot

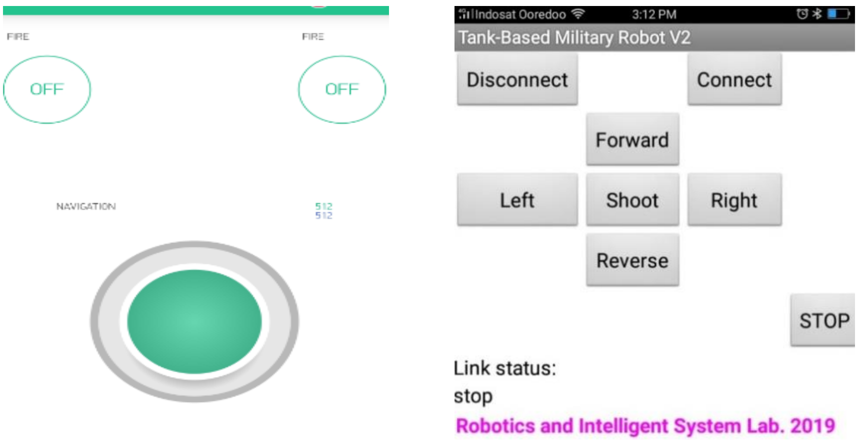
RESULTS

The ability of computer vision for detecting of the upper body as a target is enough good. A military robot is an important tool for combat. Combat robots will rapidly become an inherent part of our fighting forces within the next 10-15 years. Future warfare will involve operators and machines, not soldiers shooting at each other on the battlefield. For future work, we will propose a method for shooting a target with more precision and accuracy and using wireless technology. Figure 2a and 2b show prototypes of Wi-Fi-based and Bluetooth based as robot controller for the military robots:

(a) (b)

Figure 2. Prototypes of military robot using Wi-Fi technology (a) and bluetooth (b) for controlling the robot. We can control the camera using 2 servos.

The application for controlling using Smartphone and Blynk and based on Bluetooth are shown in figure 3a and 3b:



(a) (b)

Figure 3. Wi-Fi based controller (a) and Bluetooth controller for military robot (b)

OUTPUT

PUBLICATION

[1] Budiharto, W., Irwansyah, E., Suroso, J. S., & Gunawan, A. A. S. (2020). Design of object tracking for military robot using PID controller and computer vision. *ICIC Express Letters*, 14(3), 289-294.
[2] Budiharto, W., Irwansyah, E., Suroso, J. S., & Gunawan, A. A. S. (2021), Implementation of Wemos D1 for Wi-Fi Based Controller Tank-Based Military Robot, *ICIC Express Letters Part B: Applications*. (under press).
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[5] Widodo Budiharto, Pemrograman Arduino dan Robotika (2021), *Penerbit Andi Offset* Yogyakarta (under press).

ARTIFICIAL INTELLIGENCE FOR INDOOR VIDEO ANALYTICS

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INTRODUCTION

In a video analytics system for people counting, a room setup where the perimeter of the room is imaginary can degrade the performance of the system. An ordinary people counting system will count not only persons inside the room, but also persons outside the room, because they are both visible to the system. Building an AI system that can separate the persons inside and outside the room is difficult because they are overlapping as illustrated in the figure 1.

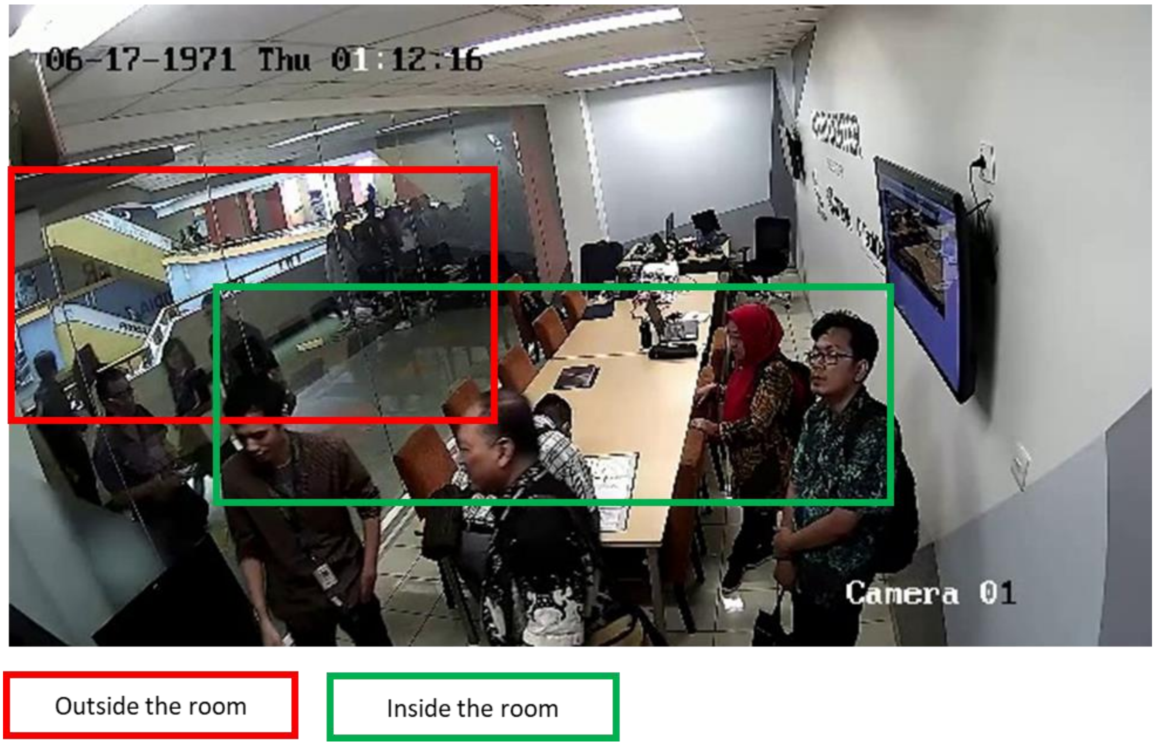

Fig. 1 Problem illustration.

METHODOLOGY

DATA COLLECTION

To develop an AI that can distinguish persons inside and outside a room, we collected a novel dataset with additional ground truths called negative ground truth. In the negative ground truths, the persons outside the room are annotated, but with a negative Gaussian distribution instead of the standard Gaussian distribution used in a typical density map for crowd counting. Using this dataset, we can supervise an AI to have an extract discriminative features between persons inside and outside a room. We call this dataset as RHC (Room Human Counting) [2]. Figure 2 illustrates the RHC dataset.

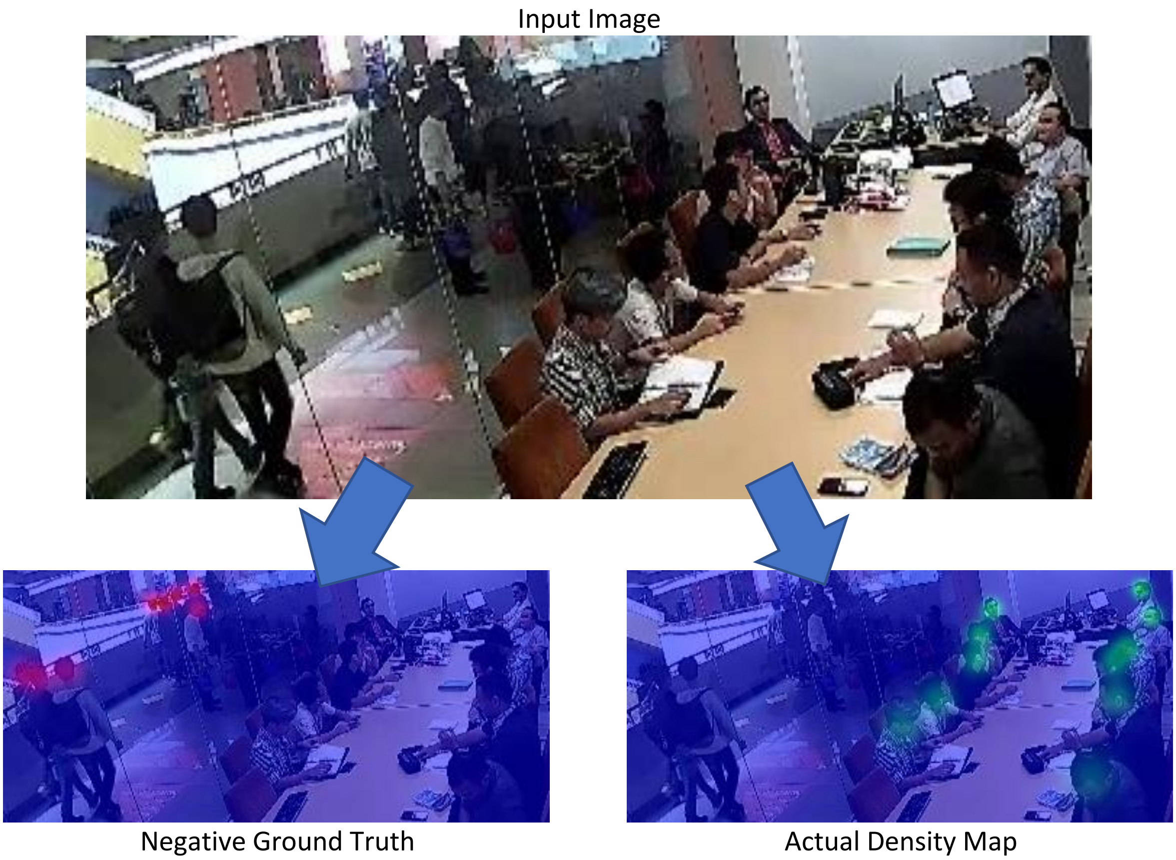

Fig. 2 Illustration of RHC dataset.

PROPOSED ARTIFICIAL INTELLIGENCE MODEL

To utilize the dataset, we proposed a new AI model that can be supervised on both the negative and true ground truths. The model has two heads which each can be supervised respectively with the negative and true ground truths. The negative head forces to propagate negative signals from outside persons, while the true head tries to predict the actual density map. We called this supervision technique as Gap Regularizer. The architecture of the proposed method is depicted in figure 3.

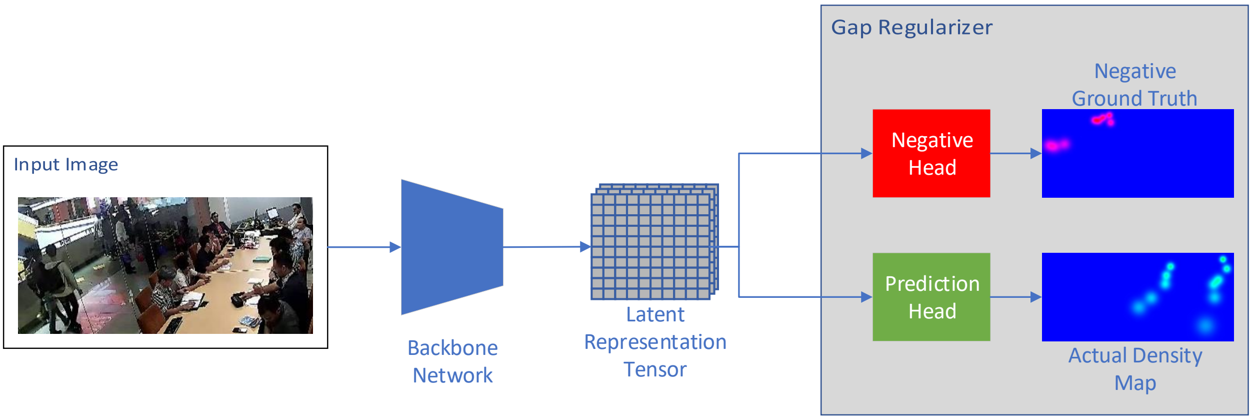

Fig. 3 The architecture of the proposed method.

RESULTS

QUANTITATIVE RESULT

Table 1 is the quantitative result of AI with and without Gap Regularizer. The backbone network tested are ResNet-50, ResNet-101, CSRNet, and SFCN. The prediction difference is also statistically tested using Mann-Whitney U Test. The performance of all AI model is measured with Mean Absolute Error (MAE) and Mean Squared Error (MSE). We found that Gap Regularizer can improve the MAE and MSE of ResNet-50 and CSRNet for the RHC dataset. The improvements are also statistically significant.

Table 1. Performance Comparison

Backbone Network	MAE		MSE		p-value	
	Standard People Counting AI	*+ Gap Regularizer*	*Standard People Counting AI*	*+ Gap Regularizer*		
ResNet-50	0.2614	**0.2285**	0.4925	**0.4530**	1.94×10^{-2}	Significant
ResNet-101	**0.2171**	0.2220	**0.3935**	0.4200	2.94×10^{-2}	Significant
CSRNet	0.2377	**0.2031**	0.3500	**0.3460**	1.24×10^{-5}	Significant
SFCN	**0.2358**	0.2547	**0.4510**	0.4658	7.09×10^{-1}	Not Significant

QUALITATIVE RESULT

Figure 4 is a sample image overlaid by the corresponding density map predicted by a counting people AI with Gap Regularizer (we used CSRNet + Gap Regularizer as the predicting model). The more reddish the density map means that the AI is more confident to count the detected person. The figure shows that the model can detect only the inside persons.

Low confidence

High confidence

Fig. 4 Qualitative result.

OUTPUT

PUBLICATION

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INTELLECTUAL PROPERTY

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2. **Registered**: *"Aplikasi Deteksi Tingkat Aktivitas dalam Ruangan Melalui Video"*
3. **Registered**: *"Sistem Basis Data untuk Melatih Kecerdasan Buatan Pendeteksi Tingkat Aktivitas dalam Ruangan"*

RASPBERRY PI BASED DIGITAL LIBRARY FOR REMOTE AREAS

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INTRODUCTION

The interest in reading, particularly among young people in remote villages and areas in Indonesia, is significantly lower than those who have facilities in urban and cities. Therefore, initiatives are made to improve this condition by sending used books and establishing a physical library in those areas. Books are often collected and distributed from different major cities. However, since Indonesia is an archipelago country, the cost of the distribution will be increasingly high if the books are sent across the island. Most of the time, it does not include the land transportation cost to the destination, which requires special transportation.

METHODOLOGY

Building a digital library using Raspberry Pi with a power of only about five Watt per mini-computer with a regulator between 110V - 220V is done. The size of this device is less than an adult's palm and can be fully functional with the WiFi network. This system consists of a server, four clients, and a storage place currently containing 2.500 videos and digital books. Thus, the total energy required to run a complete system with a monitor is only 110 Watt. Clients or users will be given five headphones, each with a splitter so they can watch movies simultaneously without disturbing others who want to do other things.

RESULTS

The first system is placed on September 21, 2018, at the dry mountainside, Onan Runggu Village, North Tapanuli, North Sumatera. In the first three months after the installation, questionnaires are filled out to get the feedback of the system. About 78% of the respondents like to access the video. The children’s animation video is the most likely content to be accessed. The second implementation is on May 28, 2019, which is supported by Wahana Visi Indonesia (WVI), a Christian humanitarian social organization that brings sustainable change for welfare of children, families, and communities (Indonesia, 2016). It is placed in the West Kalimantan area. The area is mainly jungles and very humid. Two villages get the benefit of the systems, which are Suka Maju and Suka Bangun. The third implementation is done on August 2, 2019, at Lumban Lobu village, North Tapanuli, North Sumatera. It is located in very dry and dusty land of a mountainside. Other areas such as in Papua is also asking the digital library but without Raspberry Pi since they get donation (laptops) from the largest communication company in Indonesia. On August 19, 2019, until August 22, 2019, another digital library content is implemented in the Homfolo village in Sentani Lake, Papua and Wamena, Papua, where Indosat donates laptops to these villages (Indosat, 2019). The digital contents are installed and distributed through the laptops, as seen in Figure 1. Nabire, Papua also gets the benefit of this digital library, but the computers are donated by Mandiri Bank, one of the largest banks owned by the government of Indonesia. The feedback from the users is positive. However, it requires routine maintenance and communication between users and developers to sustain the system's performance.

Figure 1 Children in Sentani Lake are Accessing the Digital Library Contents
in a Reading House (Left), and a Projector is Used
to Watch the Content Together in Wamena (Right).

BLOCKCHAIN TECHNOLOGY IN EDUCATION TO SUPPORT ONLINE LEARNING PROCESS

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INTRODUCTION

Online learning based is a very popular method which changes face to face methods into learning online from the network. This trend becomes a new alternative for everybody to learn and to teach online, even it usually has a completion certification online. BINUS is one of the online learning-based university that already has a website platform for it. With all the ease of usage, online learning-based activity should have a good quality of recording logs (activity log, absence log, quiz log system, and others). The quiz must have a good system to reduce fraud, either in absences or any other fraud activities. In order to do that, we need a good system, Blockchain, one of the most famous systems for a better learning system.

METHODOLOGY

1. In this research, the researchers use one of the quantitative methodologies, a waterfall (Sommerville) and qualitative methodology, and supported with multiple journals related.
2. Next step in the data collection, the researchers need to spread questionnaires to the lecturer and the students, respectively.
    a. Online learning-based lecturer using BINUS Online Learning (BOL)
    b. Chosen students with random sampling.
    c. The questionnaire’s variable will be chosen by one of the measurement methods: Technology Readiness Index.
    d. The questionnaire will be measured using a Likert scale, within 1-5
3. After data collection, data processing will be used SEMPLS.RESULT

RESULTS

Result of this research is the planned draft and how to implements it with existing system (BOL) to support online learning-based system.

AUTOMATIC PERSONALITY RECOGNITION THROUGH SOCIAL MEDIA USING TEXT ANALYSIS

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INTRODUCTION

Social media become an inseparable part of human life. It arrives in a high possibility that every user post certain thing each day. Personality prediction is one specific task in assessing texts from social media posting. One of the forms of information that may be extracted from social media data is the user's personality. A personality trait of a user may provide more insight about a certain individual. Figure 1 describes common research workflow in this research.

METHODOLOGY

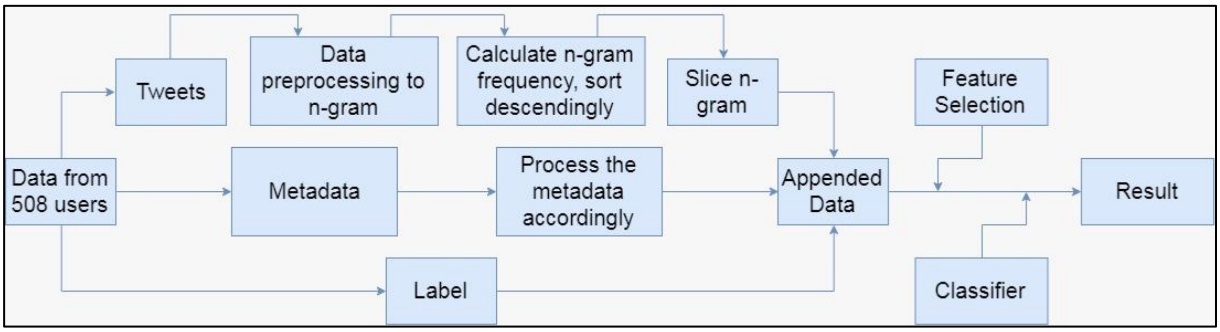

Figure 1 Research Workflow (Adjusted Regarding Specific Topics)

Standardized instruments are developed to measure an individual's personality based on the Big Five Personality Model. The most comprehensive measuring instrument is the NEO Personality Inventory, Revised (NEO-PI-R), which comprises 240 questions (McCrae and Costa, 1992). The instrument, however, is considered too long. Since then, many studies devise newer and shorter measuring instruments to infer a person's personality based on the personality model. The most common measuring device used is the Big-Five Inventory (BFI) built upon 44 questions, and NEO Five-Factor Inventory (NEO-FFI) consisting of 50 items (John and Srivastava, 1999). The methods of measuring an individual's personality using the stated measuring instruments are considered impractical and time-consuming, especially in the online context. People may be reluctant to fill lengthy questionnaires to get recommendations and personalization in online activities (Farnadi et al., 2016).

RESULTS

We attempt to find the optimal setting to perform personality prediction with any social media platforms as our source of the data. It is done by using big five as the personality model, focusing on any language. In our recent results, we analyze three comparisons: the amount of n-gram, twitter metadata, and classifier used. First, with the highest F-average of 0.7482, we obtain the optimal result using 3000-4000-word n-grams. Second, while our list of Twitter metadata does not perform better than other lists, we find the difference is not that significant. The impact of not using a list of metadata is not as well significant, although it is better. Third, random forest and SMO perform well with our dataset, suspecting that some outliers affect sensitive classifiers such as k-NN.

OUTPUT

PUBLICATION

[1] N. H. Jeremy, C. Prasetyo, and D. Suhartono, "Identifying personality traits for Indonesian user from Twitter dataset," *Int. J. Fuzzy Log. Intell. Syst*., vol. 19, no. 4, pp. 283–289, 2019.

[2] N. Reynaldo, Goenawan, W. Chanrico, D. Suhartono, and F. Purnomo, "Gender demography classification on Instagram based on user's comments section," *Procedia Comput. Sci.,* vol. 157, pp. 64–71, 2019.

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[4] G. Y. N. N. Adi, M. H. Tandio, V. Ong, and D. Suhartono, "Optimization for automatic personality recognition on Twitter in Bahasa Indonesia," *Procedia Comput. Sci.,* vol. 135, pp. 473–480, 2018.

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[6] V. Ong, A. D. S. Rahmanto, Williem, D. Suhartono, A. E. Nugroho, E. W. Andangsari, and M. N. Suprayogi, "Personality prediction based on Twitter information in Bahasa Indonesia," in *2017 Federated Conference on Computer Science and Information Systems (FedCSIS),* 2017, pp. 367–372.

[7] V. Ong, A. D. S. Rahmanto, Williem, and D. Suhartono, "Exploring personality prediction from text on social media: A literature review," *Internetworking Indones*., vol. 9, no. 1, pp. 65–70, 2017.

INTELLECTUAL PROPERTY

[1] D. Suhartono, E. W. Andangsari, M. N. Suprayogi, A. E. Nugroho, V. Ong, "Basis Data, Dataset Twitter ID dengan Label Kepribadian berdasarkan Konsep OCEAN," Hak Cipta EC00201861172, 28 Desember 2018

DESIGN AND BUILD THE MOBILE-BASED "I'M CARE" APPLICATION AS A MEDIA OF HEALTH INFORMATION FOR INDONESIAN COMMUNITIES

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INTRODUCTION

The long-term objective of this research is to design a mobile-based "Ku Sehat" application as a media for health information regarding the types of diseases that are the most common causes of death in Indonesia. The target to be achieved is a mobile-based application that provides 2 types of information services. The first service is addressed to the entire community in the form of general information, including the location of hospitals, health centers, polyclinics, and pharmacies. Meanwhile, the second service is aimed at the public and health service agencies in the form of machine learning-based disease diagnosis features such as diagnosis of ischemic heart disease.

METHODOLOGY

The methods used to achieve these goals are surveys, observations, interviews, data processing, data analysis, application design, and application development and implementation. The research activity plan will take approximately 3 years.

RESULTS

In the first stage, the analysis and design of a mobile-based health application database model has been completed and a prototype of the "Ku Sehat" application has been produced. The second stage has developed a machine learning model for diagnosing detection of ischemic heart symptoms and a further development of the "Ku Sehat" application both from the front-end and back-end. In the third stage, it is followed by further development, testing, and deploying the newest "Ku Sehat" application to the app-store. In addition, changes and improvements to the appearance of the user interface were also made on both the mobile-based front end and the web-based back end. At this stage, machine learning is also being developed which will be integrated with the mobile application. In addition, in this third stage, the plan for the "Ku Sehat" application will be widely implemented and an evaluation of the use of the application will be conducted.

OUTPUT

PUBLICATION

[1] I. Sutedja, R. Bahana, & I. B. K. Manuaba, "Foods diary mobile application for diabetics," In *2020 International Conference on Information Management and Technology (ICIMTech)*, pp. 228-232, August 2020. IEEE.

APPLICATION OF DECISION-MAKING SYSTEMS TO IMPROVE HORTICULTURAL FARMERS' COMPETITIVENESS AS INDONESIAN EXPORT PRODUCTS (HORTICULTURAL CENTER IN WONOSOBO REGION, CENTRAL JAVA)

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INTRODUCTION

One of the main programs of the Ministry of Agriculture is horticultural commodities because these commodities have high economic value and market demand. One area in Indonesia that has the potential to produce horticultural commodities is Wonosobo regency, 120 km from Semarang. Located in the mountains, it makes Wonosobo have good soil fertility. It makes Wonosobo one of the horticultural centers, especially for potato crops in Indonesia. This research is intended to obtain accurate and actual data to analyze the problems and needs of potato farmers from the farmer to the consumer level as well as the trading system and marketing effectiveness in each marketing chain. This study also models an effective and efficient supply chain management in supplying potato commodities. The model will display information systems and decision support systems that can be used by farmers so that they can improve their standard of living through participatory marketing of potato commodities.

METHODOLOGY

The used method is applied research, which focuses on evaluation research.

RESULTS

The data obtained from this study results are the unsuccessful implementation of the Android applications for Dieng farmers. It is because of the relatively low level of education and the characteristic of farmers who do not trust others. They trust people that they have known for a long time. Most of the farmers (around 76%) in the Dieng mountain have only received elementary and junior high school education (or equivalent). This result is supported by the research of Izdihar and Hasna (2012). The hypothesis results between farmers in Wonosobo and Tawamangu are relatively the same. The result is that marketing only depends on people who have been well known for a long time, but it is different for the Bandung regency. For marketing, they can directly sell it to the central market in Jakarta. In fact, some farmers have their stalls at the central market. So, the commodities can be bought directly by buyers. Perhaps, due to the relatively close distance between Bandung and Jakarta, the existing facilities are used well.

A COMPARATIVE STUDY BETWEEN COLLABORATIVE FILTERING TECHNIQUES TO GENERATE STORY RECOMMENDATIONS

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INTRODUCTION

Interactive fiction shows potential to influence Indonesian youth to improve their reading behavior and engage with the reading materials. Since 2017, there was previous research in interactive fiction to improve reading behavior, specifically in Indonesia. In order to continue this study, a robust and modern interactive fiction platform for creating and playing interactive fiction is necessary. A number of improvements are required to enhance the existing platforms in the development and distribution process of the interactive fiction stories. To address these issues, the development of a robust and modern interactive fiction platform called *Vixio* is proposed. This platform is aimed to advance user experience in development and distribution of interactive fiction stories.

In *Vixio*, in order to ensure that users can easily access relevant content, a robust recommender system which generates personalized story recommendations is necessary. A recommender system is a computer system which is capable of producing recommendations of items that each user prefers. The objective of the research is to implement a recommender system with a collaborative filtering technique to generate personalized story recommendations that can be used by *Vixio* web services. Throughout the development process, a comparative study between some possible algorithms for hybrid recommender systems have been conducted.

SYSTEM DESIGN

The following is the system architecture for the recommender system in the *Vixio* application.

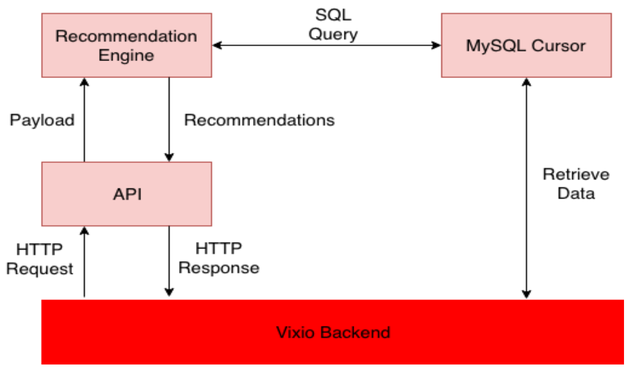

Figure 1 System Recommender Architecture

Based on Figure 1, the *Vixio* recommendation engine has several main features to deliver the best user experience to the users. Each of these features is associated with one API endpoint. They are (1) the *Vixio* web services which represents the Back-End Layer of *Vixio* and acts as a receiver of generated recommendations, and (2) the Recommendation Engine which represents the Recommender System Layer of *Vixio* that generates various recommendations.

RESULTS

In the project, we implement and test the five different collaborative filtering techniques using a 5-fold cross-validation procedure. Based on the 5-fold cross-validation results, there are some important insights which can be gathered: (1) Generally, the value of Root Mean Squared Error is larger than the value of the Mean Absolute Error. This is an expected behavior, since the Root Mean Squared Error formula penalizes large errors significantly with its squaring calculation. (2) Overall, all algorithms have Root Mean Squared Error values between 1.4 and 1.6 and Mean Absolute Error values between 1.2 and 1.4. It shows that none of algorithms perform significantly better compare to the others. (3) For all algorithms, as the numbers of users increase, the fit time and test time also increase. This is of course an expected behavior. (4) Compared to other algorithms, the Slope One algorithm has the fastest fit time at all variations in the number of users. One major reason is that Slope One has a simple and straightforward implementation. (5) Compared to other algorithms, SVD++ algorithm has the slowest fit time and test time at all variations in the number of users. One major reason is because SVD++ is a complex algorithm, which combines SVD with additional calculations for implicit ratings. (6) NMF and Co-clustering are two algorithms with the fastest test time. NMF test time, however, is faster than Co-clustering test time by 0.01 when the number of users reaches up to 400. We also performed response time measurements for all the five techniques. Based on the results, Slope One has the fastest mean response time while SVD++ has the slowest mean response time.

OUTPUT

PUBLICATION

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[2] Manuaba, I. B. K. (2019). *Combination of Test-Driven Development and Behavior-Driven Development for Improving Backend Testing Performance. Procedia Computer Science*, 157, 79-86.

INTELLECTUAL PROPERTY

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SOUND VISUALIZATION USING TYPOGRAPHY COMPOSITION BASED GIF

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INTRODUCTION

Visual communication design is a creative communication process that combines art to encode and decode the message. As technology advances, visual design communication explores further. It paves ways to visualize something that does not have the visual attribute, such as sound, which can only be perceived through auditory senses. The sound is transformed by controlling symbols, images, color, and movement into an image. It is using a visual programming software combined with typography composition to create GIF (Graphic Interchange Format) as the final product. Sound visualization opens the possibility to experience sounds without even hearing it. It is an experimental tool to experience sound, to give an even deeper meaning of a message, and to bridge the possibilities to convey sound to the hearing impairment (those who carry disability) in expanding the minds and horizon so that they can experience sound.

SYSTEM DESIGN

The crossing of communication and multidisciplinary information, which is increasingly developing, should become a wider bridge in the development of communication, not the other way around. There will be boundaries and differences. For this reason, inter-sensory communication can be developed by making visual works to interpret the senses through typography. It is visual-driven by making moving typography as visual moves with GIF technology. Renewable visual communication will be more interesting and more captured by our senses.

The application used for this project as a sound visualization experiment is a simple application that available downloaded on Windows, namely VSXu. This application will automatically visualize sound or voice by providing images as design elements in the form of shapes, lines, and dots. The way this application works is similar to the sound visualizer in Winamp. The results of sound visualization shown as images (basic shapes, lines, and dots) by this application will be used as a reference for typographic composition. The letter arrangement and choice of letters will adjust to the shapes, lines, or dots based on the visual results on this application.

RESULTS

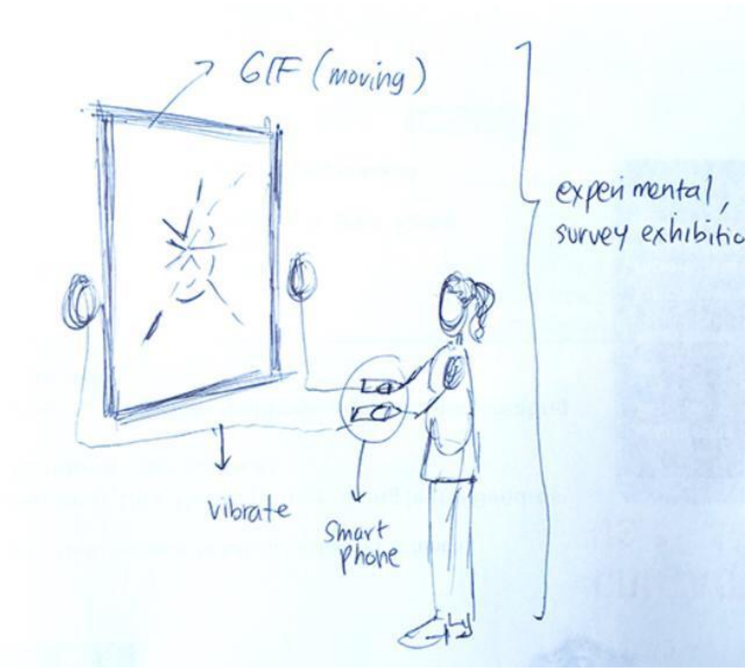

Figure 1 Artwork Project Experimental Sketch

As we can see in the artwork project experimental sketch in Figure 1, it shows the plan about how it works. The artwork will show and send the sound by using a smartphone as the tool, and the people with hearing impairment or deaf can feel the sound as vibrations. Experimental movements in art and design, are commonplace along with flexibility and differences in measurements, such as works of art that cannot be measured mathematically. However, there have been many design references that have been measured. For this reason, a container or work method is needed with a system outside the design to support the structure or measurement of the work itself. For example, with an experimental project in the design study this time.

OUTPUT

PUBLICATION

[1] Fadillah, C., & Rahayu, R. R. A. (2019, August). Sound Visualization Using Typography Composition Based GIF. In *2019 International Conference on Sustainable Engineering and Creative Computing (ICSECC)* (pp. 309-314). IEEE.

LEARNING EVALUATION EFFECTIVENESS THROUGH DASHBOARD OF KNOWLEDGE USING DIMENSIONS OF MULTI-CRITERIA OF WELS

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INTRODUCTION

A Discussion Forum is one component of the learning media in a Learning Management System. There is much information and knowledge that are discussed among a lecturer and students in forums as a part of the learning process. The motivation of this study is to evaluate the learning process in a discussion forum through a dashboard, namely, the Dashboard of Knowledge (DoK). The DoK is formed using an Information Retrieval Architecture and Entity Relationship Diagram that is designed using four category interfaces. Furthermore, the effectiveness of the learning evaluation through the DoK is measured by a survey. The survey is conducted using three out of four dimensions of multi-criteria of the Web-based E-Learning System (WELS), namely, the Learner Interface, the System Context, and Personalization. The respondents of the survey are the heads of department that are DoK users.

METHODOLOGY

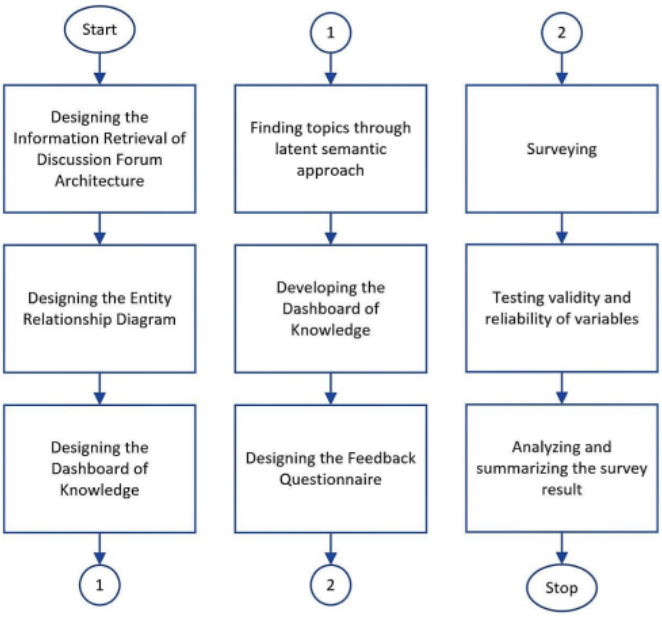

Figure 1. Method of this research

This research starts by designing an information retrieval architecture, an entity relationship diagram, and the dashboard. A survey based on questionnaire is conducted to evaluate the implications of the dashboard.

RESULTS

The results show that most respondents strongly agree that the DoK is useful for evaluating the learning in a discussion forum. This is exhibited by the survey results that show an average score of 3.53 out of 4.00 and 84.32% satisfaction. These results reveal that the DoK can effectively assist heads of department in monitoring the effectiveness of the learning process in a discussion forum.

OUTPUT

PUBLICATION

[1] R. Setiawan, W. Budiharto, I. H. Kartowisastro & H. Prabowo, “Learning evaluation effectiveness through dashboard of knowledge using dimensions of multi-criteria of WELS,” *IEEE Access*, vol. 8, 2020. 10254-10261.

MOBILE-BASED CANCER EARLY DETECTION LEARNING APPLICATION

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INTRODUCTION

One of the factors for the high number of new cancer cases as well as the number of death in Indonesia is the low level of knowledge and understanding, which results in late detection of sufferers. Various efforts have been made by the Government to reduce the number of cancer sufferers through counseling, which apparently remains unable to reach people in remote areas. High costs and limited numbers of human resources are the main obstacles in running an extension program. The use of technology by developing mobile-based cancer early detection learning is an effort to support government programs to overcome the above problems, which has resulted in the creation of new health cadres and medical personnel. The aim of this research is to develop a distance learning application specifically for early detection of cancer for medical personnel and mobile-based health cadres. This development is a real support to help the Ministry of Health of the Republic of Indonesia to produce health cadres and medical personnel to disseminate knowledge of breast cancer prevention throughout Indonesia and is an improvement action (development) for systems that do not yet exist that will support the health sector.

METHODOLOGY

The research model for the learning system for early detection of cancer uses the ADDIE framework model (Analysis, Design, Development, Implementation, Evaluation). The data collection technique was carried out by distributing questionnaires to health cadres and medical personnel, and data analysis using statistical tests with the ordinary least square (OLS) approach, namely the coefficient of determination test and t test. The tools used are R.

RESULTS

Researchers use the Technology Acceptance Model method as benchmarks to determine, explain and predict the level of acceptance of mobile learning applications by users. The results of the correlation test between perceived ease of use and attitude toward using have a low correlation. On the other hand, the correlation between perceived usefulness and attitude toward using; between perceived ease of use and behavior intention to use; and between perceived usefulness and behavior intention to use, has a moderate correlation, and the correlation between attitude toward using and behavior intention to use has a strong correlation. The t test results indicate that the effect of perceived usefulness on attitude toward using is statistically significant at $\alpha = 0.05$. Likewise, the effect of perceived ease of use on attitude toward using, attitude toward using on behavior toward use, perceived usefulness for behavior, and perceived ease of use for behavior intention is significant.

OUTPUT

PUBLICATION

[1] H. H. Muljo, B. Pardamean, A. S. Perbangsa, Y. Lie, K. Purwandari, B. Mahesworo, ... & T. W. Cenggoro, "TAM as a model to understand the intention of using a mobile-based cancer early detection learning application," *International Journal of Online and Biomedical Engineering (iJOE)*, vol. 16, no. 2, pp. 80-93, 2020.

ANALYSIS ON CONSTRUCTION SERVICES LAWS FOR CIVIL ENGINEERING PROJECTS ON BUILDING

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INTRODUCTION

Construction Services Laws are legislation used to govern all manners of construction services. This research was taken in Jakarta, Indonesia. Laws used in the research were Law Number 18 of 1999 about Construction Services and Law Number 2 of 2017 about Construction Services. With the shift of Construction Services Law, there were several differences, changes, revision, as well as inclusion and exclusion of past laws. These changes and differences were analyzed to improve the current running Construction Services Law for the future. The research applied two methods, which were literature study and observation using questionnaire for interview. Variables and questions for the questionnaire were formed from literature review and observed Construction Services Laws discussed. Results from the questionnaire were analyzed using a computer program, IBM SPSS Statistics 23. Using that program, the data from the results were tested for its validity and reliability. And it was analyzed using correlation analysis and factor analysis. From the analysis it is concluded that there are two factors that need to be improved. The two factors are regulation about building failure is not explained well enough, and the lack of regulation about Expert Assessor. Through these results, the construction services law can be improved and prevent environmental health damage caused by building failure that was caused by problems in construction services. These environmental health damage caused by building failure have negative impact to environmental health and safety of the surrounding area, whether from emission or toxic pollutants.

METHODOLOGY

The research applies two methods, which are literature study and observation. The survey is done through questionnaire, with 60 respondents that work in the field of construction and civil engineering, and adequate education (at least university graduate) and work experience of at least 4 years. The minimum limit of respondents in this type of questionnaire (correlation between variable X and Y) is 30, meaning 60 respondents is enough to produce reliable results (Gay & Diehl, 1992) (if the variables pass the reliability test). The answers from the questionnaire become the data for the research. The data are analyzed using IBM SPSS 23. Using that program, the data are tested for its validity and reliability and is analyzed in correlation and factor analysis.

RESULTS

According to Government Regulations Number 29 of 2000 article 34, building failure is a non-functional building, in a whole or a part of it, from the technical, use, health and safety, and/ or general safety perspective, caused by the failure of construction services provider or user/ owner after the final handover of construction works. From a previous research, it is said that in the context of building construction project, construction and building failure happens mostly on the building structure element, with deviations lies in the contract value, roof construction, foundation, utility, and the last is finishing. One indication of the causes of construction and building failures is the contract value that is less than 70% of the value of the budget allocation determined for spending. This difference between the value of the contract can potentially disturb the process of construction and the technical specification of the project was not met (Wiyana, 2012). Based on past researches, it is concluded that building failure can have serious consequences to the environment. It can have consequences for plants, animals, and humans. One of its pollution is CO_2 emission. The amount of CO_2 emission comes from the repair phase of a building structure, and an increase of CO_2 emission due to the loss of functionality. There is also embedded carbon in concrete and reinforced concrete as a result of the cement manufacturing process. In rare cases, a release of toxic pollutants may have serious consequences of a building failure (collapse), these toxic pollutants will pose danger for the environment. Unfortunately, a current difficulty in developing and validating techniques to calculate the consequence of a building failure is the lack of case studies with detailed information (Janssens et al. 2012). Expert assessment of a building failure or construction failure can have a large impact, because it can be subjected to criminal offenses, if it is not handled by someone who has the required competence, it could lead to more problem in the future for both parties. These competences are in accordance to the expertise of a certain field, with evidence in the form of a Certificate of Expertise issued by Construction Services Development Agency with the assessor name registered as an expertise in a certain field.

OUTPUT

PUBLICATION

[1] Putra, A.B. Analysis on construction services laws for civil engineering projects on building failures. *IOP Conference Series: Earth and Environmental Science,* Volume 426.

RELIABILITY OF POWER SPECTRAL DENSITY METHOD FOR STRUCTURAL HEALTH MONITORING

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INTRODUCTION

The research objective is to determine the level of reliability of the structural damage prediction method based on the F statistic. In addition, it is also to determine the cases where the method has good and bad accuracy. The benefit of research is to make the reader aware of the weaknesses and strengths of the F statistical method so that they can use it well.

METHODOLOGY

The first step is to create a simple structural model. The model with seven masses in line is connected by a spring. The vibrations in the structure are generated by applying a force to the mass in the center. Force is dynamic with randomly varying magnitudes. The vibration of the structure is calculated by solving the differential equation: $M\ddot{x}t + Kxt = ft$. Vibration data was recorded for the seven masses.

The second step is to transform the structural vibrations of the seven masses into Power Spectral Density using the Welch method. After that, the process continues to calculate the F statistic. The fourth step is to record the largest and smallest F statistical values and present them in tabular form for thousands of cases. The next step is to classify by comparing the F statistical value with the critical value. Replicate the previous process for structures in healthy and damaged condition. The damage is simulated by lowering the stiffness of the spring connecting Mass 3 and Mass 4 for various degrees of damage. Finally, the number of true and false classifications will be tabulated to provide information on the reliability of the PSD method.

RESULTS

The results show that this method is able to distinguish a healthy structure from a damaged structure only in conditions where the damage has been significant. The phrase 'large enough' needs to be translated into the critical limits of the structure. Whether sufficiently large damage has exceeded the critical strength limit of the structure at which structural failure may occur or not. If not, then the F statistical method can be used for the needs of monitoring the health of the structure.

ASSESSMENT OF PHYSICAL QUALITY OF RESIDENTIAL AREA IN JABODETABEK WITH THE CONCEPT OF GREEN & LIVABLE SETTLEMENT

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INTRODUCTION

Currently, one of the Green & Livable Settlement concepts has begun to be applied to the design of residential areas in Jabodetabek. To find out whether the residential area meets the criteria specified in the Green & Livable Settlement concept, it is necessary to conduct a study on Physical Quality Assessment of Residential Areas in Jabodetabek with the Concept of Green & Livable Settlement. The research was conducted in residential areas in Jabodetabek using descriptive methods, through surveys, observations and interviews. The results of the study can provide an overview of the physical quality conditions of housing in Jabodetabek, which can be used to improve the architectural design of the next residential area so that the application of the Green & Livable Settlement concept can be even better in physical quality.

METHODOLOGY

Research on Physical Quality Assessment of Residential Areas in Jabodetabek with the Green & Livable Settlement Concept is a descriptive type of research that aims to identify residential area architectural designs that use the Green & Livable Settlement concept, and enrich knowledge about the physical quality of residential areas using the Green & Livable Settlement concept. Data collection in the field was carried out by field surveys, observations and interviews. Data analysis is carried out by descriptive analysis, then drawing conclusions which are useful for the architectural design of the next residential area.

RESULTS

The results of a study on the application of the green concept to residential areas in Jabodetabek using green architectural design parameters (Greenship Neighborhood) on five purposive selected residential locations or residential areas in Jabodetabek show that only two residential areas (GLC and BSDC) can be considered successful to meet the criteria of green architecture. There are opportunities in three other residential areas (LC, SC and TGS), to improve themselves at the design and maintenance stages, so that they can meet all architectural design parameters and green areas based on Greenship Neighborhood version 1.0. The results of this assessment also show that the use of the green theme for the benefit of the promotion of developer property to buyers has been attempted by the developer to be properly applied to the design of residential areas and buildings, as a fulfillment of the developer's promise to the buyer.

OUTPUT

PUBLICATION

[1] N. Nurdiani, "The study of application of the green architectural design concept at residential area in Jakarta," In *IOP Conference Series: Earth and Environmental Science*, vol. 426, no. 1, February 2020. IOP Publishing.

BUSINESS PROCESS MINING: AUTOMATED PROCESS GENERATION, CONFORMANCE CHECKING, AND BOTTLENECK IDENTIFICATION

RESEARCH LEADER: Dr. Michael Baskara Laksana Adi Siek, S.Kom., S.Si., M.Sc.

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INTRODUCTION

Process mining as a modeling and analysis tool can be used to improve business performance by mining the actual business processes from event log data. This research focuses on the applications of process mining of processes in the automotive industry. However, the other applications are feasible, like mining the processes in e-Commerce companies or educational institutions. Using event log data with timestamps and process mining algorithms such as inductive miner and fuzzy miner, can automatically generate car manufacturing processes, check the conformance between the actual processes and the predefined standard ones, and identify and solve any bottlenecks and issues in the car manufacturing processes. Several car manufacturing issues can be detected and resolved early, such as process delays, stagnant workflow, mismanagement, faulty production, and labor insufficiency.

METHODOLOGY

Despite having a widely-used Business Process Model (BPM), we employ Petri net as process model representation as it is more universal. A Petri net can visualize how events are transition to one another based on the event logs. Two algorithms for process mining, namely inductive miner and fuzzy miner, are used to obtain a consistent process model results from event logs. In the fuzzy model, a rough diagram of the process can be generated from event logs with the frequency information of each process transition for producing every individual car. In other words, it allows us to verify how often a particular process goes to the other process.

RESULTS

The automated generation of car manufacturing processes using fuzzy miner from event log data is depicted in Figure 1. The arrows between events or processes depict the frequency information. The thicker the arrow is, the more frequent the process leads to the next process. The fuzzy diagram produced by the fuzzy miner provides us the information on how the manufacturing processes flow with some information on the time duration and frequency for each process.

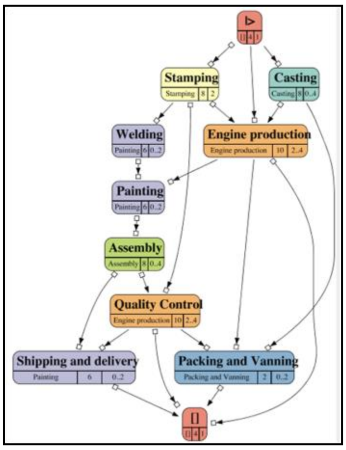

Figure 1 Automated Generation of Car Manufacturing Processes Using Induction Miner

A dotted chart for the event logs is indicated by index traces versus timestamps of the events or processes with the information of each time duration and frequency. It can show some anomalies in the car manufacturing processes, as illustrated in Figure 2. This chart provides some indications of the manufacturing process issues, and we can analyze some deviated processes compared to the predefined standard procedures in car manufacturing. In a more detailed example, on May 17th, the production line appears to take longer than the rest of the production scenarios. With closer inspection, we can discover that after conducting quality control, there is a need to recast a part for the car. Therefore, it insinuates that the previous casting causes an error in car production.

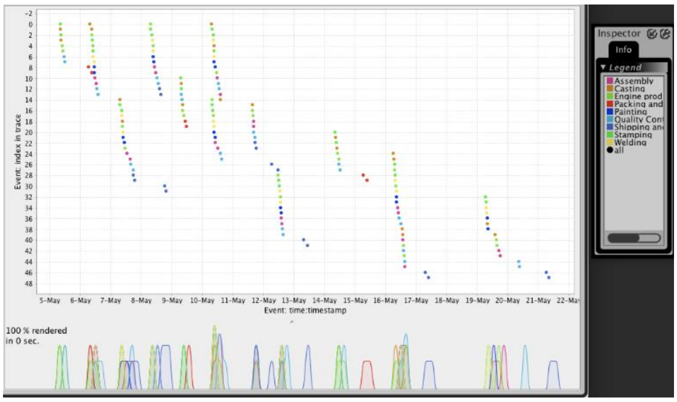

Figure 2 Event: Index in Trace Versus Time: Timestamp Depicting Some Variations on Time Duration and Frequency of the Car Production Processes

In conclusion, the modeling and statistical results show promising leverage of process mining in the automotive industry. It can lead to autonomous car manufacturing with abilities for real-time process auditing and reengineering. The application of process mining in the automotive industry permits further advances in the automated car manufacturing processes with reliable capabilities for real-time process failure detection, auditing, and reengineering.

OUTPUT

PUBLICATION

[1] M. B. L. A. Siek and R. M. G. Mukti, “Process Mining with Applications to Automotive Industry,” in *International Conference on Multidisciplinary Research*, 2019.

LOAN FINANCING SYSTEM BASED ON SERVICE ORIENTED ARCHITECTURE (SOA) USING ENTERPRISE ARCHITECTURE DOCUMENTS

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TEAM MEMBERS: Dr. Sfenrianto, S.Kom, M.Kom

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INTRODUCTION

Some companies already have Enterprise Architecture (EA) documents based on TOGAF, but they have not handled its further architecture in reality. This study aims to design and create a Service Oriented Architecture (SOA) application prototype according to EA documents based on TOGAF. The methodology used is to look at the correlation between EA and SOA. The design and making of application prototype based on SOA using the Enterprise Service Bus (ESB) and Business Process Management (BPM) tools. The sample of this research is an EA document from a multi finance company in Jakarta.

METHODOLOGY

the activities to be carried out based on the EA documents obtained are: (1). Analyze Business Architecture. Analysis is done to look at the main business processes, business services and use cases of the process, (2). Based on the Business Architecture analysis, a Business Model for SOA will be designed using BPMN notation. (3). Analyzing Information Architecture. This analysis is conducted to see the relevance of data and information used in supporting business processes on Business Architecture. (4). Based on the Information Architecture analysis, ERD and common semantics and data will be designed on SOA. (5). Analyzing Application Architecture. This analysis is done to see the applications that are used to support key business processes and the connectivity between existing applications. (6). Based on the analysis of Application Architecture, the service designed is needed to become a prototype of SOAbased applications. (7). Carry out an analysis of Technology Architecture to see the technology used today and proposed (future).(8).Based on references from Technology Architecture, an enterprise service bus will be setup as the foundation of SOA-based applications

RESULTS

The researcher has made a SOA-based application prototype by referring to the Enterprise Architecture based on TOGAF, which is owned by a multi finance company in Jakarta. The process used as an example is the account acquisition process, which is one of the core processes of this company. In this study, the researcher has successfully implemented it using BPM and ESB tools to create SOA-based applications. Because of the limited time and information, the application of the account acquisition process may not be as expected by the company. There can be the absence of data validation, the absence of automatic calculations, and the master data parameters that have not been fully covered

OUTPUT

PUBLICATION

[1] N. Fajar and R. Ambara, “Service Oriented Architecture and Enterprise Architecture Alignment for Loan Financing System,” *Int. J. Sci. Technol. Res.*, vol. 8, no. 10, pp. 1033–1035, 2019.

IMPROVING THE QUALITY OF LEARNING MANAGEMENT SYSTEM (LMS) BASED ON STUDENT PERSPECTIVES USING UTAUT2 AND TRUST MODEL

RESEARCH LEADER: Dr. Meyliana, S.Kom., M.M.

TEAM MEMBERS: Henry Antonius Eka Widjaja, S.Kom., M.M., Stephen Wahyudi Santoso, BSE, MSIST

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INTRODUCTION

The use of the Internet in education is very plural and varied. The learning process that is carried out using the Internet is called e-learning. E-learning has two types, namely the Learning Management System (LMS) as a front-end application and the Content Management Systems (CMS) as a back-end application. This research aims to evaluate the acceptance and use of LMS from the perspective of the students. The evaluation is carried out using the UTAUT2 method combined with the trust variable. Data collection is conducted through a questionnaire with 697 students as respondents, and data are analyzed using SEMPLS.

METHODOLOGY

The research method used in this study is a quantitative method developed from the UTAUT2 and trust models. This research uses the UTAUT2 model because it wants to see the degree of acceptance and use of LMS applications by students. The trust model is added because the trust factor is fundamental in user behavior. It can influence users when using LMS applications.

RESULTS

From the results of this research, it seems that the greatest influence on behavioral intention is from social influence and habit. The use of the LMS application is massive and essential, so it becomes a habit for students and lecturers. All provision of learning content and assignments given by lecturers is also made through this LMS application. Meanwhile, the most significant influence on use behavior is the behavior intention variable. It means that the frequency and benefits of using LMS applications provide good results and greatly help students to enable their intention to continue using the application. Hence, it significantly affects the use of the application.

ASSESSMENT ON BANKING E-COMMERCE SERVICE FACTOR

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INTRODUCTION

Currently, financial technology (fin-tech) is rapidly developing. To anticipate the disruptive trend in fin-tech use, banks are currently competing to adopt the use of fin-tech in offering their products/services. This research takes a case study at PT. XYZ, which has a strong network of cooperation with companies such as trains, cinemas, and so on. Currently, PT. XYZ is updating the fin-tech application to serve partnerships with companies that are currently existing in the e-commerce micro-site scheme. This research conducted a study on the implementation of the current offline and online micro-site strategy with the hope that it can be applied in the overall digital strategy of PT. XYZ product services. This research also pays attention on the use of e-wallet (server based) and e-money (chip based) fin-tech, which are trends that will be adopted by the banking industry today. This research is important considering that relatively few studies can be found on the combination of offline and online strategies for using fin-tech in Indonesia.

METHODOLOGY

The research design used in this research is quantitative method while the type and purpose of the research is descriptive explanative research by taking case studies of PT. XYZ customers. This research looks for the influence of one variable on other variables so that it is included in experimental research. In addition, this research is a survey research as it uses questionnaires as a means of collecting basic data. The unit of analysis studied is the adoption of e-commerce microsite services in PT. XYZ internet banking. In addition, the time horizon used is cross sectional, which according to Sekaran (2006), is a study where data is collected only once (which is done per day, week or month) to answer research questions.

RESULTS

The research results are related to the use of banking microsites. It is found that perceived usefulness, perceived ease of use and internet experience have a positive and significant effect on customer adoption attitudes that can be accepted in using online shopping microsite services via internet banking. Customers get the benefits and conveniences obtained by efficiently and effectively doing online shopping as well as banking transactions.

OUTPUT

PUBLICATION

[1] G. Wang, “The effect of smartphone use on intention to use electronic money,” *Journal of Theoretical and Applied Information Technology*, vol. 97, no. 17, 2019. ISSN 18173195.

APPLICATION AND ANALYSIS OF KNOWLEDGE MANAGEMENT APPLICATION IN THE CREATIVE INDUSTRY SECTOR USING THE TECHNOLOGY ACCEPTANCE MODEL (TAM) APPROACH

RESEARCH LEADER: Junita Juwita Siregar, S.T., M.Kom

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INTRODUCTION

The development of information technology, communication, and economic globalization has encouraged people to be more creative. According to the Ministry of Trade of the Republic of Indonesia, the definition of creative industry is an industry that comes from the use of individual creativity, skills and talents to create wealth and jobs through the creation and utilization of individual creative and creative power. Creative activities related to the creation, production and distribution of products made by this Applied Research explain the implementation and analysis of factors that affect the effectiveness of the application of Knowledge Management in the creative industry small and medium enterprises (SMEs). The purpose of this research is to build Web and applications and mobile Apps which are a real form of Knowledge Management which will be used optimally for medium-sized creative industry entrepreneurs to foster ideas and creativity as well as valuable innovations in the creative industry in Indonesia so that they can make a significant economic contribution and create a positive business climate and national identity.

METHODOLOGY

The research method used is explanatory research which aims to analyze the relationship between one variable and another or how one variable affects another variable. The population used is small and medium enterprises in the Tangerang and Jakarta areas. The sampling technique used in this study was purposive sample. The data collection technique was obtained through a questionnaire survey. Data analysis used in analyzing the factors that affect the effectiveness of Knowledge Management application in the creative industry (UKM) is descriptive statistics to examine the frequency distribution of centralization sizes and the distribution of data on sample characteristics (respondents) and indicators of endogenous variables and provide explanations in the form of the mean (average), standard deviation, variance, maximum, range, kurtosis and skewness values. Inferential statistical analysis using the Structural Equation Model (SEM).

RESULTS

The benefits of discussion forums have a positive effect on increasing individual knowledge and have a positive effect on the willingness to share knowledge so that it affects the willingness to use

Knowledge Management System technology. The benefits of discussion forums have a positive effect on creative business ideas, but do not have a positive effect on the willingness to use the Knowledge Management system.

OUTPUT

PUBLICATION

[1] J. J. Siregar & Aryusmar, “Analysis model of development functional requirement knowledge management cycle for performance business competitiveness in Indonesia Small and Medium Scale Enterprises (SMEs),” *International Journal of Entrepreneurship*, vol. 23, no. 4, 2019.

SYSTEM SEFCURITY RISK ANALYSIS OF COMPANY SYSTEM ACCESS THROUGH PERSOAL DEVICES OR BRING YOUR OWN DEVICES (BYOD)

RESEARCH LEADER: Dr. Astari Retnowardhani, SKom., MKom.

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INTRODUCTION

Nowadays information system has become popular used for helping effectiveness and efficiency operation on a company. Bring Your Own Device (BYOD) system is a growing trend in corporate environment where employees could access the system not limited from the office. BYOD system is system information development using some technology, such as a Virtual Private Networks (VPN) or some application to make the client on outside network office can access to inside networks with remote system. The remote system has strength to help employees working anywhere and anytime, that can make some issues for a security thing. The security issue that can be happen is unauthorized access and lost some important of company information. To improve the security of the system we can do risk analysis, with the aim to protect the internal data. The risk analysis use Cybersecurity Framework NIST will assist organizations to understand the risk of BYOD system. The analysist results obtained by the use of cybersecurity analysis on BYOD system in XYZ company find some improvement need to develop in terms of recommended security system according to the stages of respond with the analysis using Cybersecurity NIST framework and ISO/IEC 27002:2013.

METHODOLOGY

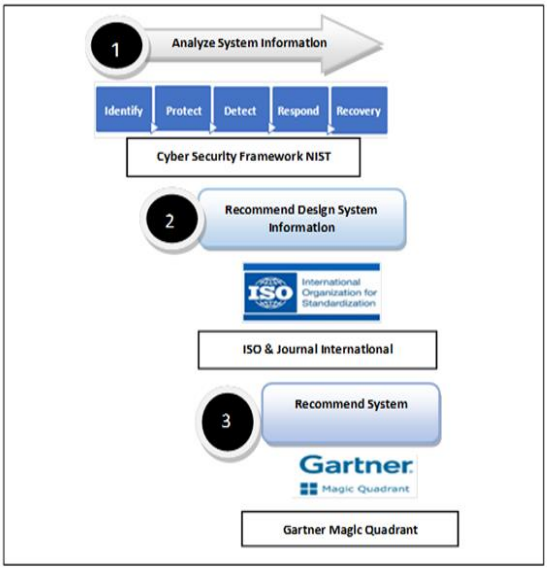

Figure 1 Methodology

Figure 1 presents the proposed research methodology which consists of three stages. Firstly, doing analysis of existing information systems, focused on the security risks in the use of BYOD. Secondly, making a recommendation design system based on the results of the analysis in the first stage. The design made is based on ISO 27002: 2013. The third stage is a recommendation system based on Gardner Quadran. To implement this proposed methodology we have been used XYZ company data for sample case.

RESULTS

Based on data gained from interview and observation in XYZ company we make an analysis about BYOD system security risk. The results obtained by the use of cybersecurity analysis on BYOD system in XYZ Company, there are some points need improvement to develop in terms of security system recommended. Based on proposed methodology with the analysis using Cybersecurity NIST framework and ISO/IEC 27002:2013 then the results and actions are obtained. In Identify Function, it obtains 10 results. In Protect Function also obtains 10 results. In Detect Function iobtains 6 results, one of the results as like a company needs to do awareness and monitoring to users change password periodically with the high complexity of password. Respond Function results have 7 results, such as need to upgrade and implement the security planning of the BYOD system. Then, Recovery Function generates 3 results, such as a XYZ company is urgent to make a rules documentation. Furthermore, the use of Cybersecurity NIST framework is useful to determine the weaknesses of the BYOD system security in XYZ company as sample case.

OUTPUT

PUBLICATION

[1] Retnowardhani, A., Diputra, R.H., Triana, Y.S. Security Risk Analysis of Bring Your Own Device (BYOD) System in Manufacturing Company at Tangerang. *Telkomnika (Telecommunication Computing Electronics ans Control) Journal*, Vol. 17, Issue 2, April 2019, pp 753-762

ACCELERATION STUDY OF INDONESIA DEFENSE INDUSTRY DEVELOPMENT 2020-2045

RESEARCH LEADER: Curie Maharani Savitri, Ph.D.

TEAM MEMBERS: Juprianto,Ph.D, Ganesh Aji Wicaksono, S.Sos., M.Sc., Assay Lovelianty, S.Hub.Int, Reine P, S.Sos., Iis Gindarsah, M.Sc., Reyhan Noor, S.E

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INTRODUCTION

The strength of the defense is influenced by the availability of qualified defense technology to support operations. Technology in the context of defense forces is part of the physical component of defense. Comprehensively, the physical component of defense includes the willingness of staff and personnel, defense technology, training in the framework of effectiveness and efficiency, resilience and sustainability of all elements, as well as the ability to develop defense capabilities. At present, there is a tendency for global investors to have the ability to supply high-tech defense, dominated by a small number of multinational companies from a few countries. This condition reflects the uneven mastery of defense technology, which indicates the difficulty of mastering technology and the defense industry's development. This phenomenon has pushed almost most of the countries in the world to make specific policies in terms of the development of the defense industry. Specifically, in Indonesia, this institutional development is institutionally supported by Law no. 16 of 2012 concerning the Defense Industry.

At present, Indonesia's contribution to the fulfillment of domestic defense needs has increased from 28,1% (2014) to 49% (2019). During the 2010-2017 period, Indonesia is the 37th largest arms exporter country under Singapore (36), Czech (25), and Turkey (16). Two things can be concluded from the above data; first, Indonesia is currently still focusing on import substitution and not yet export-oriented. However, even though it has met almost half of the domestic needs, it is actually difficult to ascertain what percentage of the national defense industry value chain and what percentage of components still have to be imported. This is caused by the absence of data structure and industry diversification relevant to the production of weapon systems. Secondly, the low position of the arms system exports can mean that the Indonesian defense industry has not yet been connected with the global supply chain and has not yet competed as a lead integrator in the international market.

So this study aims to (1) determine the determinant factor of weapons production capability as an independent factor influencing the 2045 model; (2) analyzing the character of future conflicts as exogenous factors; (3) mapping the 2045 defense industry models as the dependent factor; (4) formulating recommendations in the form of (a) targets, strategies, and acceleration of the development of the defense industry 2020-2045, (b) indicators of the success of the development of the defense industry, (c) development of key technology 2020-2045, and (d) budget requirements to achieve the target of the defense industry development program.

METHODOLOGY

This study uses the Net Assessment approach, a methodology that emerged in the context of military competition between the United States and the Soviet Union during the Cold War. The main purpose of a net assessment is to "outthink" or think one step ahead of your opponent. It combines classical methods that examine the relationship of independent, dependent, and exogenous variables that consider dynamics and strategic responses and use scenario-building to identify the scenario with the highest probability.

There are three main concepts used, namely the Potential Defense Capability Index (PDC index), the character of future threats, and the defense industry model. It aims to calculate the minimum capability needed by a country in producing weapons. This concept becomes an independent variable that influences the defense industry model through long-term trends. The second concept is formulated by the writing team, to identify the character of future conflicts by analyzing the stability of the system, and the technological developments that influence it. The theory used is the balance of power, distribution of power, the balance of force, and balance of terror. This concept becomes an exogenous variable, which also influences the defense industry model. While the third concept is also formulated by the writer's team to analyze four defense industry models that might be formed most likely as a result of the influence of the PDC Index and the character of future conflicts, namely autarchy, niche production, global supply chains (global supply chain), and oligopoly.

In this study, forecasting to obtain T (1) used two different approaches. The first approach uses the linear regression method by utilizing existing data in situations T (0), T (-1), and T (-2). In this linear regression approach, setting the time horizon to determine T (-1) and T (-2) is not required simultaneously. However, instead, the need for the amount of data that can be used to make forecasting to determine the situation T (1). The second approach uses expert justification in the form of FGDs to determine the characteristics of T (1) for each indicator. Based on these two approaches, the results of approaches 1 and 2 are then compared to determine the gap between the two approaches. Then the gap is used as input to design the defense industry acceleration program.

RESULTS

The trajectory determinant variables show that the Indonesian defense industry model in 2045 is not a full autarchy, but rather a tendency towards a niche production model. This is due to the medium structure and high diversification. The weaknesses of Indonesia's defense industry lies in the availability of low-middle-educated human resources, low military spending both in nominal terms and in percentages of GDP, and low defense investment in procurement and R&D.

The level of dependency on foreign technology in 2045 is still high. This happens due to the ability to produce defense equipment with a high trembling power that is not matched by the import defense equipment substitution policy. Even though the defense industry can produce defense equipment with high explosive power, Indonesia purchases similar defense equipment to the global defense industry (overseas). Thus, there is a real gap between the Indonesian defense industry 2045, which tends to be characterized by a niche model with a strategic goal, the autarchy model.

OUTPUT

The output of research is a report and executive summary exclusively provided for Bappenas

SOCIAL COMMUNICATION MODEL IN INCREASING TOLERANCE AND HARMONIZATION INTERMEDIATE SOCIAL LIFE AS THE BASIS OF THE DEFENSE OF THE REPUBLIC OF INDONESIA

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INTRODUCTION

The main problem of this research is social communication between religious communities where in its implementation there are often conflicts, both latent conflicts and conflicts that can be seen in the form of chaos (concrete conflict). In human life, communication is necessary as a process of human relations in conveying messages both verbally and nonverbally. The message from the communication process in question can be in the form of thoughts or feelings that are expressed in language and symbols or symbols. Communication can also occur when there is a similarity in meaning regarding a message conveyed by the source of the message (communicator) and the person receiving the message (communicant) in the process of social life, including between religious communities in a society. The social communication process aims to change knowledge, attitudes, and behavior, and together create meaning or mutual understanding between the two interacting parties.

The main objective of this research is to formulate and find a Social Communication Model in increasing tolerance and harmonization of social life between religious communities by taking case studies on conflicts in the name of religion in Indonesia which are triggered by misunderstandings in the social interaction process. This should not have happened because no religion in this world teaches evil or violence. Therefore, this study aims to identify and create a social communication model in order to increase tolerance and harmonization of social life between religious communities in Indonesia.

METHODOLOGY

This research uses a case study, which is to find and explore information about the object of research, in this case the process of social communication between religious communities. The case study method can involve individuals, groups, organizations, movements, and events. Therefore the process of observation and interviewing is at the core of this research work (Neumann, 2000). The case study method, in addition to a more complete and comprehensive description, also has limitations in the research area, making it easier for researchers to collect data.

RESULTS

The results find out the model and form of social communication approach in maintaining and increasing tolerance and harmonization of inter-religious social life as the base of the resilience of the Unitary State of the Republic of Indonesia (NKRI).

OUTPUT

PUBLICATION

[1] Y. L. Ismawani, L. Mani & M. Aras, “Social media in the constituent interaction and mobility (Case study in the 2017 Jakarta-Indonesia Governor General election campaign,” *Journal of Theoretical and Applied Information Technology*, vol. 97, no. 14, 2019.

TEXT-BASED SOCIAL MEDIA CONTENT CLASSIFICATION USES THE TEXT MINING APPROACH

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INTRODUCTION

Nowadays, social media is used by many people with various backgrounds. This phenomenon is used by radical communities to spread ideology and recruit new members. This research will develop a model to support the detection of terrorism warnings for the Indonesian government. This model uses a text mining approach to classify text-based social media content in Indonesian to determine which text contains of radicalism. The accuracy of the classifier will be measured by precision and recall.

METHODOLOGY

The data analysis method uses a qualitative method using two data sources—primary data and secondary data. Primary data are obtained based on interviews from various sources, namely from the BNPT, the Ministry of Communication and Information (Communication and Information), and Syrian returnees. The research team then analyzes the secondary data based on literature studies and various references from eBooks, books, journals, websites, documents and reports relating to the role of government in warning detection terrorism on social media.

RESULTS

The result of this research is expected to be used by the Government (BNPT, Ministry/Kominfo and Kemlu, Parliament members/DPRRI on terrorism focus), including: 1) identifying the right classifier model and can be useful for detecting radicalism content in text-based social media and 2) designing a text mining system solution, which is an appropriate classification method for detecting radicalism content in text-based social media.

OUTPUT

PUBLICATION

[1] M. Aryuni, E. Miranda, Y. Fernando and T. M. Kibtiah, "An Early Warning Detection System of Terrorism in Indonesia from Twitter Contents using Naïve Bayes Algorithm," *2020 International Conference on Information Management and Technology (ICIMTech)*, Bandung, Indonesia, 2020, pp. 555-559, doi: 10.1109/ICIMTech50083.2020.9211261.

[2] T. M. Kibtiah, E. Miranda, Y. Fernando and M. Aryuni, "Terrorism, Social Media and Text Mining Technique: Review of Six Years Past Studies," 2020 International Conference on Information Management and Technology (ICIMTech), Bandung, Indonesia, 2020, pp. 571-576, doi: 10.1109/ICIMTech50083.2020.9211148.

JURIDICAL REVIEW OF MARINE CASUALTIES AND MARINE POLLUTION (CASE STUDY OF BALIKPAPAN BAY)

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INTRODUCTION

A marine casualty involved MV Ever Judger has occurred on 30 March 2018 in Balikpapan Bay. After loading coals into her cargo at Balikpapan Coal Terminal (BCT), the vessel was about to leave the terminal and headed to Lumut, Malaysia. Unfortunately, the ship underwent problem on main engine and the departure was delayed. Later in the evening, the crews resolved the issue and planned to drop the anchor in Balikpapan Bay. The Pilot pointed the location on the ECDIS. That time the visual was clear and the tide was receding, no rain but cloudy sky. The anchor of the Panamian bulk carrier vessel hit and dragged the submerged crude oil pipeline of Pertamina which caused pipeline damage and crude oil pollution. There were three ships impacted by the fire blast, the vessel itself and two other wooden vessels. One of the vessel's crew was badly injured, and five people died at the scene. National Transportation Safety Committee of Indonesia conducted the investigation, and Ministry of Environment and Forestry impact analysis reported that more than 7,000-kiloliters of crude oil spread onto more than 13,000 hectares of the bay and damaged marine life and mangrove forest. The accident has caused one of the five pipes broken into V-shape. Pertamina underwater survey reported there was an anchor scar, assumingly the Ever Judger's anchor. Balikpapan District Court passed a judgment that the Master found guilty of breaching Article 98(3) of Law Number 32/2009 on Protection and Management of Environment. The study aims to discuss the liabilities of parties in this casualty, started from the Master, Crews, Pilot Officer, Vessel Company, the Port Authority as well as Pertamina. Further, the research focuses on liability of parties from private law point of view by analyzing the related statutory regulations, final report of National Transportation Safety Committee, the Court Verdicts, books, journals and related reports. It also proposes the actions to be undertaken and the policy to be passed in order to prevent the similar accident taking place.

METHODOLOGY

This research uses empirical-legal approach by assessing the relevant statutory regulations, international conventions as well as court's judgments, books and journals combined with interview with related parties. The study is explanatory in nature by studying the information, statements, etc. The study uses primary, secondary and tertiary resources in order to test the hypothesis.

RESULTS

The research is still ongoing

DRONES COMPUTER VISION USING DEEP LEARNING TO SUPPORT FISHING MANAGEMENT IN INDONESIA

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INTRODUCTION

It is necessary to study technical factors such as bait used, oceanographic conditions of fishing areas and skipjack tuna trade patterns (Katsuwonus pelamis) as well as other factors in Sulawesi Fisheries. Supporting data to study these technical factors need to be obtained so that it can be improved throughout the year as a skipjack fishing standard with weights taken by the skipjack weights. Therefore, drones and underwater drones with cameras with highresolution video and images to be fed and processed by computer vision. These drones are operated via Huhate ships which are then used to test efficient technical factors as expected, can be used in determining the size, shape, and colour as well as the analysis of skipjack fish that are in the Fish Aggregating Devices (FADs or Rumpon) in order to manage the management of fisheries managed in Indonesia.

METHODOLOGY

By flying a drone (1380 grams of DJI Phantom 4 ™ multirotor, 4K video quality, 12.4 MP photo, f / 2.8 aperture, waterproof) on a GPS-enabled FAD, fish can be seen in fish populations in the FADs. The air drone camera is controlled and stabilized by a three-axis gimbal, and a GPS-stable system controls the drone. All videos are filmed at 3840 x 2160 pixels (30 frames s-1 45), with automatic ISO and fixed speed, allowing variations to get the images recorded neutrally. The sensor width is 6.2 mm, and the focal length of the camera is 3.61 mm. The drone is programmed to fly (5.4 km / h) in fishing areas above the FADs, calculated and controlled using the Drone Harmony application and run via a mobile Android phone. While continuously recording images or video FADs, data can be sent simultaneously via Satellite imagery data that is provided on the application, and routes are calculated automatically to ensure the entire surface area of the FAD can be recorded into video, using the camera facing directly downward (-90° angle). After the air drone sends the image to computer vision for further analysis, the underwater drone that is equipped with a go pro wifi underwater camera is sent to take pictures of fish positions that are known by air drones where there are many skipjack fish, so that underwater drones can take underwater shots around the FAD where there are cakalang fish which will later be processed by computer vision again.

RESULTS

To conduct proper fisheries management, drones can help in terms of the amount of fuel released on fishing trips, management of fisheries resources, fishing vessel traffic operations, estimating skipjack tuna caught quickly and can be used as one of the considerations in selling buy fisheries online. Computer vision drones can be used to manage fish resources efficiently and environmentally friendly and are useful for managing sustainable fisheries management in aquaculture security in Indonesia. For this reason, the vision of computer vision drones must be applied to maintain better aquacultural sustainability in Indonesia.

OUTPUT

PUBLICATION

[1] Liawatimena, S., Atmadja, W., Saleh Abbas, B., Trisetyarso, A., Wibowo, A., Barlian, E., ... & Cahya Yojana, A. (2020). Drones Computer Vision using Deep Learning to Support Fishing Management in Indonesia. *E&ES*, 426(1), 012155.

SMART TOURISM STRATEGY IN INCREASING THE NUMBER OF TOURIST IN INDONESIA

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INTRODUCTION

Revisit intention is an essential concept in understanding tourists in the assessment of a tourist destination. Therefore, it becomes a major concern in research destination marketing. It has an impact on long-term benefits because its cost of maintenance is more efficient than attracting new travelers. It is also a representation of the great success for tourism managers. It has four dimensions, namely 1) future visits in the future; 2) the intensity of recommending the destination; 3) the intensity of promotion from tourists to the general public; 4) the main choice for tourists. Based on the existing theory, this research proposes the following hypotheses:

H1 : Smart tourism experience has a positive effect on perceived value.
H2 : Smart tourism experience has a positive effect on the memorable tourism experience.
H3 : Smart tourism experience has a positive effect on revisit intention.
H4 : Smart tourism experience affects the revisit intention with perceived value mediation positively.
H5 : Smart tourism experience influences the revisit intention with the mediation of memorable tourism experience positively.
H6 : Perceived value affects the memorable tourism experience positively.
H7 : Perceived value affects the revisit intention positively.
H8 : Memorable tourism experience affects the revisit intention positively.

METHODOLOGY

This type of research is quantitative research. The research method used is descriptive and verification method because the nature of this research is explanatory and causal. The type of investigation is causality with tourists who visit smart tourism destinations in Jakarta, Bandung, Surabaya, Yogyakarta, Malang, Denpasar, and Makassar as the unit of analysis. Moreover, the time horizon is cross-sectional. The sampling technique used is simple random sampling with 400 samples. Data collection is conducted with questionnaires. This research uses Structural Equation Model (SEM).

RESULTS

Figure 1 proves that all of the correlations from the variables are eligible. Figure 1 is the final diagram of the full model that represents the final correlation from smart tourism experience, perceived value, memorable tourism experience, and revisit intention. It creates a new model from the correlations of smart tourism experience, perceived value, memorable tourism experience, and revisit intention in the smart tourism destination. It shows that all variables have a positive effect. Thus, all hypotheses are accepted.

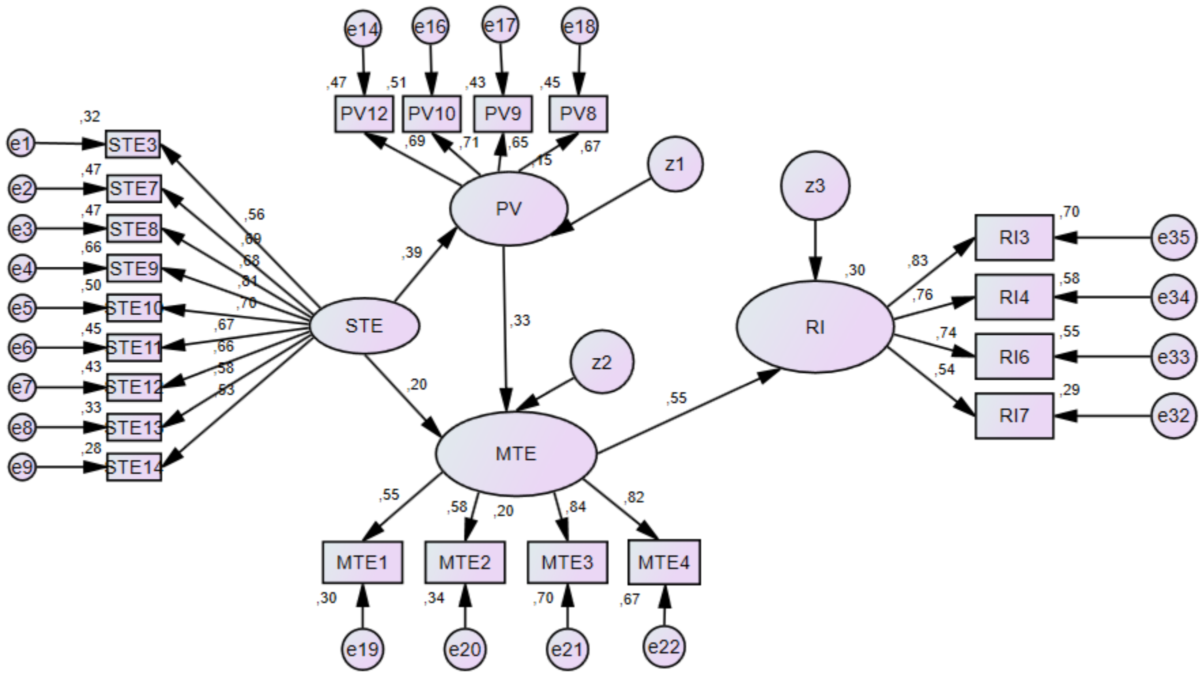

Figure 1 The Final Diagram of Full Model

OUTPUT

PUBLICATION

[1] D. Y. Nugraha, "Pengaruh Strategi Komunikasi Masa terhadap Kinerja Pemasaran (Studi pada Konsumen McDonald's di Indonesia)," in *Proceedings of Global Competitive Advantage*, 2016, pp. 37–44.

[2] M. Gunarto, D. Y. Nugraha, and V. Gaffar, "Analysis of perception and public preference on reputation of higher-education ranking agencies," in *Proceedings of the 2016 Global Conference on Business, Management and Entrepreneurship*, 2016, pp. 364–370.

[3] D. Y. Nugraha, L. A. Wibowo, D. Disman, and R. Hurriyati, "Smart tourism strategy in increasing the number of tourist in Indonesia," in *Proceedings of the 1st International Conference on Economics, Business, Entrepreneurship, and Finance (ICEBEF 2018),* 2019, pp. 149–154.

[4] D. Sudirman, D. Yudistira, and Mulyani, "Green technology trends: Increasing sales of green technology through brand equity and green trust," *Int. J. Recent Technol. Eng*., vol. 8, no. 4, pp. 4433–4437, 2019.

THE DEVELOPMENT OF NIHONMACHI FROM CULTURE AND BUSINESS PERSPECTIVE

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INTRODUCTION

In 2018, Japan and Indonesia celebrating their 60th years of diplomatic relation since the Peace Agreement between Indonesia and Japan in April 1958. Since then the two countries have become 'strategic partners' following "the Strategic Partnership for peaceful and Prosperous Future" agreement in 2006 and the Indonesia-Japan Economic Partnership Agreement in 2007. Both countries sustain their cooperation in several spheres, such as economic, political, social and culture. For example, parts of Jakarta's shopping district of Blok M have been developed into the formation of Japanese-oriented facilities, including clusters of restaurants, spas, and cafes; earning the nickname "little Tokyo", as it is also coupled with the high density of Japanese expats living around the area. Furthermore, Blok M also become the venue for the annual Japanese culture event Ennichisai by bringing local and Japanese performers together in one venue to celebrate the meshing of Japanese and Indonesian popular culture. Previous studies showed that nihonmachi studies mainly in Western and East Asia countries. There are limited studies on the establishment of nihonmachi in South East Asia focusing on the relation of nihonmachi and Japanese pop culture. This study examines the role of Japanese popular culture community in enhancing the development of nihonmachi in Jakarta. By using Appadurai's Global cultural flows and Jenkin's cultural appropriation concept, it will identify the interconnection between the appropriation of Japanese popular culture in Indonesian society and the establishment of nihonmachi.

PROPOSED METHOD

The purpose of this study is to describe the nihonmachi development from culture and business perpspectives. The object of the study is Japanese and locals who interacts within the area assumes as nihonmachi or known as 'little tokyo'. Event such as Enichisai and Sakura Matsuri seen as the media where the exchange of culture and economic enhanching the development nihonmachi in Jakarta. Using an ethnographic approach this research conducted field observation and in-dept interview with the locals and Japanese expatriate resulting in cultural picture of the nihonmachi development within South East Asia regions, focusing on Indonesia and Thailand. At this stage in the research the nihonmachi will be defined generally as Japanese community established outside of Japan through the interconnection of popular culture and business investment.

RESULTS

Japan town, Nihonmachi, is the name for the Japanese community outside Japan. Japanese diaspora can be seen in almost every major city in the world. In Southeast Asia, migration of Japanese was recorded as early as the 12th century. These days, many Japanese migrants implies a background of extensive economic cooperation between Japan and ASEAN. A large group of Japanese expatriates also poses a potential influence on political relations between countries. In addition, in the same manner, like other migrants, Japanese migrants play a significant political, economic and social role in receiving countries, while creating ripples of impact back to their homeland.

Furthermore, when we consider Japan town with the concept of 'area', Japan town is also the word for shopping arcade where Japanese shops and services are focused. It is the place where not only Japanese and local culture interacts, but also the place where other cultures could be incorporated. They interact through Japanese culture that underlies the setting of Japan town. In this sense, Japanese culture is the interface between people of various cultures.

TRANSNATIONAL CULTURE PEDAGOGY AND STUDENTS INTERCULTURAL COMMUNICATIVE COMPETENCE: A CASE STUDY OF DIGITAL NATIVES

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INTRODUCTION

With English as a global language, the language is currently free from inner circle ownership. It is possessed by different language users from a diverse cultural background. Additionally, English also belongs to a virtual speech community (Canagarajah, 2016). In the virtual speech community, the English speakers are not bound by the geographical border, but they inhabit and practice the language and culture in their localities. As what happens in the massive open online courses, students from different parts of the world are connected virtually to accomplish tasks by using English as a medium of communication. Notable phenomena of English use in online gaming also performs complexities of hybrid community that use the language to conduct successful communication while further developing their proficiency when they try to accomplish the game. This community of imagination, as called by House (2003), consists of complex transnational affiliation with fluid social boundaries involved in a heterogeneous communicative context. As an implication, the construction of the English language and culture becomes fluid and borderless. Furthermore, this situation also provokes questions on the custodian of standard English language and culture.

As a university with global aims, Bina Nusantara has been recruiting digital natives who regularly interact with global communities. As part of Bina Nusantara University, English Literature department also facilitates and equips students to use English as global tool communication. This study is aware of the significant role of transnational pedagogy in language and culture classroom to equip students with ICC. It intends to figure out to what extent transnational pedagogy exists in the pedagogy in cultural learning at the English Literature Department, Bina Nusantara. It also conveys students' intercultural communicative experiences to implicate their needs in achieving intercultural communicative competence.

METHODOLOGY

A mixed-method study employs quantitative and qualitative data to map the elements of transnational pedagogy and convey students' Intercultural experiences. There are two lecturers who have been teaching cultural studies for more than two years and 22 students who are in the fifth and sixth semesters and undergo cultural studies at the English Literature Department, Bina Nusantara University. The quantitative data are gained through the questionnaire on the transnational pedagogy element delivered to the lecturers and students. The following quantitative data are students' intercultural experiences gathered through questionnaires. To support quantitative data on transnational pedagogy elements, an interview is delivered to lecturers to reveal the transnational pedagogy elements existing in the classroom and three selected students.

Further investigation regarding students' intercultural experience is also done by interviewing the three selected students. The quantitative data will be analysed statistically, and interview data should go through data reduction by writing a summary of the qualitative data (Creswell & Clark, 2007). Upon reducing data, they will be presented as charts to be correlated later with the quantitative data gathered from the questionnaire. The summary of the data and participants are presented in Table 1.

Table 1. Type of Data and Participants

No.	Type of Data	Participants
1	Quantitative-Questionnaire on transnational pedagogy	2 lecturers 22 students (5th and 6th semester)
2	Quantitative-Questionnaire on intercultural experience	22 students (5th and 6th semester)
3	Qualitative-interview on transnational pedagogy	2 lecturers 22 students (5th and 6th semester)
4	Qualitative interview on intercultural experience	22 students (5th and 6th semester)

RESULTS

Reflecting on topics and discourses as well as language and lingua culture, students are more encouraged to have contact with native speakers of English expected to support language and culture learning. Contact with native speakers is merely a suggestion from lecturers towards the students to enrich their English language and culture upon realizing the limited boundary of their classroom. This thought is aligned with the idea that intercultural contact can be seen as an opportunity to put into question one's cultural assumption and as a source of enrichment (Kramsch & Uryu, 2012). In other words, practically, the students and lecturers try to make up their space limitation of learning English and culture in motherland by making more contact with native speakers of English. Students see the need to expand the classroom by visiting historical sites or places connected to the topic they are learning in English language and culture classes.

Comparing with students' experience outside of the classroom, interview depicts their vast intercultural interaction. The three students are engaged with people from different nationalities, both from English and non-English speaking countries. The surveys show that 90.5% of the students who participate in this study frequently interact with both native and non-native speakers using English who are their family members, supervisor, and friends. They also interact with the global community through games and social media, which virtually test their intercultural competence.

IMPLEMENTATION OF DESIGN THINKING PROCESS IN CREATING AN INNOVATION OF NEW LASEM BATIK

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INTRODUCTION

Innovation, according to Oxford Advanced Learner's Dictionary, introduces new things, ideas, or ways of doing something; or a new idea, way of doing something, and others that have been introduced or discovered (Hornby et al., 2010). The definitions refer to innovation as a finished product, new idea, or new method. To innovate, it does not mean that one must create something new. It is more about re-thinking old ideas, tweaking it, looking at it from different angles until discovering that more potentials can be drawn from these old and tired ideas. As a result, there has to be a process involved in innovation. This research presents an implementation of the design thinking process developed by IDEO and Riverdale Country School in New York. It is also discussed in a book by Vogel, (2014). The framework of the design thinking process will be applied to create new and more modern motifs of one of traditional Indonesian cloth, batik. Specifically, it is the Chinese-influenced Lasem batik which is a traditional batik found in Lasem, Rembang, Central Java.

METHODOLOGY

The research is carried out by conducting field observation in the town of Lasem, Rembang. The life of the people of the town, especially the batik artisans, is observed. The researcher makes several trips to Lasem and observes several batik artisans in creating Lasem batik as well as researching the history and daily lives and local culture of the people of Lasem. From this phase, the researcher discovers basic information regarding the town of Lasem. During analyzing information and facts gathered from field observation, the researcher manages to examine four motifs that are commonly found in Lasem batik. Those are influenced by social and geographical aspects of the town of Lasem. Those four motifs are Latohan, Watu Pecah, Bledak Kawista, and Gunung Ringgit.

RESULTS

Through the process of implementing the design thinking process developed by IDEO design and Riverdale Country School in New York, the researcher finds that social and geographical aspects of the town of Lasem can be a source of inspiration to create a new product. In this case, it is a new pattern of batik by combining the old and traditional patterns. The social and geographical aspects of the town of Lasem used as inspiration are the history of the town and the people's daily lives.

OUTPUT

PUBLICATION

[1] V. J. Basiroen and M. E. Lapian, "Implementation of Design Thinking Process in Creating New Batik Lasem Design," *Pertanika J. Soc. Sci. Humanit.*, vol. 24, pp. 119–136, 2016.

THE DEVELOPMENT OF PAPASAN RATTAN CHAIR DESIGN AS AN EFFORT TO IMPROVE THE IMAGE OF INDONESIAN RATTAN FURNITURE PRODUCTS USING ATUMICS METHOD

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INTRODUCTION

The issue of visual presentation is one of the focuses in the design. It is what happens to the Papasan chair. The development of design from the visual aspect is needed to be agreed by the product designers, given the potential and achievement of the papasan chair in its golden era. However, to preserve tradition (traditional products) is to continue to develop it (Adhi Nugraha, 2019). A method of preservation or revitalization in the transformation design of artifacts is needed. Thus, the designers can study, read, develop, and improve the design.

METHODOLOGY

The Technique, Concept, Utility, Shape, and Material (TCUSM) model is the result of doctoral research from Adhi Nugraha in Aalto University. It consists of five aspects of a design or product tradition so that they can be developed and adapted in all changing era. The model (which has now evolved into ATUMICS) is a tool intended for research and development in a company for designer, engineer, analyst, and business strategist. The model provides the basic aspects contained in a product so that it can detect the accuracy of its design development.

RESULTS

In this research, by using TCUSM model, the researchers expect to illustrate the opportunities in developing the Papasan chair's design. It is also expected to contribute to the rattan furniture industry in Indonesia.

THE GROWTH AND IMPACT OF INTERNET ON USERS: A RESEARCH ON INTERNET PHENOMENA IN INDONESIA IN 2016

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INTRODUCTION

On April 6th, 2015, the Ministry of Communication and Informatics (Kemenkominfo), Republic of Indonesia has established a task force which is called Forum Penanganan Situs Internet Bermuatan Negatif (FPSBIN) that aims at overseeing, monitoring, and if needed banning the sites that allegedly have negative contents. The forum has been regulated in the Regulation of the Minister of Communication and Informatics, No. 19 of 2014, on July 17th, 2014 (Aditya Panji, April 7th, 2015). It has four panels, namely, first, the panel of Pornography, Violence on Children and Internet Security; second, the panel of terrorism, racism and hatred; third, the panel of Investigation of Illegal Cases, Fraud, Gambling, Drugs & Food, Drug; and fourth, the Panel of Intellectual Property Rights. This plan is followed by the closing of 22 radical Islam websites which are proven as spreading radicalism through the internet (Yoga Hastyadi Widiartanto, April 2nd, 2015) as it is requested by Badan Nasional Penanggulangan Terorisme (BNPT), the national institution which is formed to fight terrorism. According to the Secretary General of the Ministry of Communications and Informatics, Suprawoto, internet access should provide added values for the users, and not otherwise such as online sexual transactions, hoax and fraudulence (Kominfo, May 15th,2015). The Indonesian government is concerned about these problems due to the rapid progress of the internet accompanied by the increasing number of internet users. It is then necessary to learn how the Internet has changed the behavior of young generation in Indonesia nowadays.

METHODOLOGY

The method applied in the research is a documentation study. We use four primary sources of data. The first source was an article taken from the findings of Garcia et all. (2014) entitled *Youth Engaged in the Internet: The Role of Social Networks in Social Active Participation*. The second source was another article from Bolton, et all. (2013) entitled *Understanding Generation Y and Their Use of Social Media: A Review and Research Agenda*. Both articles were downloaded from the Library of the Republic of Indonesia, which was accessed on November 21st, 2015 from Perpusnas Website. The third source was the result of the Indonesian Internet Service Provider Association (APJII), entitled *Penetrasi dan Perilaku Pengguna Internet Indonesia* (The Penetration and the Behavior of Internet Users in Indonesia) in 2016. The research was conducted on 2.000 internet users in 34 cities and released in November2016. The fourth source was the result of collaborative research between the Ministry of Communication and Informatics with UNICEF entitled *Digital Citizenship Safety Among Children and Adolescents in Indonesia.* It was conducted on 400 children and adolescents with the targeted age of 10-19 years old, starting from November 2011-January 2013. The result of this research was downloaded through the official website of Kemenkominfo. Those studies were drawn using the technique of proportional probability cluster random sampling, which means it was drawn based on the sample unit of the population into groups of specific areas throughout Indonesia.

RESULTS

Indonesia is one of the countries that has great enthusiasm for the development of electro-digital gadgets and the internet. The use of internet technology has changed the pattern of life and culture in learning, communication, and interaction patterns. The young people of Generation Y in Indonesia (born in 1989-1996) has initiated the birth of the "Awakening Generation" of information technology in 2014. They are referred to as "Digital Natives". They are capable adapt in expanding their online network. Generation Y has an ambitious attitude with the new challenge. It has now become a challenge for parents and the government to supervise children in their online activity and motivated to take advantage of digital technology for their educations. The Government needs to keep encouraging socialization program INSAN (Healthy and Safe) in various ways through seminars on internet, mobile phone, internet, television, radio, and print media. Internet presence needs to be disseminated to parents and teachers. Socialization Program INSAN needs to be done in many schools, considering the majority of generation Y aged 18 – 25 years are still active students. On the other hand, parents and educators have some important duties to carry out: Firstly, to accompany them. The digital generation still need assistance.They still need parent's presence and guidance. Secondly, to create new strategies teaching and learning which are relevant to this generation who mostly prefer the visual presentation and technology. Parents and educators as much as possible should use the internet to hone their character and skills early on. Third, the parents and educators should dare to limit their internet play time. They need to explore and befriend the real world as well. Fourth, the parents and educators should help them on how to use the Internet in proper and good way. They need to know the ethical principles and ways of using the internet and how to productively make use of digital technology.

OUTPUT

PUBLICATION

[1] Witono P.H., and Lakonawa, P. "The growth and impact of the internet on the users: A research on Internet phenomena in Indonesia in 2016", *10th International Conference on Human System Interactions (HSI),* pp. 317-321, 2017

POTENTIAL ANALYSIS FOR DEVELOPMENT OF LEATHER INDUSTRY IN MOUNT PUNTANG, BANDUNG REGENCY, INDONESIA

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INTRODUCTION

In an economic system, one indicator of achieving financial goals is the high income per capita. Per capita income is calculated by comparing GDP (Gross Domestic Product) with the population in an area. At present, the gap between urban and rural per capita income is considered quite high; hence urbanization occurs. To reduce this gap and avoid urbanization, the business potential of the village must be maximized.

In Bandung regency, Mount Puntang is known as one of the tourist destinations for those who enjoy outdoor camping. Villages in the mount Puntang area are known as producers of coffee and vegetables. Based on information from village officials, it is known that the livelihoods of most villagers are entrepreneurs, farmers, and laborers. The villages also have another potential that is not yet known by many people. Campaka Mulya village on mount Puntang has a leathercraft center. The products that are produced are mostly leather shoes, both for men and women. Some leather craftsmen in the village work independently. They already have markets and brands, although their sales turnover is still limited. Other leather artisans choose to provide services because of insufficient funds and connections they have.

Considering these observations, researchers are interested in developing the leather industry in mount Puntang. However, before formulating an appropriate development program, researchers must first understand the advantages, disadvantages, opportunities, and inhibiting factors that could affect the potential of the leather industry in Mount Puntang. This research is the initial research, which will be used as a basis for further analysis. The final result expected from this research is that researchers can understand the current business conditions and potentials that can be developed from the leather industry in Campaka Mulya village, Banjar district, Bandung regency. This research will then be followed by other research that aims to maximize the potential of leather artisans in Pasirmulya village. So, in the long run, it is hoped that the leather industry will develop and be able to raise GDP and advance development in the area.

METHODOLOGY

The research uses a qualitative approach and exploratory methods. This technique is suitable when used in early research to see problems or common phenomena that often occur (Earl, 2009). The factors that can be used to analyze the strategic management of a business with micro, small, and medium-scale are as follows (Covin, 1989); (1) external environmental conditions, including the level of competition; (2) organizational structure; (3) strategic company posture; (4) the company's financial performance.

While Herri and Wafa (2004) have analyzed internal and external factors that can affect the performance of a small and medium business. These internal factors are the attitude of entrepreneurship (flexible, risk-taking, proactive, and innovative), strategy, and organizational structure. While on external factors, the variables examined include government policies, market conditions, and the level of competition.

The factors we will analyze are as follows:

1. External environmental factors. This factor consists of technological developments, the government, and the level of competition. In terms of technology, it needs to be analyzed about appropriate technology and can be implemented by leather craftsmen there. Analysis of the role of the government, especially the Bandung regency, will also be observed and studied in order to obtain information and contributions from the government towards leather craftsmen. The level of competition factor will measure competition in the leather industry sector as well as strategies and what has been done by these competitors.
2. Resource factors. The labor factor to be analyzed is by observing the current workforce conditions such as the skills and expertise possessed and the insights to develop products. The raw material factor is more focused on the availability of raw materials and also the quality of raw materials owned by craftsmen. The capital factor will observe the ease of the leather craftsmen to get capital assistance or other forms of assistance from third parties.
3. Management factors. Management factors are more focused on mapping the current conditions that occur in internal companies such as human resource aspects (the number of workers and expertise and skills), marketing aspects (product range and quality and selling prices), financial aspects (capital structure and financial statements), and operational aspects (business processes that exist within the company).
4. Organizational factors. This factor emphasizes more on the analysis of organizational forms and also the leadership style of the manager or owner of the company in managing the company.

According to Sekaran and Bougie (2013), data can be collected in several ways, setting the location of studies - field or lab, and library studies. In this research, several data collection techniques will be used, namely: interview and literature Study.

RESULTS

Based on these descriptions, it can be concluded that the leather industry's potential in Mount Puntang are:
1. The mount Puntang leather industry has a competitive advantage over its main competitors.
2. Government support.
3. It is not difficult to get human labor.
4. There is a large area of land that can be used as a production location.
5. Have core customers
6. It has a brand.
7. Most of the craftsmen already have a form of the company either individually or CV.

While the obstacles and weaknesses possessed by the leathercraft industry in Mount Puntang are:

1. Still using simple technology, both in the production process and product marketing.
2. Lose prestige with the coffee industry.
3. Constrained in working capital.
4. The number of skilled workers is inadequate.
5. Low production capacity.
6. Limited product lines.
7. Not recorded financially properly.
8. The owner performs most of the management functions.
9. Simple organizational structure.

OUTPUT

PUBLICATION

[1] D. Kurnianingrum, I. D. Utama, N. A. Karim, C. I. Ratnapuri, “Analisa Potensi Untuk Pengembangan Industri Kulit di Gunung Puntang Kabupaten Bandung”, *E-Mabis: Jurnal Ekonomi Manajemen dan Bisnis*, volume 20, issue 2, pp. 131-140, 2019.

THE DEVELOPMENT OF CHINESE GRAMMAR CHECKER WEBSITE BASED ON NATURAL LANGUAGE

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INTRODUCTION

Today's Mandarin learning requires technology support that can be used anywhere and anytime. In Mandarin language learning, grammar is considered a difficult one. Grammar is a rule for the formation of a language to master Mandarin. The errors that commonly found in grammatical errors are addition, omission, ordering, and selection.

In Indonesia, there is currently no website or application that can help elementary Chinese learners in checking Mandarin grammar. In previous research, researchers have developed a website that can help students in checking Chinese grammar; the website is chineseteak.net. However, the chineseteak.net website is still in the initial stages of development. After the website is tested, researchers have found that it still has many shortcomings and is not yet suitable for Mandarin learners. Therefore, in this advanced research stage, the researchers want to improve the website of chineseteak.net to be more user-friendly. The purpose of improving this website is also to be able to help the accuracy of the grammar patterns inputted by users of this website. That way, this website can help Mandarin learners and instructors in learning and teaching activities so that it can facilitate Mandarin students in mastering Mandarin grammar.

METHODOLOGY

The method used in this research is a qualitative approach. The website chineseteak.net is based on PHP with the Laravel framework and the guzzle library. The function of the guzzle is to scrapping data from the website http://nlp.standford.edu/software/localhost:8080. The researchers have collected this research data by collecting basic Mandarin grammar patterns that exist in the textbooks used in compulsory subjects namely Chinese Language I, which uses the book Er Ya Basic Chinese: Comprehensive Course (I), and Basic Chinese: Comprehensive Course (II) from chapter 9 to chapter 27. From these patterns, practice questions will be prepared grammar problems done by 54 of the 2nd semester Mandarin Literature students. From that, the grammar will choose the worst.

After that, the Chinese grammar pattern will be entered the website server chineseteak.net by taking the tagging each Chinese grammar pattern using the website http://nlp.stanford.edu:8080/parser/index.jsp. After taking the tagging of each Chinese grammar pattern, it is then entered the server. On the website chineseteak.net, users can see the seven most frequently wrong grammar, in which there will be an explanation of how to use it. Users can also input the sentence they want to check, then click the "Check" button. The sentences will be sent to be processed in the controller (logic pattern matching) in Unicode form (non-Latin). In the controller, two methods are used, namely the library guzzle for scrapping data on the NLP, and the matching pattern of tagging that has been entered the server. Finally, the results of the check will be sent back to the website chineseteak.net.

RESULTS

This research aims to develop a user-friendly Chinese grammar checking website for elementary Mandarin learners. Chinese grammar checking website developed with the domain name chineseteak.net is a website that can be used by learners to check sentences made whether they are in accordance with Chinese grammar patterns. This website uses the PHP programming language with the Laravel Framework and the Guzzle library for scraping data from the web nlp.standford.edu/software/localhost:8080.

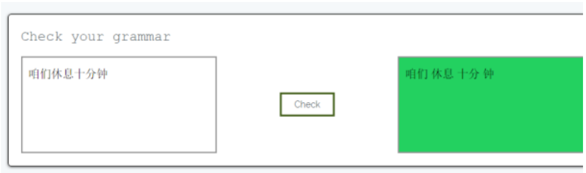

Figure 4 Checking the Sentence, Example from Right Sentence

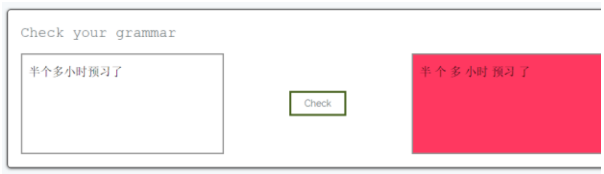

Figure 5 Wrong Sentence Display

After logging into the page, the user can select the grammar to check, then type the sentence in Chinese and click "Check", to check whether the Chinese grammar is correct or not.

In the display grammar checking, results will display the results of checking and tagging per word in sentences. If the Chinese grammar pattern on the sentence entered the checkbox is correct, the results of checking the sentence will be green. If the Chinese grammar pattern on the sentence entered the checkbox is wrong, checking the sentence's results will be red.

OUTPUT

PUBLICATION

[1] J. Wangi, K. Rosalin, Theresia, “The development of Chinese grammar checker website based on Natural Language Processing” Journal of Physics: Conference Series, vol. 1477 (2020), 042019,doi:10.1088/1742-6596/1477/4/042019, https://iopscience.iop.org/article/10.1088/1742-6596/1477/4/042019

UPCYCLED INTERIOR PRODUCTS WITH CIRCULAR DESIGN APPROACH IN COLLABORATION WITH LOCAL ARTISAN COMMUNITIES

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INTRODUCTION

This research is in the area of sustainable design to upcycle the industrial waste from the interior product industry and to provide additional income for micro, small, and medium enterprises. Upcycle means to create a product of value from waste, in the case, the interior product industry. This activity is carried out in collaboration with the local artisan community as a catalyst. This research has been conducted since 2015 by using leftover wood and textile, which comes from soft furnishing production. This research is carried out using case studies from the furniture industry in Jepara, which uses quality wood as its main material. This wood furniture industry creates much waste of good quality wood. The amount of waste varies in shape and size, and if it is not processed, it will accumulate and leave environmental problems. The research is conducted by implementing the circular design approach, the thought of cycling the waste as the main material for other industries. Every product produced is the result of the research on the concept of Indonesian local wisdom, knowledge of materials, and understanding of the market demand.

METHODOLOGY

The research involves the design and development of the product with the strong concept of Indonesian local wisdom, knowledge of waste material, and the understanding of the function and style of market demands. In collaboration with the Community Development Program, the result of the research is explained to the local artisan communities who will conduct the design workshop for the micro, small, and medium industries to make the prototypes and the final products. The final products will be returned to the local artisan communities who will open the market through their national and international networking.

RESULTS

Upcycled products have been designed by the research team in collaboration with the Ruma Japara community. The prototypes have been produced in cooperation with Orchard Industries, a medium scale interior products workshop based in Jepara, Central Java. The products plan to be marketed by Recall the Green community for the national and international markets. The plan will be conducted at the end of 2020/ beginning of 2021. Figure 1 – 3 are some of the product designs that have been produced in 2019.

Figure 1-3. Product Design

OUTPUT

PUBLICATION

[1] O. S. Caroline., "Classic Jepara wood carving techniques and tools from the three video documentations of the Ruma Japara classic Jepara carving master class", *Wacana Seni Journal of Arts Discourse,* vol. 18, pp. 149–163, 2019. https://doi.org/10.21315/ws2019.18.8.

[2] A. A. S. Fajarwati, O. S. Caroline, L. A. Wulandari, "Intersection Cultural Value, Nationalism, and Commodification behind the Garuda Chair as Jepara's Signature Industries", *Humaniora*, vol. 11(1), pp. 27-32. https://journal.binus.ac.id/index.php/Humaniora/article/view/6239.

LOCAL WISDOM ADAPTATION ON SIAK WEAVING WITH INDUSTRY 4.0 IN MODERN SOCIETY

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TEAM MEMBER: Frans Santoso, S.Sn,. M.Des

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INTRODUCTION

Wastra is Indonesia’s traditional textile (tenun/weaving) from Siak Riau Island. In the modern and technological era, Siak weaving extinct slowly. Development in modernization is one of the cultural shift processes of a local region. The cultural shift undergoes regional, physical, even artistic, and cultural transformation. The transformation process involves the acculturation and denationalization process, resulting in new cultural existence and changing values. In art and culture, functional values change. However, the significance of the art ought to be preserved as an identity of the object, as also observed in the Indonesian wastra development, which is Tenun Siak. It is renowned as the identity of the Malay culture in Indonesia. The cultural shift primarily affects the manufacturer and the craftsmen, predominantly due to their limited knowledge and inability to compete on technology-based work. Ministry of the Republic of Indonesia presents policies on priorities for five sectors, including the textiles that offer ten priority actions to adapt to the remaining five developmental sectors. This process results in social effects with the working system that more efficient and more systematic for the productivity of the Siak weaving. This can be utilized as the employment source, which then indirectly preserved the Siak weaving hence the manifestation of the culture.

METHODOLOGY

This research applies a qualitative methodology and direct observation of the district of Siak and Pekanbaru. It includes interviews, observation, group discussion, analysis of the creation (scripts, films, and artworks), document analysis, analysis of personal journals, biographical study, and so forth. In relation to this, researchers make an essential action by performing an additional confirmation and examination of the association between the phenomenon acquired from the direct field study and the literature study. The data collection method on qualitative research is characterized by its sincerity and its flexibility. The collection method in qualitative research varies, finds on the issues, the aims of research in addition to characteristics of the research objects. In relation to this, the researchers combine the literature reviews to comprehend the changing process from the history to the direct examination. Indications of social changes can also be classified into associated theories.

RESULTS

Tenun Siak, as Indonesian’s Wastra, is a fraction of traditional Indonesian textiles, and heritage needed to be preserved from generation to generation. Despite the linear changes from a primitive stage into a modern stage, the values embedded in the weaving ought to be preserved and utilized daily as an identity. This can be protected by undertaking the inventory process by understanding the few aspects associated with the cultural changes, including the cultural transformations. The transformation process in the Siak weaving is initiated from the Siak as the trading center; hence some foreign countries such as Malaysia, China, Brunei, and the Netherlands. These countries designate the Siak river as the trading center of Sumatra. The denationalization occurs due to the prosperous economic state and fertile land leading Siak to the inclusive authority over the Islands of Riau and Sumatera.

The countless number of regional traders settle in Siak. Then, Siak disseminates its territories in a particular region in Riau, particularly Pekanbaru, which identifies as the largest area. It is consistent with the history of Pekanbaru. It originated from Siak; hence various cultures are adopted by the people of Pekanbaru, including the Malay culture derived from the Siak sultanate (an acculturation process and a dialogue). In the governmental and presidency period, Pekanbaru develops into a district, then into a province and the capital of the Islands of Riau, alongside the globalization developmental era. The beliefs of people in Pekanbaru also alters. Several foreign companies exploit the natural resources of Pekanbaru and determine to continue residing in Pekanbaru, modifies, and generates more practical, economical, rapid working processes, and aesthetic views.

Growing and fast demand market can be anticipated with the production process of a particular product. It adapts with the governmental sector 4.0, facilitating the development and augmentation rate of the trading system or even the Siak weaving development as the focal identity of the Islands of Riau, predominantly the city of Pekanbaru. The government is able to provide education for society to adjust to market changes and acceleration. However, the government must also provide regulations in clear invitations to protect the archipelago’s fabric even though it continues to grow.

MAPPING SUPPORTING FACTORS AND INHIBITION OF INCREASED FISH CONSUMPTION IN INDONESIA IN VARIOUS CONSUMER SEGMENTS BASED ON BEHAVIOR

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INTRODUCTION

This study aims to identify barriers to the adoption of in-home fish consumption by consumers in developing countries. This study provides a timely understanding of fish consumption behavior that will help developing countries create more effective and efficient fish consumption promotion campaigns. This study's academic contribution provides a new understanding of consumer adoption theory. It is among the first studies to integrate the concepts of Rogers' adoption barriers and the principle used in the hierarchical effects model. This notion of tier-based barriers is a new concept that is useful for understanding the factors preventing the adoption of a product that faces adoption difficulties or includes a complex problem, such as fish in-home consumption.

Managerially, the results of this study clearly provide solutions for decision-makers in the fish business and state and community policy. Decision-makers need to reduce the cost of marketing strategically, which has been ineffective and inefficient in its attempts so far. Then, with a new understanding from the insights obtained from this study, the contextual design of a marketing communication program that directly addresses the problems at each stage of fish consumption barriers may be commenced.

METHODOLOGY

The qualitative study is conducted in the urban area of Jakarta. The ethnographic method used in this study is structured with a series of qualitative techniques, such as netnography, observations, day-in-the-life participatory observations, in-depth interviews, and focus group discussions. The study begins with a netnographic exploration, a qualitative technique that is carried out by the in-depth exploration of consumer behaviour and perceptions of fish consumption found on the internet. A variety of online forums, websites, and social media platforms are analysed to obtain an in-depth picture of consumer experiences, perceptions, and behaviours regarding daily fish consumption activities.

This study utilizes a purposive sampling method. The first round of interviews is labelled as an external expert interview with the Indonesian MMAF and the four experts from fish industry associations. The second round of interviews covers housewives who have children and housemaids. In the last interview round, both unstructured and structured interviews are conducted with sellers and traders from the traditional markets visited during the onsite observations and day-in-the-life observations. To summarize, the in-depth interviews are conducted with 5 experts, 23 housewives, 5 housemaids, and 25 traders.

RESULTS

The expression: ‘it’s complicated’ is always raised when respondents asked why they did not provide a fish menu at home. The complexity of the problem of fish consumption adoption can be resolved when the sentence ‘it’s complicated’ is elaborated upon in each relevant context so that the problem’s solution becomes more specific and precise. The preliminary assumption indicates that the barrier is not based on demographic aspects, such as the socioeconomic class, but rather on behaviour-related aspects.

This study presents findings of certain variables that have not been previously discussed to our information. It includes a lack of knowledge on how to handle fish after purchasing and before arriving home, fish cooking techniques or techniques that have not been mastered well, and the difficulty of persuading families, especially children, to eat and enjoy the fish menu served. From the beginning of the study, the phrase 'complicated' dominates the pain point findings regarding consumers when they are at home when they are compiling a menu, shopping, and preparing fish-based food for their families. These complicated pain points are the focus of this research. Therefore, this research explores what consumers mean by the word 'complicated' at each different touchpoint using a more in-depth and multi-dimensional method. Figure 1 shows the tier-based adoption barriers of in-home fish consumption.

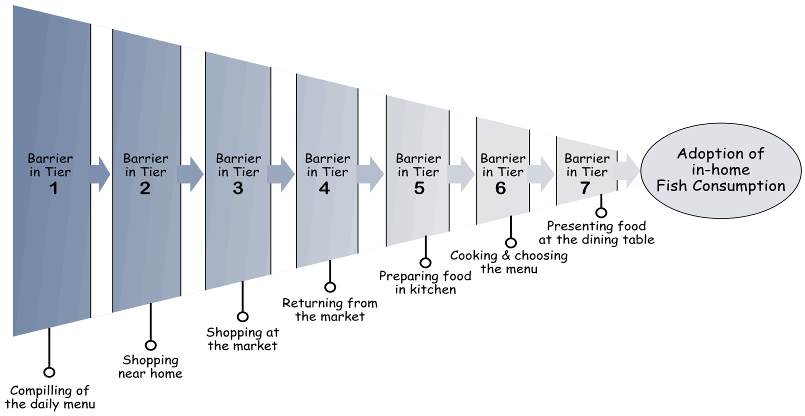

Figure 1 Tier-based Adoption Barriers of In-home Fish Consumption

Search results are categorized into seven touchpoints of interaction between consumers and fish during the consumer journey, and each touchpoint carried different problems. The seven touchpoints include compiling the daily menu, shopping for fish near the home, shopping at a traditional market or supermarket, returning home after shopping, preparing the food in the kitchen, choosing and cooking a fish-based recipe, and presenting the food at the dining table.

OUTPUT

PUBLICATION

[1] Maulana A.E., Diniah, & Setiawan D. P., (2019), “‘It's complicated’: tier-based adoption barriers to in-home fish consumption of Indonesian urban consumers”, *AACL Bioflux*, vol. 12(4), pp. 1300-1315.

[2] Maulana, A. E, (2018), “Dimensi Permasalahan dalam Adopsi Konsumsi Ikan Masyarakat Urban Indonesia”**,** Monograph, Etnomark Publisher.

MEASURING ALUMNI CONNECTEDNESS: 'JUST FRIENDS', 'GOOD ACQUAINTANCES' OR 'SOULMATES', AS PARAMETERS FOR THE STRENGTH OF A UNIVERSITY BRAND

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INTRODUCTION

Realizing the potential of alumni as an asset, universities have not managed its assets properly. If the alumni are well managed, there will be good synergy between the alumni themselves and the university. Alumni who avoid their campus feel that the connection with university is more focused on the transactional element. They hope to foster a meaningful relationship beyond the donation. This is even reflected in the way the university alumni administrators still manage their alumni database sporadically and unstructured. The database built on campus is still demographic, such as the time period for graduating, working or entrepreneurship, the salary, and the amount of contribution he/she has made during his/her alumni, etc. Alumni relations use this database by separating the list of Alumni, who have the highest financial strength and have contributed the most.

The concept of connectedness has previously been studied and found in many contexts. This time, the relevance will be explored in measuring the emotional relations of university alumni. By understanding that friends-raising is very important to be built before fundraising, alumni administrators need a more in-depth study of what dimensions this alumni connectedness is. How to distinguish alumni who are not connected (called just friends) with highly connected (soulmates)? Understanding this construct is an important initial step to finding out what factors can increase the degree of connectedness. By measuring the level of alumni connectedness, universities can identify alumni's role in accordance with the alumni segmentations. Universities can direct potential college graduates and not only be limited as a donor to finance but also beyond donations, such as professional opportunities and broader relationships.

METHODOLOGY

Qualitative studies are used in this research, ethnography is one of the ways to get more in-depth research. This research begins with a netnographic study that is used to understand alumni behavior, perceptions, and experiences in depth through various online media that are spread on the internet. After that, it continues with the focus group discussion with 25 participants from alumni administrators and key persons in the alumni associations and regular alumni working in the university. Moreover, this research entered directly into the life of alumni by attending three events attended by alumni for direct observations, as well as being equipped with unstructured interviews during the event. After making observations, this study used purposive sampling in the selection of university alumni respondents. After that, in-depth interviews are conducted contextually with parties who are interested in the campus, including (1) university alumni who work on campus and become contact points for off-campus alumni, (2) industrial partners, (3) alumni in general from various work contexts, and (4) current students. Overall, in-depth interviews are conducted with 54 respondents consisting of 24 groups of alumni, 6 industry partners, 14 campus contact points, and 10 current students.

After all the information gathered, this study conducts a second focus group discussion with alumni of contact persons who work at universities to see repetitive patterns and increase confidence in the findings. Respondents are divided into two groups, namely the junior lecturer (19 people) and the senior lecturers (18 people). The selection of diverse techniques and the selection of various types of stakeholders in this study is conducted in order to obtain triangulation.

RESULTS

The results of the study describe the importance of measurement in managing alumni as a university asset. In addition, it is important to define alumni segmentation and university contact points. The findings of this study can be the basis for a deeper exploration of what it is better to segment alumni so that the group is more homogeneous so that later it will be more in accordance with what was predicted and then can be in accordance with the targets of the alumni activities themselves. In addition, the importance of university contact points that can connect alumni is important so it is necessary to explain this phenomenon in the management of alumni as assets.

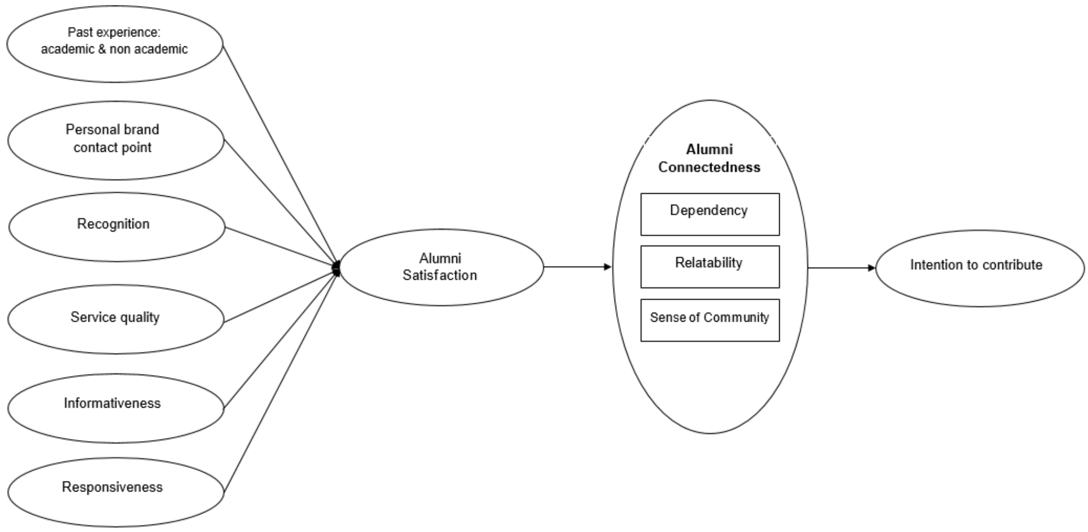

Figure 1. Model of Alumni Connectedness

OUTPUT

PUBLICATION

[1] Maulana, A.E., (2019), *Branding Universitas*, Etnomark Publisher.

[2] Maulana E.R., Pradipta I.A., Raditya, R.R., (2020), School Counsellors as Part of Higher Education Marketing: How Effective are They as Gatekeepers?", *e-proceeding International Conference on Business, Accounting, Finance, and Economics*, *16 October 2020,* Universiti Tunku Abdul Rahman, Malaysia.

WOMEN PARTICIPATION IN WORKING ENVIRONMENT: A STUDY ON WOMEN EMPOWERMENT IN JAPAN AND INDONESIA

RESEARCH LEADER: Sri Dewi Adriani, S.S., M.Si.

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INTRODUCTION

This research discusses the participation of women in Indonesia and Japan in the economic sector and the problems faced. The purpose of this study is to provide input regarding the gender gap problem and solutions that must be taken.

METHODOLOGY

The approach is qualitative using a case study research design. The methods used are literature review and interviews.

RESULTS

The results of this discussion conclude that the level of women's participation in the economic sector in both countries has shown an increase. However, it lacks support from the government in overcoming the problems, especially regarding the provision of supporting facilities for working mothers and company policies that are not gender-friendly.

OUTPUT

PUBLICATION

[1] S. D. Adriani, "Teleworking system: A new working system in Japan as a solution to encourage women's participation in economic sectors," In Journal of Physics: Conference Series, vol. 1175, no. 1, IOP Publishing, 2019.

INTELLECTUAL PROPERTY

[1] Certificate of HAKI for textbook entitled **"Partisipasi Wanita Di Lingkungan Kerja: Kajian Terhadap Pemberdayaan Wanita (Women Empowerment) Di Jepang dan Indonesia"** 000161602.

STUDY ON ONLINE TEENS 'BEHAVIOR IN SOCIAL MEDIA, VLOG AND LIVE APP: TECHNOLOGY CULTURIZING PROCESS ON GENERATION Z COMMUNICATION

RESEARCH LEADER: Dr. Ir. Z. Hidayat, M.M., M.Si.

TEAM MEMBERS: Dr. Muhamad Aras, S. Pd., M.Si.

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INTRODUCTION

Generation Z in the middle of the second millennium decade was considered in high school and college education. Gen Z was born, and they grew up with digital devices at home, school and society. The Gen Z learning environment is always accompanied by a smartphone and or tablet. Habit of using digital devices foster new attitudes and behaviors that are different from previous generations. This study aims: 1) to analyze the habits of Gen Z individually and in groups using online and offline social media; 2) to explain the relationship of online access in the learning and entertainment process to Gen Z's attitudes and behavior; 3) to analyze the use of Vlogs and Live Streaming applications as a new culture of convergence and the Gen Z lifestyle.

METHODOLOGY

This study uses a combination of two research approaches (mixed methods), namely quantitative and qualitative approaches. The field survey is carried out with a set of questionnaires with a structure arranged according to factors or variables. Meanwhile, a qualitative approach was carried out by conducting interviews, observations, and searching online documents on social media. The research was conducted in DKI Jakarta, West Java, and Banten by taking locations in various high schools with the criteria of schools located in metropolitan/urban cities and small cities in the vicinity or in the suburbs (suburban). The school selection is based on a ranking conducted by the Education and Culture Office local. Meanwhile, ten universities were taken in the rankings of state and private universities in DKI Jakarta. The number of respondents in the survey was 1080 people spread across DKI Jakarta, Bekasi, Tangerang, Depok and Bogor.

RESULTS

This study found that the use of social media, including Instagram, Youtube, Facebook or related, indicates that users have the opportunity to generate income or gain economic benefits. Some of the dominant factors indicate that Gen Z's motivation to use Instagram is related to his status as students in school and as part of the community. The commercial benefits of using Instagram are one of the dominant factors that motivate the use of GI. Generation Z really understands online business and takes the opportunity to promote various products, brands, and ideas. Instagram is used as a space to learn to do business or act as an influencer for various product and service brands. Presentation or self-presence is very important for Gen Z and even this generation tends to show high narcissism in everyday life. Live streaming observations and interviews with streamers show that online activities of Generation Z teenagers show the peculiarities of their live, verbal, and visual expressions. Gen Z circles tend not to differentiate between online and offline life and for him the entire time in his life can be shared as an experience with everyone anytime and anywhere.

CORRELATION ANALYSIS BETWEEN RELIGIOUS MORALS OF STUDENTS AND THEIR PARENTS WITH THE PRACTICE OF RELIGIOUS VALUES

RESEARCH LEADER: Agus Masrukhin, S.Th.I., M.Si

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INTRODUCTION

Many students consider religion only a formality. They are not serious about practicing their religion. Even some of them claim to be atheist and agnostic even though their parents are religious. This condition becomes interesting to investigate whether the religious morality of parents influences the morale of students. This study aims to see whether there is a correlation between parents' religious morals on students and what factors affect student morals.

METHODOLOGY

This study uses qualitative and quantitative methods (mixed methods). To analyze the religious morals of students, the researchers use correlation theory and deductive thinking. Multiple regression theory with SPSS 16.0 is used to explain the effect of the research variables.

RESULTS

The results show that not all variables influence student behavior. The students' religious knowledge does not necessarily affect obedience to God.

SMART CLASSROOM FOR EFFECTIVE LEARNING

RESEARCH LEADER: Boby Siswanto, S.T., M.T.

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INTRODUCTION

Indoor Air Quality (IAQ) is a measure to determine the health level of occupants, the level of productivity, and the comfort level of the room. IAQ is determined by the ratio of the amount of gas contamination with clean air inside the room. One of the gases that may be in the room and disturb the health level of the inhabitants is Carbon Dioxide (CO_2). Temperature and humidity are two things that are highly considered in determining the comfort level of temperature in the room. Currently, almost all rooms, including classrooms, are equipped with Air Conditioners (AC) that the temperature of the room can be controlled by using certain settings. The humidity level is a variable that cannot directly be controlled. It is automatically adjusted to the specified temperature value compared to the heat value inside the room.

METHODOLOGY

The research is conducted in a classroom of 6 × 6 × 3 meters with two air conditioners. The default temperature setting for the air conditioner is 20 degrees Celsius. There are five processes of research method applied in the research, namely developing IoT device, creating online storage, reading data from IoT device, storing data into online storage, and creating an analysis and making a conclusion.

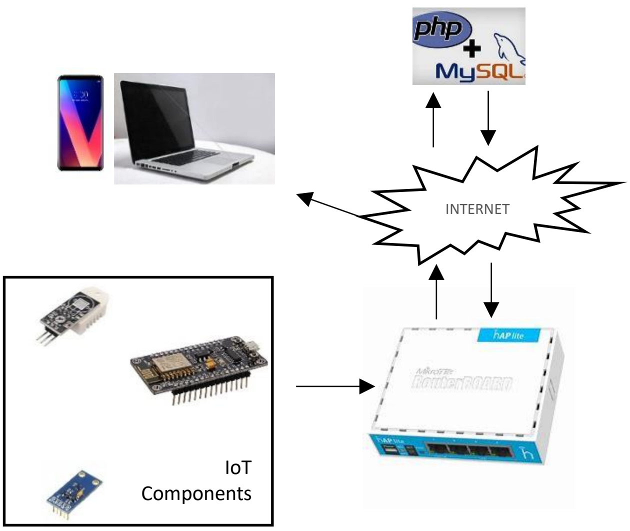

Figure 1. System design

RESULTS

IoT devices used in this research can measure Indoor Air Quality (IAQ) and store them into MySQL database. The obtained measurement values inside a classroom with 6 × 6 × 3 meters dimensions are occupied with 25 persons by getting 2635ppm of CO_2 in a maximum and 1435ppm on average. It means that there is a potential cause of drowsiness and adverse health effects. Then, the correlation values between CO_2 and temperature are negatively high around -0.945. It means that when CO_2 increases due to the activities inside the classroom, the temperature will decrease due to the hard effort of AC to maintain the temperature degrees. The correlation between CO_2 and humidity is also highly correlated as -0.775. Placing plants inside the classroom can decrease CO_2 concentration value around 31.1%, but it cannot distinguish the drowsiness measurement values. Although it cannot distinguish from the drowsiness level, placing the plants can remove the adverse health effects level.

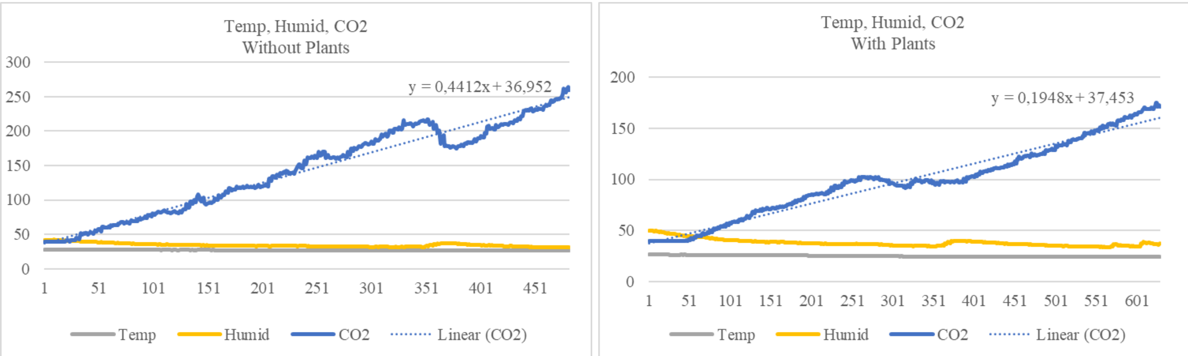

Figure 2. The correlation between CO_2 and humidity

SECONDARY SCHOOL STUDENTS' PERCEPTIONS OF GRAMMAR TEACHING: A CASE STUDY

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INTRODUCTION

English grammar in Indonesia has a reputation for being difficult and complicated, as it is often associated with rules and formula (Widodo, 2006). At schools, direct grammar instruction is still very common in which teacher spoon-feeds learners by formulating the grammar rules (Lie, 2007). Grammar instruction is given in isolation and not integrated with other language skills. As a consequence, learners do not know how to apply the grammar concept in a real communication (Widodo, 2006; Lengkanawati, 2005), and a lot of Indonesian students have not been able to communicate actively in English despite having learned it for years (Lengkanawati, 2005). This study is meant to find out the perceptions of the students to two grammar teaching methods: situational presentation and grammar translation methods.

PROPOSED METHOD

The research was conducted in two classes of SMPN 127 using experimental teaching of two grammar teaching methods. It is a secondary public school in West Jakarta with an "A" accreditation. Each class, class 7A or class 7C, consists of thirty-six students whose age ranges from twelve to fourteen years old. The experimental teaching is conducted for eight meetings, each of which is 80 minutes long with 15 minutes break in between. The material used in the experimental teaching is determined by the school and taken from the textbook. After the experimental teaching is done, a questionnaire is distributed to the students to identify the students' perceptions. The students providing obscure opinions are interviewed to clarify their opinions. Both the questionnaire and the interview are done in Indonesian to avoid misunderstanding.

RESULTS

The research indicates that the theories which suggest situational presentation is an ideal language teaching method, especially in introducing grammar to learners, are not always true in real practices. Simultaneously, the grammar translation method that is theoretically seen to be ineffective is still needed in a language class. The positive perceptions of the students toward the situational presentation method are that it is fun and exciting as attractive teaching aids and activities accompanying it. However, there are also negative perceptions, such as it is unclear and less straightforward. Meanwhile, the students positively perceive the grammar translation method since it enables them to understand the grammatical concept better and it seems more straightforward.

OUTPUT

PUBLICATION

[1] W. Andreani and A. G. A. Astrini, “Secondary school students’ perceptions of grammar teaching: A case study,” *Adv. Sci. Lett.*, vol. 22, no. 5–6, pp. 1745–1748, 2016.

THE USE OF ONLINE RESOURCES TO IMPROVE STUDENTS' ENGLISH AND TOEFL SCORES

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INTRODUCTION

In a different context such as foreign language learning, Cox and Davies (2012) found that technology could be used to predict students' speaking competency for a language training program. To extend the context of the study, we investigate whether online speech recognition technology can help EFL students' language competency in two skills: speaking and writing. In our experimental observation study, an online speech recognition technology (https://dictation.io/) is used as a medium for students to give a small talk about assigned topics used in English high stake tests and have it transcribed the talk into texts. The nature of speaking and writing of the online application makes it possible for us to analyze both the spoken and written expressions that students use. The students' responses are then evaluated through the range of vocabulary and expressions they use, their fluency in expressing ideas, and their accuracy in producing the sentences. By using http://www.paperrater.com/, the result displays the results of students' writing and speaking skills, as well as the language accuracy from the spoken texts they produce.

METHODOLOGY

The study involves three online applications for accessibility reasons, ttp://toeflexper.blog.binusian.org/; https://dictation.io/; and http://www.paperrater.com/. The first application is established for students to make them study TOEFL independently, the second is for practicing speaking, and the third is to assess the grading criteria for written texts. Ten non-English department university students are asked to visit the blog and follow the instruction from the instructor. The instructor gives them a topic, and the students are supposed to speak about the topic using the instrument in https//dictation.io/. Students are supposed to listen to their speech and transcribe the text. Then, they are asked to upload their texts to be evaluated by http://www.paperrater.com/. Finally, they copy the results and send them to their lecturers. Figure 1 shows the data collection process.

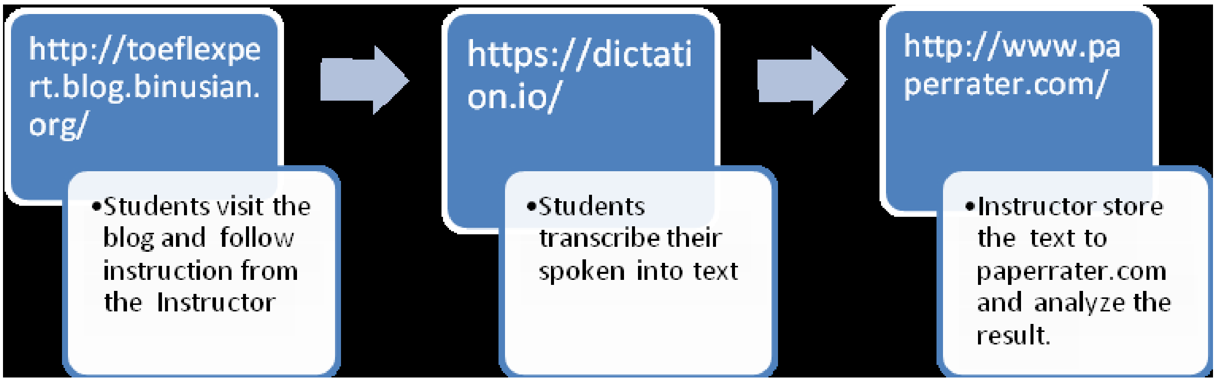

Figure 1 Data Collection Process

RESULTS

The speech recognition technology can be used in helping individuals suffering from speaking problems as well as helping teachers to encourage students to improve student's ability to speak well. Such technology can be used as a practicing medium for students as a language training program. We can conclude that students tend to choose a learning model based on the list given by the teacher starting from the top in the list. They will try it in sequence. Once it is easy to access the web and to answer the questions, they will choose the web and continue to the next number. The websites selected by students are those which contain simple exercises covering one area of study, such as listening. It is easy to understand in terms of instructions and interesting to see.

Regarding the relationship, it has been found out that there is no significant relationship between scores of the online TOEFL exercises and the students' English proficiency (P>0.05). However, we realize that students must be directed to try other skills as they tend to stay/choose to work on the skills they like. Students should be guided to do exercises that vary in level of difficulty. The instructor should supervise students and make sure that they are responsible and take charge of their learning.

OUTPUT

PUBLICATION

[1] I. I. Dewi, D. Suprato, and I. Rifai, “The Use of Online Speech Recognition Technology to Assess the Speaking and Writing Competency of EFL Students in the English Test Preparation Classes,” *Adv. Sci. Lett.*, vol. 22, no. 5–6, pp. 1299–1302, 2016.

[2] I. I. Dewi, I. Rifai, and D. Suprato, “Free online high - stake English test exercises: The evaluation, the learning, the teaching, and the model,” *Asian EFL J. Prof. Teach. Artic.*, no. 100, pp. 27–43, 2017.

VISUAL AID PRESENTATION AS A LEARNING METHOD: A CASE STUDY IN LEARNING ENGLISH OF MANAGEMENT STUDENTS IN BINUS UNIVERSITY

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INTRODUCTION

Educational technology and Computer-Assisted Learning (CAL) provide many benefits in classrooms for teaching. Various CAL programs involve the use of computer and their application to teach and learn in variety of ways. PowerPoint Presentation is also considered as a part of CAL. It is a type of presentation software that allows users to show colored text and images with simple animation and sound. The focus of the research was to get more accurate information on the impact of the learning model on students' advantages, either academically or behavior. Hypothetically, it would give positive impact for students. The research could give some opinions for faculties in implementing this kind of learning method, especially learning English in Management Major in Binus University, Alam Sutera. It is unarguable that the use of the technology is to make human life easier. In a classroom, it is expected that the use of the technology is to make the learning process itself become easier, in regard of difficulties or time. Therefore, it is expected the same when using visual aid presentation using the technology to make all learning process run smoothly and well improved.

METHODOLOGY

The research was using a qualitative method. The result of research was described in words. The researcher acted as complete participant, whom interacted and involved directly in the classroom during the process. Students were studying as usual in English for Business Presentation class or English for Written and Communication class. When students were motivated, they will do something, they demonstrated active behavior. In addition, the determination of the study subjects was taken by purposive sampling, rather than randomization, in which the researcher selected six students as a sample of a population of a number of students in Management Major.

RESULTS

All of the respondents had similar argument, that the presentations were giving the advantages for them, such as long endurance of understanding, developing self-confident, teaching public speaking skill, nervous handling and avoid boredom. It was all the experience of students while having a visual aid presentation during their study in certain topics. The presentation itself was expected to be interested and meaningful, and surely the role of teacher would be a great support to encourage students to develop an interesting and meaningful visual aid presentation. Yet, this idea can be implemented on the next research. The teacher is the most critical factor in classroom learning. The teacher organizes, manages, motivates and leads. The teacher creates an environment in which learning occurs. Learning is a function of the quality of the teaching.

Since this research was involving students of management major, it was expected that the research activities were helping them to learn how the research process for their thesis later on. The experience of the research by students could be developed for their thesis by the end of their program of study. The research could be improved to a bigger number of samples, bigger number of lecturers and different major or subject.

OUTPUT

PUBLICATION

[1] Benawa, A., Gea, A. A., & Willyarto, M. N. (2017). Improving Teacher's Commitment by Improving External Factors. *Advanced Science Letters*, *23*(2), 925–928. https://doi.org/10.1166/asl.2017.7440

[2] Willyarto, M. N. (2017). Learning Polygons using English Language. *Humaniora*, *8*(4), 391. https://doi.org/10.21512/humaniora.v8i4.4102

[3] Willyarto, M. N., & Krismarliyanti. (2019). *The Correlation between Emotional Intelligence, Achievement Motivation and Employee Performance*.

[4] Willyarto, M. N., Pane, M., & Chairiyani, R. (2015). Mathematics Learning Method of Bar Modeling for Elementary School Students. *Advanced Science Letters*, *21*(7), 2328–2331. https://doi.org/10.1166/asl.2015.6266

[5] Willyarto, M. N., Werhoru, D., & Gea, A. A. (2017). The Use of English in Learning Mathematics for Grade 7 Junior High School. *2017 International Symposium on Educational Technology (ISET)*, 177–179. https://doi.org/10.1109/ISET.2017.48

[6] Willyarto, M. N., Yunus, U., Reksodipuro, A. S., & Liawatimena, S. (2019). Comparison Road Safety Education with and without IoT to Develop Perceptual Motor Skills in Early Childhood Children Aged 4-5. *2019 International Conference of Artificial Intelligence and Information Technology (ICAIIT)*, 511–516. https://doi.org/10.1109/ICAIIT.2019.8834486

[7] Willyarto, M. N., Yunus, U., & Wahyuningtyas, B. P. (2019). Communication on Social Education: A Perspective from Cross-Cultural Communication to Strengthen Indonesian People among Nations. *ICA-APSIKOM Regional Conference*.

[8] Yunus, U., Heriyati, P., Lindawati, A., & Willyarto, M. N. (2019). *Branding Perguruan Tinggi di Era Digital*. Qiara Media.

[9] Yunus, U., Wahyuningtyas, B. P., & Willyarto, M. N. (2020). Komunikasi Lintas Budaya dan Entrepreneurship pada Program Studi Destinasi Pariwisata Universitas Bina Nusantara Jakarta. *Komunikasi Pariwisata Dalam Era Digital*, 206–226.

INTELLECTUAL PROPERTY

[1] Visual Aid Presentation Learning, 23 Des 2019, EC00201992191.

VISUAL DIGITAL LITERACY OF ELT LECTURERS IN TWO DIFFERENT CONTEXT: A CASE IN TWO UNIVERSITIES IN JAKARTA

RESEARCH LEADER: Melania Wiannastiti, S.Pd., M.Pd.

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INTRODUCTION

The use of the developed ICT in language teaching and learning process has proved that it provides some unlimited sources for improving the material. Experience in applying ICT in language teaching becomes a crucial thing for teachers and lecturers. However, not all lecturers have experience or become familiar with applying ICTs in their classrooms. In other cases, they have applied it partially.

Jakarta, as the capital city of Indonesia, consists of many reputable universities that have applied ICTs in their teaching-learning processes. In this spectrum, every institution has its' portal for the lecturers and students to access for at least the administrative and academic information. However, they may have different content and different use. Since its differences, the research is seeking information about the type of ICTs applied in the two universities as the contexts. With this viewpoint, the different contexts may have distinct applications and experiences of the lecturers in using the ICTs for teaching-learning, especially the teaching of English. On that basis, the result of the research provides a big picture of the General English lecturers' level of digital literacy from both universities. If the result of the lecturers' digital literacy is low, it implies the idea of whether it is required for the institution conducting a development program for them to cope with the more useful teaching-learning process by applying ICT. On the contrary, it broadens the insight that the lecturers only need to follow with the contemporary ICT application for better teaching and learning processes.

The research contributes to several stakeholders. For lecturers, it exposes their mind for the specific training on digital literacy uptake they are required. For the institution, the result engages the burgeoning digital nature as the cornerstone or the basic idea of further training for lecturers within the institution. For future researchers, they devise the wider scope of research in urban areas or suburban to identify the level of literacy.

METHODOLOGY

In this context, the fishbone diagram represents the flow of the research. Cause and Effect diagram or Fishbone diagram poses as a technique to find and significantly analyze the factors influencing in identifying the characteristics of work output quality [11]. In this setting, the research identifies at least several possible causes of lecturers' digital literacy, as presented in Figure 1.

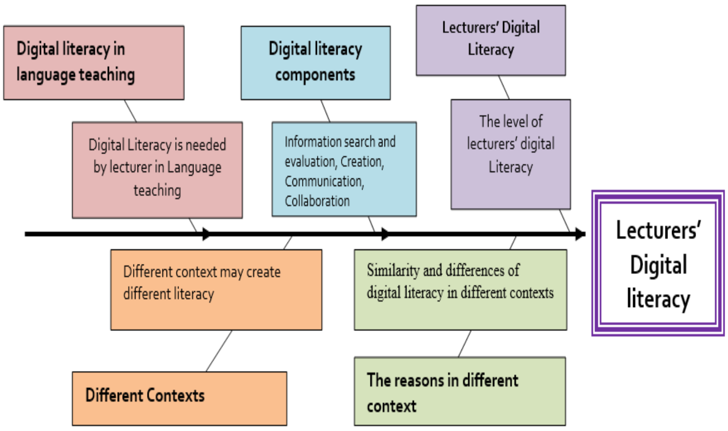

Figure 1: Fishbone Diagram

The participants of the research are 20 lecturers teaching General English in two universities in Jakarta, private university A and private university B. Each consists of 10 participants. A triangular method is used in the research. An online questionnaire consisting of closed and open questions is distributed to the participants. Two participants from each university are chosen randomly to be interviewed to get more in-depth data and to support the questionnaire. The data are analyzed qualitatively by describing each data taken to give the idea of the digital literacy of the lecturers and the reasons behind the level of their literacy

RESULTS

The Digital Literacy of Lecturer

Figure 2 exhibits the level of digital literacy perception. In the level of digital literacy, it is interesting to find out the perception of respondents. It portrays that 65% of the respondents percept that they rate good of digital literacy, 20% very good, 5% excellent, and none stated limited or poor. It means that they have been exposed to use technology. In recognition of the perception, the data described that they understand the component of digital literacy. In this line, it is necessary to know the respondent's basic knowledge and skills in computers, websites and online applications.

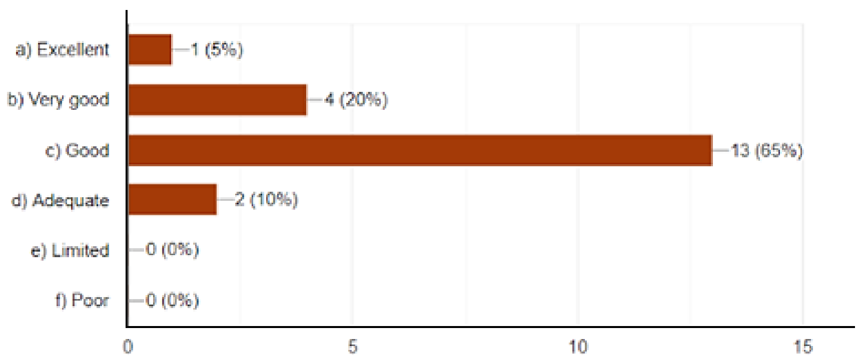

Figure 2: Digital Literacy Perception Level

The questionnaire result explains that over 85% of the respondents use ICT in teaching. It can be said that the lecturers in this institution have the ability and willingness to involve digital tools to support the learning processes, although the use of the platforms may still be limited. Although there are differences in the contexts, respondents from the two institutions have the same desire that the institutions should provide a better platform, so that the lecturers can teach the students more interactively using the ICT

OUTPUT

PUBLICATION

[1] Wiannastiti, M., Oktriono, K., Simatupang, M.S. (2019). Digital literacy of ELT lecturers in different contexts: A case at two universities in Jakarta. *ACM International Conference Proceeding Series.*

MODELLING AND MAPPING UNIVERSITY BUSINESS PROCESS

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INTRODUCTION

The improvement of the corporate processes has long been known as a source of increased operational efficiency. Since 1931 discussions about the process have been widely published in scientific journals (Nordsieck, 1931) and the organizational structure has been linked to process in the early 1960s (Chapple et al, 1961). Business processes have become a dominant and popular topic in various literature (Davenport 1993), but organizational resistance to change is often miscalculated which is the cause of reengineering failures of the program (Davenport, 1965). As a consequence, each time talking about the process is always analogies with reengineering and streamlining the organization (Rumler, 2004). Recently, our ability to measure and improve process performance has increased greatly as a result of increased utilization of information systems in the management of processes within the organization. Process management strategy will help organizations optimize benefits from implementing the system. In this rapidly expanding era of globalization, it has created a business environment full of competitions, challenges, barriers, which are demonstrated with increasingly higher market demands, global trade, technological developments and rapidly increasing flow of information and stricter regulations. To deal with these things, organizations need to look back on their business processes, whether the businesses processes present in the organization are still relevant and can help answer market and customer needs, when and who will come and respond to existing business challenges. The organizational success in answering business challenges depends on how the organization manages its business process. Therefore, there needs to be an instrument that can assist the organization in managing its business effectively and efficiently so that the organization can quickly respond to changes in existing business. Business Process Management is a holistic management approach that organizations can use to help organizations manage their business processes by improving the efficiency and effectiveness of their processes/system to show systematically integrated and measured at each level of the organization.

The university is one of the higher education institutions that are growing rapidly today. In realizing its vision and mission the university is required to continue to improve its quality in various aspects of graduates, lecturers, research, and overall organizational performance improvement as well as ensuring organizational sustainability. The research focuses on mapping the business process of university level zero. The results of this mapping will be the basis of business process mapping for the next level until the Standard Operating Procedure (SOP) and instructions for work.

METHODOLOGY

Business process can be distinguished into two types, namely:
Key processes (Core processes)

- Play a direct role in meeting the needs of external users

- Directly affects the success of the organization (achieving vision, mission, organizational strategy)
- Respond to requests and meet user needs.

Support processes
- Meet the needs of internal users, perpetrators or functions in core processes
- Has no direct link to the value of the organizational benefit.

To identify processes, process mapping and process flowcharting are necessary. Process mapping can be done with the help of Suppliers, Inputs, Process, Outputs, and Customers (SIPOC) diagram which is a method of identifying and categorizing parts of a process into the suppliers, inputs, process, outputs, and customers as shown in Figure 1.

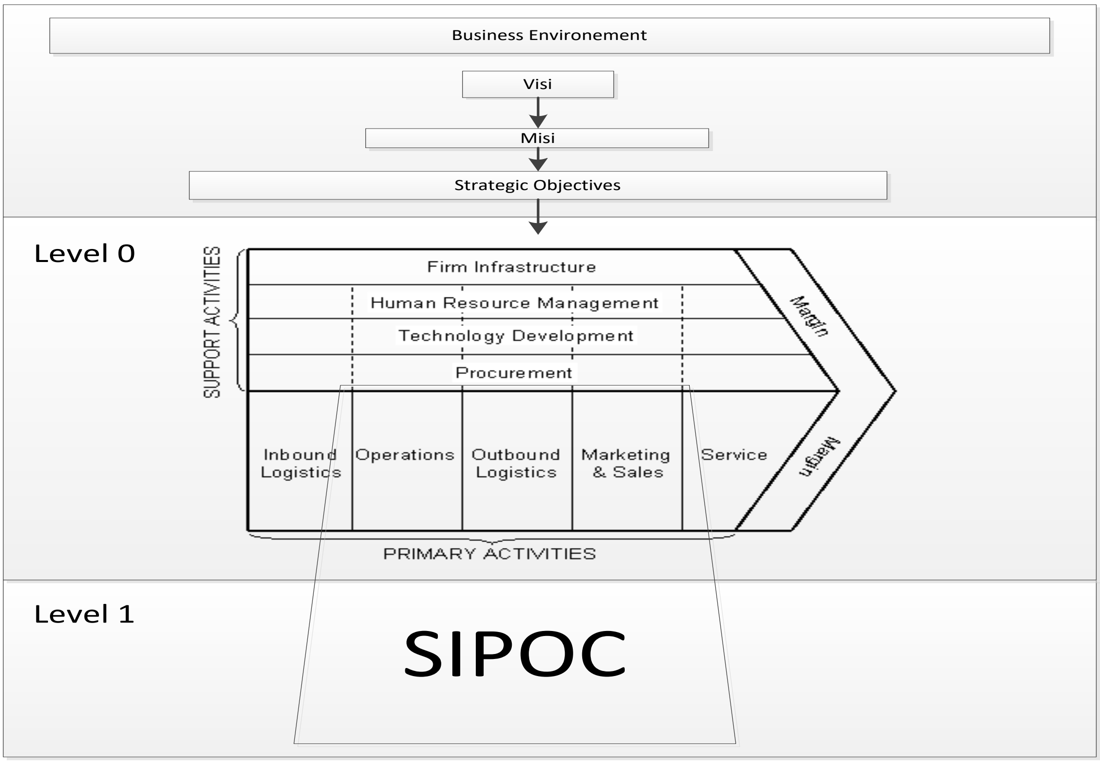

Figure 1. SIPOC theoretical

RESULTS

After conducting data collection and information and conducting analysis of all information related to the vision, mission, objectives and objectives of the organization, regulations and legislation applicable to the *Tri Darma University*, it can be identified process groups as follows.

The core process consists of the process of education, research, and community service. The directing support process consists of Strategic Planning Process, Quality Management & Quality Assurance, Performance Management and KPI, as well as Organizational and Business Development. The facilitating support process consists of Human Resource Management, Information Computing Technology Management, General Affairs and Legal Management, Financial and Accounting

Management and Marketing and Public Relations Management. By using the SIPOC method, the Value Chain of the above process is outlined into 1 (one) business process level 0 (zero) University as can be seen in Figure 2.

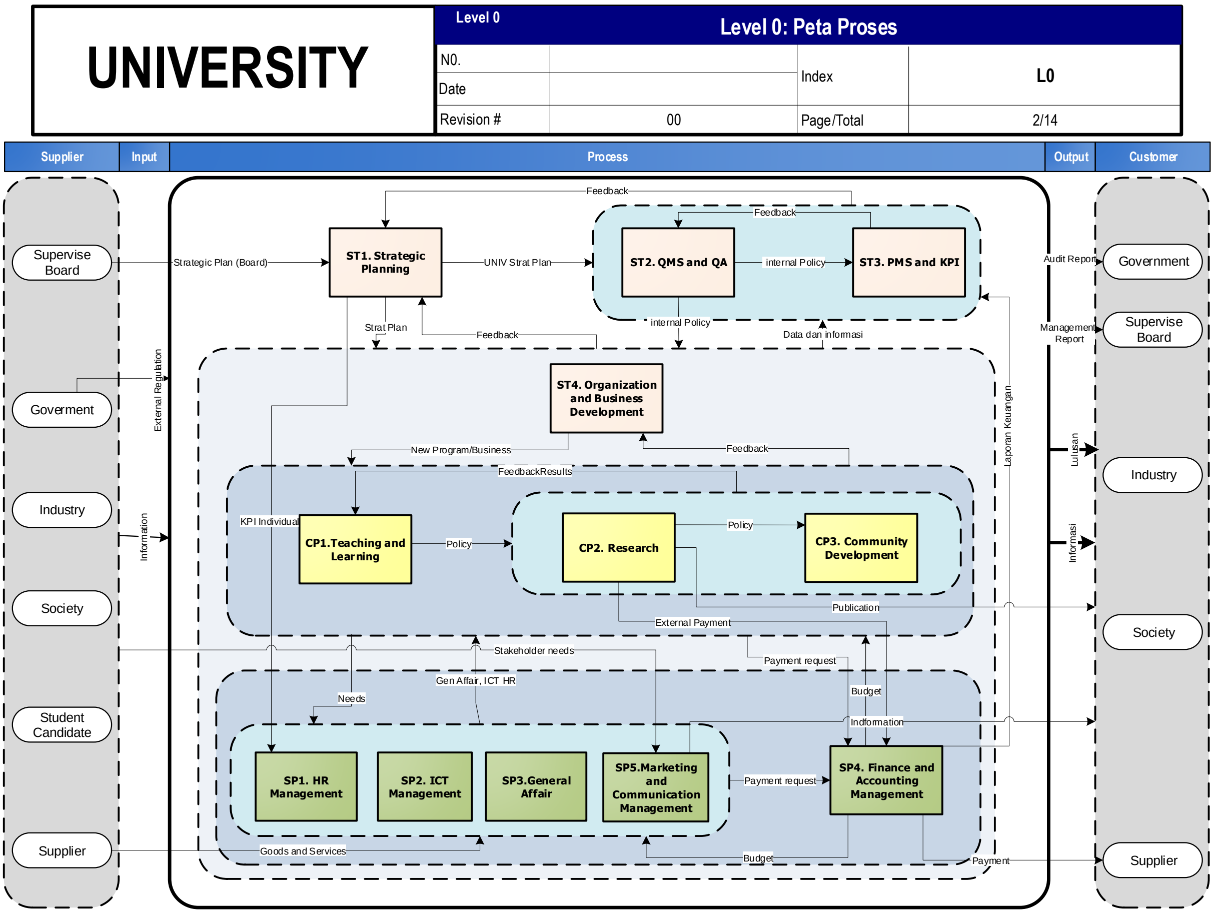

Figure 2. Business process of the University level 0

OUTPUT

PUBLICATION

[1] Simamora, B.H., & Rudi. (2012). Binus Business Process Modelling and Mapping Level 0. *Binus Business Review*

[2] Simamora, B.H., & Natalia. (2019). Modelling and Mapping University Business Process Level 0. *Proceedings of the International Conference on Industrial Engineering and Operations Management Pilsen, Czech Republic, July 23-26*

INTELLIGENT FLASH CARD: MODULAR GAMES FOR EASY EDUCATION OF OBSTACLES AND FISH CONSUMPTION SOLUTIONS

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INTRODUCTION

The conception of this Intelligent Flashcards originates from an attempt to solve the seven tier-based fish consumption barriers in households through community-based education. The learning method is done through gamification with intelligent flashcards because it is deemed the easiest method for understanding a problem and obtaining the most proper solution.

Educational activities using Intelligent Flashcards may contribute to government efforts in Public Education. It is particularly crucial in areas where the fish consumption rate is low. Barriers to fish adoption/ consumption may be mitigated by giving each barrier a suitable solution specific to its context. Card games have always been exciting and generate high engagement rates among participants. Utilizing the Intelligent Flashcard, participants were able to understand difficult concepts easier.

METHODOLOGY

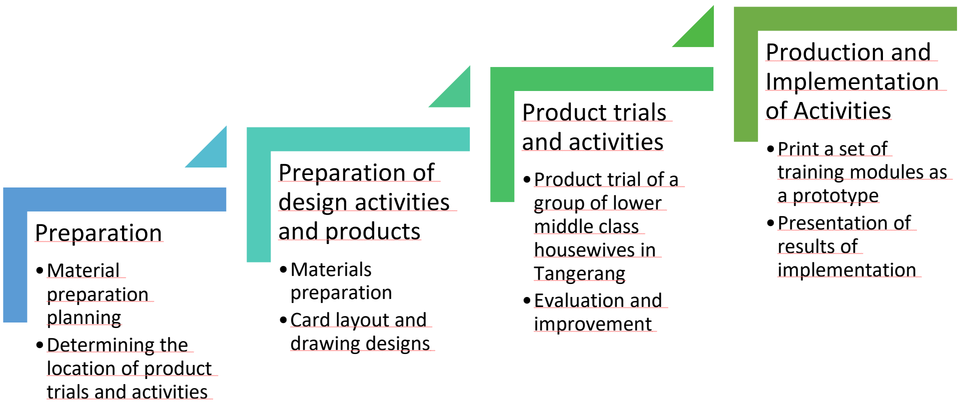

Figure 1. Activity Steps

Figure 1 explains the stages of the implementation of activities in the preparation of training modules using intelligent flash cards. The target activity is a group of middle to lower housewives in South Tangerang to do a simulation in product improvement.

RESULTS

This game's primary purpose is to match the obstacle cards with their corresponding solution cards based on the game module. The fastest player to finish matching all the obstacle cards with their solution cards in their hand is the winner. Also, a facilitator's existence is vital in the process of module training, which is conducted by playing the game. Moreover, card games as an educational tool help facilitators create a relaxed and engaging learning environment compared to the conventional method.

The result of the Intelligent Flashcards trial on housewives from lower to middle socioeconomic backgrounds showed there is an increase in the participants' understanding and knowledge to solve challenges they might face regarding fish consumption at home.

Figure 2. Sample of Obstacle (up) and Solution (down)

OUTPUT

PUBLICATION

[1] Maulana, A.E., 2020, “Intelligent Flashcards: A Community-Based Education Tool for Fish Consumption Adoption Purposes”, *Jurnal Pemberdayaan Masyarakat Madani, on publication process*

INDONESIAN TEACHER ENGAGEMENT INDEX (ITEI): NEURAL NETWORK IMPLEMENTATION

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INTRODUCTION

The Indonesian Teacher Engagement Index (ITEI) is an instrument designed to help teachers detect themselves through self-diagnostics. The results of self-diagnosis are then developed systemically with the aim of becoming a decision support system for the central government to the regions in the field of education. The potential of Neural Networks to find predictive problem solutions has been greatly emphasized in the literature (Oancea, Dragoescu and Ciucu, 2013). That is the background of this research to develop ITEI design and produce Teacher Profiling through ITEI based on Neural Network. The initial stages that have been carried out in determining Teacher Profiling are conducting a deeper study of the selection of competition architecture on the Neural Network Automatically as well as determining the design and development of ITEI Application development.

PROPOSED METHOD

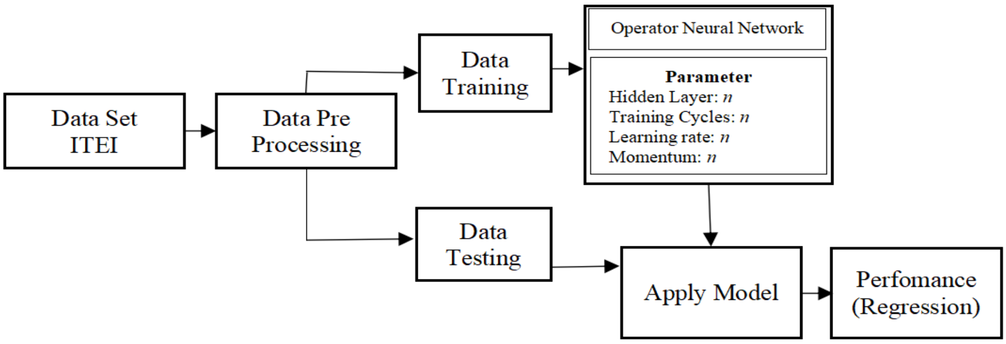

Figure 1. Research Model using Neural Network

The research model used in Figure 1 is the stage carried out in the process of determining performance indicators from each dimension. Data sets obtained from the ITEI application are then reprocessed and grouped into each dimension. Furthermore, the data is divided into two categories, namely Training Data and Data Testing

RESULTS

In this research, we tested the performance of each dimension using the Neural Network approach. From the results of the analysis carried out using the same test parameters, we can see that the Dimensions - X4 (Nationality Character) gives a large contribution in the results of the Indonesian Teacher Engagement Index (ITEI).

Table 1. Perfomance indicator

Dimensi	Execution Time	RMSE	Correlation	Learning Rate	Momentum	Training Cycle	Hidden Layer	Neuron 1	Neuron 2
X1	4s	0.199 +/- 0.000	0.817	0.3	0.5	100	2	6	6
	6s	0.210 +/- 0.000	0.795	0.3	0.5	200	2	6	6
	5s	0.255 +/- 0.000	0.745	0.3	0.5	100	1	16	
X2	5s	0.169 +/- 0.000	0.872	0.3	0.5	100	2	6	6
	7s	0.173 +/- 0.000	0.868	0.3	0.5	200	2	6	6
	10s	0.171 +/- 0.000	0.874	0.3	0.5	100	1	16	
X3	6s	0.167 +/- 0.000	0.902	0.3	0.5	100	2	6	6
	10s	0.170 +/- 0.000	0.891	0.3	0.5	200	2	6	6
	13s	0.195 +/- 0.000	0.877	0.3	0.5	100	1	16	
X4	13s	0.151 +/- 0.000	0.906	0.3	0.5	100	2	6	6
	11s	0.156 +/- 0.000	0.907	0.3	0.5	200	2	6	6
	17s	0.176 +/- 0.000	0.891	0.3	0.5	100	1	16	
	10s	0.155 +/- 0.000	0.903	0.1	0.5	200	2	6	6
X5	15s	0.169 +/- 0.000	0.895	0.3	0.5	100	2	6	6
	13s	0.170 +/- 0.000	0.885	0.3	0.5	200	2	6	6
X6	7s	0.235 +/- 0.000	0.866	0.3	0.5	100	2	6	6
	15s	0.243 +/- 0.000	0.858	0.3	0.5	200	2	6	6
	7s	0.276 +/- 0.000	0.876	0.3	0.5	100	1	16	

Table 1 explains that the RMSE value generated when using variables in the X4 dimension is quite low, which is 0.151 +/- 0.000, with a correlation of 0.906 and execution time of 13s. Therefore it shows that the predicted value produced is also higher than the variable in the other dimensions.

Table 2. Performance from a combination of dimensions

Dimensi	Execution Time	RMSE	Correlation	Learning Rate	Momentum	Training Cycle	Hidden Layer	Neuron 1	Neuron 2
X4 + X1	8s	0.108 +/- 0.000	0.953	0.3	0.5	100	2	6	6
X4 + X2	8s	0.102 +/- 0.000	0.956	0.3	0.5	100	2	6	6
X4 + X3	13s	0.117 +/- 0.000	0.941	0.3	0.5	100	2	6	6
X4 + X5	15s	0.115 +/- 0.000	0.947	0.3	0.5	100	2	6	6
X4 + X6	8s	0.129 +/- 0.000	0.94	0.3	0.5	100	2	6	6

The results obtained when combining the X4 Dimension with the other dimensions turns out to be quite good. From Table 2, it can be seen that the X4 Dimension obtains excellent results in predicting when combined with X2 Dimension (Positive Education). The RMSE value can be reduced to 0.102 +/- 0.000 with an execution time of 8s.

OUTPUT

PUBLICATION

[1] M.D. Ariefianto, S. G. Rabiha, E. H. Yossy, Y. Indrianti and Sasmoko, "A Neural Network based Approach for Predicting Indonesian Teacher Engagement Index (ITEI)," *International Conference of Artificial Intelligence and Information Technology (ICAIIT)*, Yogyakarta, Indonesia, 2019, pp. 469-474.

[2] S. G. Rabiha, Sasmoko, "Analysis of the Indicator's Performance to Predict Indonesian Teacher Engagement Index (ITEI) using Artificial Neural Networks," *Procedia Computer Science*, vol. 157, pp. 266-273, 2019.

EMPOWERING VILLAGE AS CORPORATE SOCIAL RESPONSIBILTY OF BINA NUSANTARA UNIVERSITY

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INTRODUCTION

This research complements the Ministry of Research, Technology, and Higher Education, Republic of Indonesia grant in 2019. It mentions that the relationship between Bina Nusantara University and the community is in harmony. The influence of cross-communication culture has a relationship with an improvement of the economic structure of about 0.757. It means that the relationship is strong and close to very strong if the coefficient is > 0.8. Then, the cross-communication culture has a determination of 57.4% in the improvement of the economic structure. So, there are still 42.6% of other factors that influence the process. To improve the economic structure, it needs a transformation of the organization such as the creation of a digital economy in the village so that it becomes a pilot project for other villages to be able to prosper their citizens.

METHODOLOGY

The research method is quantitative and qualitative with data sources obtained through surveys, interviews, observations, and literature studies. It is also backed up by the research held in prior. We conduct interviews with the head of the village, village officers, youth organization members, and SMEs in the village. Our literature study includes describing the digital economy according to the World Bank regarding digital economy in Kenya, India, and France.

RESULTS

Figure 1 showed the focus discussion group between the research team, Binus Community Development and the head of Cangkudu Village. According to the discussions, that the success of the innovation should be continued by maintaining communication in the community so that information is more quickly spread. These potentials must be properly identified and developed through continuous empowerment of the community. There are so many potentials that have not been optimally and optimally explored and have not been well managed. Through the digital economy in village, MSMEs can interact directly with consumers through e-commerce that is easily accessible in Indonesia. The aim of this form of innovation is to improve the quality of life of the community so that baby stunting is no longer found, and the quality of human resources increases. The existence of digital economy as an innovation in the economic field is expected to be the right solution to prosper and increase the potential of human resources in the village.

Figure 1 Empowering Village as the Corporate Social Responsibility

OUTPUT

PUBLICATION

[1] U. Yunus, "A Comparison Peer to Peer Lending Platforms in Singapore and," *IOP Conf. Series: Journal of Physics: Conf. Series 1235* , pp. doi:10.1088/1742-6596/1235/1/012008, 2019.

[2] U. Yunus, S. Sari and R. P. Chairiani, "Communication Model of Governance in Jakarta, Yogyakarta and Bandung as the Process of Branding," in *International Conference on Media*, Bandung, 2016.

[3] U. Yunus, "Communication Phenomenon of Traditional Chinese Medicine in Beijing and Jakarta," *Journal of Computational and Theoritical Nanoscience 21 (4),* pp. 709-713(5). , 2015.

[4] U. Yunus, Anindito, E. Tanuar and Maryani, "Usability testing of indonesia tourism promotion website," *Journal of Physics: Conf. Series 978 (2018) 012007,* pp. doi :10.1088/1742-6596/978/1/012007, 2018.

[5] U. Yunus, T. Sumbogo, G. Mahestu and W. Zulqarnain, "Enhancing the Economic Potential of Indigenous People in the Jababeka Industrial Area through Corporate Social Responsibility," *Pertanika J. Soc. Sci. & Hum.,* vol. 28, no. S1, pp. 155-165, 2020.

[6] U. Yunus, B. P. Wahyuningtyas and M. N. Willyarto, "Komunikasi Lintas Budaya dan Entrepreneurship pada Program Studi Destina Pariwisata Universitas Bina Nusantara Jakarta," in *Komunikasi Pariwisata dalam Era Digital*, Jakarta, PT Lontar Digital Asia, 2020, pp. 206-226.

[7] U. Yunus, B. P. Wahyuningtyas, M. N. Willyarto, T. Sumbogo and M. Rizkiansyah, "Empowering Cangkudu Village as Corporate Social Responsibilty of Bina Nusantara University," in *EUDL.EU/PCCS*, Bandung, 2019.

[8] U. Yunus, M. Angeline and S. Ramadanty, Advertising & Branding, Jakarta: Edu Pustaka, 2017.

INTELLECTUAL PROPERTY

[1] U. Yunus, “Advertising & Branding”, Copy rights C00201702096, 01 November 2016

[2] U. Yunus, “Branding di Kalangan Pemerintah Indonesia”, Copy rights C00201605000, 01 Mei 2016

THE CHARACTER OF AN EFFECTIVE NATION LEADER ACCORDING TO THE OLD TESTAMENT TO PREPARE THE YOUNG LEADERS OF THE PRESENT ARE VISIONARY AND EFFECTIVE FOR URBAN COMMUNITIES (MAIN SAMPLES OF THE CITY OF JAKARTA AND ITS SURROUNDINGS)

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INTRODUCTION

"We form our buildings, but after that, they will shape us (Winston Churchill)." If there is no plan, the future will not exist for the city of Jakarta too. Years later, Ali Sadikin confirmed his policy: "I acted realistically and was not hypocritical. When I became Governor of DKI Jakarta (1966-1977), I agreed to legalized gambling because the city government did not have enough funds." The situation in Jakarta from time to time the time is getting worse, so the author has the desire to do research that is more profound and more widespread that has begun since 2012. So much degradation has occurred in Jakarta for several years, especially with the fading and alienation of humanity and the lives of its people, especially young people in Jakarta which will be very important to be next generation of Indonesian citizen, especially in Jakarta and its surroundings in the future. Before everything is too late, the author takes a small step to develop and transform this situation with an empathetic management and leadership approach to change the existence of young people and future generations of Indonesia. The plan is to look at some literature relating to Management and Leadership and an in-depth approach to verses and stories in the Old Testament that are very relevant to this context. Towards what is aspired by our Father of the Nation, even more so, the Almighty God, Our Father Who Is In Heaven.

METHODOLOGY

This research is to express and recognize leadership patterns desired by citizens, especially residents of the Capital City of DKI Jakarta. Then, based on these findings, efforts have been made to propose a servant leadership. Regarding the quality of the desired leader, this research aims to answer the needs and problems of DKI Jakarta (Jakarta Municipal City). These factors need to be considered to recognize patterns of needs and problems faced by Jakarta. Several factors in answering the problem and the need to produce effective leadership are: a) behavior, b) preference assessment and c) demographics. The leadership pattern desired by citizens, especially residents of the Capital City of DKI Jakarta, is effective leadership. Leaders with good character would be able to recognize the needs and problems faced by DKI Jakarta. Meanwhile the preference assessment of leaders is leadership-tested leaders, which are leaders who understand young people, leaders who do not act discriminatively, idealistic leaders and leaders who are not complicated, It will produce effective leadership for Jakarta Municipal City.

RESULTS

Based on the development of leadership concepts, ranging from the trait approach to behavioral, situational and transactional and transformational, the servant-leadership leadership has some similarities with the transformational leadership. According to transformational leadership experts, transformational leadership is more proactive and more effective in motivating subordinates to achieve better performance. Transformational leaders are more capable and more sensitive to their environment to further disseminate strategic goals that are able to capture the attention and interests of their subordinates. The followers of transformational leadership show a higher commitment to the organization's vision and mission and willingness to work harder. Besides, it is important for them to have higher trust in the leader and show a higher level of cohesion. According to Bass & Avalio (1994), transformational leaders achieve superior results by influencing their subordinates through four ways, namely 1) idealized influence (being a model and giving rise to a personal identification process), 2) inspirational motivation (creating team spirit and creating unity of vision), 3) intellectual stimulation (encouraging the ability to think, creative problem solving to subordinates) and 4) individual consideration (doing coaching - development by considering the conditions). Based on the characteristics of transformational leadership, the authors assume that the concept of servant-leadership has several characteristics, which are healing, stewardship, and commitment to the growth of people/others as well as building community on Servant Leadership similar to individualized consideration in its efforts to develop others. It is identified as behaving in full struggle for the interests of the wider public. This behavior certainly requires some strengths from personal values that can encourage the emergence to change the condition of a large group of employees or people from fewer to be much better. Based on the concept of value from Rokeach (1978), values that become the strategies and the goals are referred as Terminal Values and Instrumental values, while Schwart & Bardi (2000) referred them as Motivational Values. In the concept of servant-leadership, power that takes place is not personal (for personal gain) but rather institutional (for the benefit of many people). Every leader action or behavior that strives continuously to serve the needs of the wider community, will be seen and felt by followers. All acts of leader service will be a role model that can stimulate and motivate followers' behavior to bring up action or service behaviors for other people or others. Thus the act of service carried out by the leader to his followers will create a kind of 'domino effect' on a group of followers who will also pioneer service for other parties.

OUTPUT

PUBLICATION

[1] Tarigan, N. P. (2020). The Character of an Effective Nation Leader According to the Old Testament to Prepare the Young Leaders of the Present Are Visionary and Effective for Urban Communities (Main Samples of the City of JAKARTA and its surroundings). In *Proceedings of the 1st International Conference of Global Education and Society Science, ICOGESS 2019*.

DISABILITY DUE TO LEPROSY DISEASES AND COMMUNITY EXPERIENCE AT KAMPUNG KUSTA SITANALA TANGERANG BANTEN IN THE CONTEXT OF URBAN PEOPLE

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INTRODUCTION

Sitanala leprosy village is a spontaneously established village of leprosy patients (leprosy or Morbus-Hansen diseases) from the Sitanala leprosy hospital located in Tangerang, Banten. It is located not far from the airport Soekarno-Hatta promising an exciting prospect for Local Government (local government) to change the location of the leprosy residence from there to become a business center. All the way is taken. The crucial problem of stigma and discrimination against leprosy has not resolved until now in Indonesia. Leprosy is one of the most infectious diseases. Nevertheless, it does not spread and affect people easily too easy to affect people. The potential for infections worldwide is only 5%, but it still sounds terrifying for some people, especially the ones who are not aware of it. The burden of leprosy stigma remains high, even in areas considered low endemic. Individuals, families, and communities experience painful effects. In the context of the world's most populous Muslim country, leprosy in Indonesia is a challenge, so it needs a more significant movement within the community to build leprosy communities to be more empowered. One of the solutions undertaken by the Disability and Leprosy Movement for Indonesia (GPDLI) is by facilitating the establishment of the Hansen Re-Integration Federation of Indonesia (FARHAN) which is an alliance of higher level and national community or community organizations that work together with other religious institutions such as MUI, Nahdatul Ulama, Muhammadiyah, etc. Good prospect according to many circles is changing the village of leprosy into live laboratory of handling and prevention of leprosy even become museum of leprosy Indonesia.

METHODOLOGY

This is a qualitative research that is widely used in the branch of social science such as research focusing on the development of character in building a leprosy community entitled “Disability Due To Leprosy Diseases and Community Experience at Kampung Kusta Sitanala Tangerang Banten in The Context of Urban People”. This study takes the viewpoint of the observer's results on the basis of data collection and interpretation through direct contact in the field (Creswell, 2007). Therefore, this qualitative research relies heavily on the researcher himself in understanding, describing, interpreting, and explaining all the things and information available. Qualitative research is also called constructive, naturalist or interpretative approach. Qualitative research emphasizes the understanding of problems in social life based on reality on natural setting (Sugiarto, 2015).

RESULTS

The results we get from this research are: 1) review and update of outcomes to date in community especially Sitanala and beyond, with the exciting developments related to our collaboration with Binus University for 5 years, and NLR for 2-3 years, 2) participants share experiences, 3) results (success and failures) and information to move forward, 4) identification of new opportunities for collaboration among stakeholders, as well as opportunities for business and inclusive business models. Possible start-up of a social entrepreneurship model or Creative and Agricultural activities or maybe employment possibilities in the region and the short and mid-long-term action plans and commitments implementation by GPDLI network members including Binus University and NLR as well as the local governments. There was not only the empowerment of the person with disabilities but also a facilitation of these people on how to understand their equal rights for their own future from DRF (Disability Rights Fund). GPDLI as operator for this facilitation and FARHAN organization work together to coordinate people affected by leprosy in Indonesia besides other organizations who develop leprosy in Indonesia as the result of The Jakarta Consensus meeting with Indonesia Human Rights Commissioners in Jakarta. In accordance with the title of this paper, which is related to live portrait of life and community empowerment of the two aspects; leprosy and disability, it can be concluded that leprosy does not only relate to health problems, but also affects their social problems and ultimately gives direct impact on their livelihoods. If there is no breaking of the poverty cycle, people affected by leprosy and disability within the Sitanala community will continue to receive marginalization in their lives. The resonance of this movement in the future is not a small thing because all civil society members will increasingly realize that government, institutions, companies, communities, universities and schools can become a significant transformation base in the development of our beloved Indonesia, Nation Character Building Indonesia that has been declared by the Fathers of our nation since decades ago. Respect all elements of the nation regardless of the situation and background in-order to be benefit of our nation, especially those who are marginalized. Well-established relationships can make this relationship a sustainability movement in the future, especially in the vision of developing and realizing a community that has a better quality of life holistically.

OUTPUT

PUBLICATION

[1] Perdamenta, N. T. N. (2017). Disability Due to Leprosy Diseases and Community Experience at Kampung Kusta Sitanala Tangerang Banten in The Context of Urban People. In *Proceedings of International Conference on Diversity and Disability Inclusion in Muslim Societies (ICDDIMS 2017)*. Atlantis Press.

ANALYSIS OF ENGLISH SYLLABUS FOR ACCOUNTING STUDENTS AND THE NEEDS OF ENGLISH IN BUSINESS WORLD

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TEAM MEMBERS: Dr. Inneke Indra Dewi, S.TH., M.Hum & Christine Paulina, S.S., M.Pd.

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INTRODUCTION

To answer the challenge of the competition for university graduates, students need to be equipped with sufficient knowledge and practices. One of the challenges today is to discuss the mastery of English. English is one of the requirements to advance in the International competition in business world. Big companies, especially global multinationals, need employees who are reliable in communication with all parties. University prepares students for it, studying period to be a bridge for them to the era of business competition internationally. Syllabus is one form of planning in guiding students to be proficient in the materials. English syllabus should meet the needs in the future.

METHODOLOGY

This research is conducted by interviewing graduates of Bina Nusantara that have worked in big four companies in Jakarta. With structured data collection, firstly, we collect data from all accounting university graduates of 2013 – 2014 from Bina Nusantara Alumni Resource Center. Based on the data, we choose respondents and contact the graduates to ask their job by emails. After collecting the answer, we classify them into two parts; the entrepreneur and the employee group. We only focus on university graduates who are working in a company. While collecting graduates data, we search for the Jakarta big four companies' contact, and then call them to find the Human Resource email contact to send the questionnaire.

RESULTS

It can be concluded that the students need to practice English to improve the communication skills of speaking and writing to get reports in proper English. Bina Nusantara has been providing adequate training and the results can be felt by the graduates who are now working. The syllabus of English Language which has been running is good enough. However, it would be better if the materials provided to students are well-adapted to the major concerned. Lecturer is expected to be more creative in providing materials and encourage students to practice regularly. Speaking and writing skills also needs to be improved by providing specific additional materials. Topics customize needs based on the major they are taking. Whereas companies need employees and prospective employees to be able to use English, university prepare students well.

OUTPUT

PUBLICATION

[1] D, Suprato,, I. I. Dewi and C. Paulina, "English syllabus for accounting students and the needs of English In business world." *Lingua Cultura*, vol. 12, no. 2, 2018, pp. 129-134. doi: 10.21512/lc.v12i2.2068. P-ISSN: 1978-8118, E-ISSN: 2460-710X.

DIGITAL GENERATION: ENTREPRENEURIAL MOTIVATION OF GENERATION Z IN DIGITAL ERA

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INTRODUCTION

The rise of study programs that offer Entrepreneurship since 2017 in west Java is also followed by moral responsibility for its graduates' success to become a successful entrepreneur. The problem that arises is whether prospective students or students themselves have the same perception as the institution, which is a strong desire or motivation to become entrepreneurs. This motivation needs to be measured and analyzed further. It is to found out whether it is true that prospective students have the motivation to become entrepreneurs and what kind of motivation they have. The target respondent of this research is Generation Z.

METHODOLOGY

This research uses a quantitative method. The data collection technique is carried out by distributing questionnaires to private high school students in Bandung, who are interested in the Entrepreneurship study program. In accordance with the specific objectives of this study to provide direct benefits in the development of teaching in the Entrepreneurship study program, the high school students are involved in becoming respondents of this study. The sample selection from this study uses purposive sampling. Data testing and processing are conducted by an exploratory analysis factor with SPSS software.

RESULTS

Based on the result of this study, we find that entrepreneurial motivation of Generation Z consists of several indicators: financial security, learning, survival, freedom, elevating family status, flexibility in personal life, time flexibility, indirect access to success, will for income, elevating welfare in society, and following trend. From those indicators, through factor analysis, we find that the internal motivation of Generation Z to become an entrepreneur consists of four factors: self-improvement, social reward, life freedom, and financial reward. Meanwhile, the external motivation of Generation Z to be an entrepreneur is social awareness. Social awareness in this study refers to influences from family members and the trend in society that push them to become an entrepreneur or take an Entrepreneurship program. They are also influenced by their friend that already become Entrepreneurship program students.

OUTPUT

PUBLICATION

[1] Mulyani, T. Inayati, and R. Aryanto, "Digital Generation: Entrepreneurial Motivation of Generation Z in Digital Era," *Int. J. Recent Technol. Eng.*, vol. 8, no. 4, pp. 5376–5380, 2019.

EXAMINING STUDENTS' PERCEPTION TOWARDS EDUCATION: PERCEPTION, INVOLVEMENT OF SATISFACTION, AND BEHAVIORAL INTENTION

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INTRODUCTION

Indonesia experiences problems in developing human resources in the future. The disturbance in question is in the educational institution where quality human resources are created. The education market faces disruption because many large companies look for the workforce. The companies do not require formal certification from higher education institutions, and they offer jobs online via the Internet. The offer is welcomed by the young generation because they are familiar with social media. This situation is thought to change the perceptions of the young generation and their behavior about formal education. Along with this phenomenon, most education markets are very unaware and still use traditional approaches today.

METHODOLOGY

The analytical method used is the Partial Least Square Structural Equation Model (PLS-SEM) to test the hypothesis proposed by the researchers in this study. Each proposed hypothesis is analyzed using WarpPLS 6.0 software to test the relationship between each variable according to the inner model. The inner model determines the relationship between variables based on substantive theory.

RESULTS

Indicators of four variables, such as social media, perception, satisfaction, and behavior, can contribute to developing strategic educational theories and markets for facing the young generation through university behavior. First, social media is proven to influence the good perception of university significantly. Social media indicators that can effectively be used, are *individu Facebook*, *individu aplikasi apa* and *garis individu*, the university website, and other social media made by the university for information dissemination. The university website has a high score that it should be maintained and updated properly. Second, the indicator of good perception of a university is built by technology, reputation, and value in the industry. Many successful graduates from this university, using digital for communicating and delivering materials, are recognized in the industry, so it is easy to link jobs. Third, the satisfaction indicator applies to feel proud and good service. Furthermore, they will recommend it to other consumers. The satisfied feeling provides free strong advertising about the university. It is a very good benefit because the university does not need to charge for that advertisement. Fourth, students' good behaviors are shown by good analytic skills, soft skills, updating information, and fast response.

RELEVANCY AND URGENCY OF RELIGION EDUCATION ON THE FAITFULNESS FORMATION OF THE STUDENTS

RESEARCH LEADER: Dr. Drs. Arcadius Benawa, M.Pd.

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INTRODUCTION

This research mainly aims to observe the extent of students' understanding of Pancasila Education, especially the first principle, *Ketuhanan Yang Maha Esa* (Belief in the one and only God) and Religion Education towards the formation of Faithfulness of the Students.

METHODOLOGY

This research method uses quantitative methods with surveys by distributing the questionnaires to the respondents the after collecting data analysis using by the path analysis. Path analysis is used to determine the level of influence of the First Principle of Pancasila (X1) and Religious Education (X2) on the Faithfulness Formation of the Student (X3). The target population in this research are students at Bina Nusantara University, Jakarta. Affordable population is students at Bina Nusantara University Jakarta, a total of 150 students become the sample framework, according to Slovin formula. This research uses the Simple Random Sampling technique.

RESULTS

The results showed that Pancasila Education, especially the First Principle has no significant influence since the results shows 34,30%. Meanwhile the effect of Religion Education on the Faithfulness Formation of the students is significant, which comes up with 59.4%. It can be concluded that Pancasila Education has smaller significant effect on the Faithfulness Formation of the students than Religion Education, which has significant effect. The results makes clear about the study of what types of education having significant influence on the formation of the Faitfulness of the students. The implication is that Religion Education should be delivered more intensively and seriously if we idealize to format faithfulness of our students as the young generation. Thus the students as the young generation do not only have religion but also are religious and faithful.

OUTPUT

PUBLICATION

[1] A. Benawa, Y. S. Ruman, & I. Irawan, “Relevancy and urgency of religion education on the faithfulness formation of the students,” in *IOP Conference Series: Earth and Environmental Science*, vol. 485, no. 1, 2020. IOP Publishing.

GOSSIPS AND INDIVIDUALS IN ORGANIZATION: DRIVERS OF LIKELIHOOD TO SHARE GOSSIPS

RESEARCH LEADER: Dr. Adilla Anggraeni, B.Bus., M.B.A.

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INTRODUCTION

Gossip is a social phenomenon whose existence is prevalent in every organization. The advancement of technology has also facilitated the spreading of gossip within an institution. This research involves individuals as users of (chatting platform application) and whether the act of spreading the information can be influenced by psychological factors such as individual personality and the relevance of the gossip towards the individuals who hear or receive the gossip. The variables investigated in this research are need for drama, interpersonal closeness, compassion, and personal valence in influencing an individual's likelihood to share gossip. It is expected that this research can provide insights to managers and leaders to gain better understanding of the various functions gossip serves within organizations.

METHODOLOGY

The study utilizes quantitative approach. Survey method was employed as the main data collection method. The indicators were adopted from previous studies. In total, there were 110 respondents participated in the study. Out of 110 responses, only 108 responses were deemed to be valid. All of the respondents were chatting platforms users. Measurements were adopted from various journals and refined to suit the context of the study.

RESULTS

This research has shed some lights on factors that may drive individual's intention to spread gossip via chatting applications. It is found that out of the factors hypothesized, only 'need for drama' is shown to have significant positive influence towards likelihood to share gossips. It should be noted that this research does not take into account the source credibility as well as the context in which the gossip may take place. It is possible that gossip that is conveyed in face-to-face manner may have.

OUTPUT

PUBLICATION

[1] A. Anggraeni, "Gossips and individuals in organization: Drivers of likelihood to share gossips". In *Proceedings of the 2020 the 6th International Conference on E-Business and Applicati*ons, pp. 145-148, February 2020.

DRAMATISM OF JOKOWI'S COMMUNICATION IN MASS MEDIA AT PILPRES 2019

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TEAM MEMBERS: Margynata Kurnia Putra, S.Sos., M.Si.; Marta Sanjaya, Sip., M.Si.

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INTRODUCTION

The focus of this research is on the dramatism phenomenon of political communication in the mass media. Dramatism in communication is carried out by the 2019-2024 Indonesian presidential candidate Joko Widodo, at the 2019 presidential election debate. This event is broadcasted live on Indonesian national television and live streaming on the internet (YouTube and other social media). This research uses a qualitative-descriptive paradigm approach to describe dramatism and its elements objectively. It depicts how to convey a story/narration, language, sentences, terms that are conducted by candidate presidential candidate Joko Widodo in the mass media. Political communication carried out to the masses ahead of the voting day will be beneficial for gaining public support, and for gaining victory in the presidential election. The theory of Pentad Dramatism analysis from Kenneth Burke is the basis for thinking to analyze the object of this research. The data collection method uses documentation techniques, namely the transcript of the 2019 Presidential Election Debate. The documentation used as the object of research is the statement or answer uttered by Joko Widodo during the 2019 Presidential Election Debate. The research objects are collected, separated based on the themes discussed, and analyzed using Pentad analysis. Furthermore, it will be easier to interpret objects that include stories/narratives, actors being told, objects, ideas, communication techniques, ways of persuading the public, motivation, and goals. The researchers will determine which elements appear the most, among the five Pentad analysis that consists of 5 elements. They are Act (what was done), Scene (when or where it was done), Agent (who did it), Agency (how he did it), and Purpose (why).

METHODOLOGY

The data collection method uses documentation techniques by collecting the transcript of the 2019 Presidential Debate event. The documentation used as the object of research is the statement or answer uttered by Joko Widodo during the 2019 Presidential Election Debate. The research objects are collected, separated based on the themes discussed, and analyzed using Pentad analysis. Pentad analysis consists of five elements; they are Act (what was done), Scene (when or where it was done), Agent (who did it), Agency (how he did it), and Purpose (why).

RESULTS

This research is still in the process, so the results are still not obtained.

MEDIA CONVERGENCE STRATEGY ON METRO TV (OPTIMIZING THE USE OF NEW MEDIA IN THE OPSI PROGRAM)

RESEARCH LEADER: Medo Maulianza S.P, M.I.Kom

TEAM MEMBERS: Arleen Ariestyani S.I.Kom., M.I.Kom

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INTRODUCTION

Convergence between old media and new media is a must. Interactive is one of the advantages of new media. Romli (2018) explained eight characteristics as well as the advantages of new media, including multimedia, topicality, quickness, updates, flexibility, breadth, and interactive. One form of new media is social media, which is now widely used by audiences to interact, both between mass media with the audience and between the audiences itself. According to Meikle and Young (2012), social media is a convergence between personal communication in the sense of sharing between one individual with other individuals and public media to share with anyone without individual specificity. Metro TV realizes that integration with new media is important. OPSI, one of program on Metro TV, utilizes social media to broaden its audience reach and promotion. The examples of social media (new media) are Twitter, Instagram, and Youtube. Each of them has features that can be optimized

METHODOLOGY

This study is an ethnographic study and descriptive qualitative. The analysis of this study uses eight characteristics as well as the advantages of new media, according to Romli (2018), including multimedia, topicality, fastness, updates, flexibility, breadth, and interactive. In addition, this study will explain the optimization of the use of new media by utilizing the features of social media such as Twitter, YouTube, and Instagram. To obtain the data, the researchers used in-depth observations and interviews. Observations are carried out by researchers for one month. Meanwhile, for the interview, the researcher prioritized interviews with 4 speakers. Then, the researchers use coding, which is a process of categorizing qualitative data so that it can be easily measured or understood.

RESULTS

Metro TV seeks to optimize the advantages of new media for media convergence, so that it can broadcast in multiplatform way. These advantages are multimedia, topicality, fastness, update, flexibility, breadth, and interactive. It is used to expand the reach and adapt to the habits of the audiences in consuming media today. Moreover, it can be used as a medium for promotion before the program airs.

Furthermore, the promotion team and production team of OPSI have utilized Several available features on Twitter, Instagram, and YouTube. However, not all of them have been used because of limited human resources. Twitter uses tweet, re-tweet, reply-tweet, follow, trending topic, and hashtag. Meanwhile, for Instagram, features that are often used are feeds, IG stories, reposts, comments, and IGTV. For Youtube, the features used are posting, comment, like, and subscribe.

OUTPUT

INTELLECTUAL PROPERTY

[1] M. Maulianza, A. Ariestyani, R. Jogi, “Media Convergence Strategy on Metro TV (Optimizing the Use of New Media in the OPSI Program,” Copy right EC00201992195, 000172389, 23 Desember 2019.

REGULATION AND PRE-TRIAL PRACTICES OF TAX CRIMINAL PROCEDURES IN INDONESIA

RESEARCH LEADER: Dr. Ahmad Sofian, SH, MA

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INTRODUCTION

Pre-trial is a regulation to control and, at the same time, correct acts of law enforcement that are considered to have violated the mechanisms stipulated in procedural law. This correction does not concern the aspect of the criminal act under suspicion but rather looks at the “rules of the game” determined by the formal criminal law whether it has been carried out correctly or not. In practice, pre-trial is often used by taxpayers who stumble upon tax criminal cases, even though the legal steps taken by tax investigators have met formal criminal law principles. There are often different interpretations in the use of pre-trial regulation in tax crimes.

METHODOLOGY

This research uses normative legal research methods enriched by conducting interviews with Civil Servant Investigators. The pre-trial guideline in the context of tax crimes does not only refer to the Criminal Procedure Code but also the Constitutional Court Decisions which amend or cancel several provisions of the Criminal Procedure Code, Supreme Court Regulation No. 4/2016 and also the Law on General Provisions and Tax Procedures which have been amended four times and the most recent amendment is through Law no. 16 of 2009.

RESULTS

Due to the large number of legal sources that serve as guidelines in disclosing tax crimes, sometimes minor and major misinterpretations and improper procedure carried out by the Taxation Civil Investigator (*Penyidik Pegawai Negeri Sipil*) so that they become pre-trial loopholes. In addition, a situation was also found where pre-trial efforts made by taxpayers were simply to "delay" the process of examining the principal case or "chance" so that the subject matter was postponed or the examination was canceled. The recommendations offered in this research are to strengthen the *PPNS* of the Directorate General of Taxation so that technical skills and abilities increase to an advanced level in the process of investigating tax crimes, complementing the Standard Operating Procedure through the Minister of Finance Regulation regarding the determination of suspects, searches and confiscation so the legal steps become more measurable to minimize pretrial. Should there be any pre-trial, the judge can consider the best decision.

OUTPUT

PUBLICATION

[1] B. Hasibuan & A. Sofian, "Taxation criminal acts committed by taxpayers and related to sustainable development in Indonesia," in *The 1st Workshop on Multimedia Education, Learning, Assessment and its Implementation in Game and Gamification in conjunction with COMDEV 2018*. European Alliance for Innovation (EAI), 2019.

THE POLITICAL ECONOMY OF STATE, REGULATION, AND TRANSNATIONAL ISSUES

RESEARCH LEADER: Prof Tirta Nugraha Mursitama, S.Sos., MM., PhD

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INTRODUCTION

Our research aims to unpack the state by clearly exploring how domestic political economy processes, ranging from inter-agential conflict to contestation over interests and norms within the state, affect the way in which states behave at the regional and global levels. We plan to develop our research agenda in a way that brings novel insights and understandings of micro-processes of behaviour to the study of regulation, transnational issues, and diplomacy.

METHODOLOGY

We develop wide range of theoretical and methodological innovation ranging from sociology, management, and data science. Our goal is to contribute to making Indonesia a site for enriching the theorisation of social science and humanities. This endeavour is a direct answer to the increasing call for global south scholars to embrace non-western ideas and concepts that reflect the voices, experiences, knowledge claims, and contributions of the vast majority of the societies and states of the world.

RESULTS

Our research can be breakdown into these areas:
1. Regulation on transnational issues
2. Governance of frontier areas
3. Global governance and diplomacy

OUTPUT

PUBLICATION

[1] Mursitama, T. N., & Ying, Y. (2020). Indonesia's Perception and Strategy toward China's OBOR: Expansion: Hedging with Balancing. *The Chinese Economy*, 1-13.

[2] Karim, M. F. (2020). When trade and foreign policy collide: Indonesia in Doha development round. *The Pacific Review*, 1-28.

[3] Karim, M. F. (2020). The limits of global human rights promotion: Indonesia's ambivalent roles in the UN Human Rights Council. *Contemporary Politics*, 1-20.

[4] Karim, M. F. (2019). State transformation and cross-border regionalism in Indonesia's periphery: contesting the centre. *Third World Quarterly*, *40*(8), 1554-1570.

[5] Karim, M. F. (2018). Middle power, status-seeking and role conceptions: The cases of Indonesia and South Korea. *Australian Journal of International Affairs*, *72*(4), 343-363.

[6] Karim, M. F. (2017). Role conflict and the limits of state identity: the case of Indonesia in democracy promotion. *The Pacific Review*, *30*(3), 385-404.

[7] Karim, M. F. (2017). Institutional Dynamics of Regulatory Actors in the Recruitment of Migrant Workers: The Case of Indonesia. *Asian Journal of Social Science*, *45*(4-5), 440-464.

[8] Karim, M. F., & Chairil, T. (2016). Waiting for Hard Balancing?: Explaining Southeast Asia's Balancing Behaviour towards China. *European Journal of East Asian Studies*, *15*(1), 34-61.

POWERFULLY TECNOLOGIZED, POWERLESSLY CONNECTED: THE PSYCHOSEMIOTICS OF NOMOPHOBIA

RESEARCH LEADER: Dr. Andreas Akun, S.Pd., M.Hum.

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INTRODUCTION

The article studies nomophobia as a modern psychological attachment to smartphone as studied through *Mophie* advertisement “All Powerless”. Studies have shown that most youngsters suffer nomophobia to a certain degree ranging from mild to severe. In Indonesia, all studied participants are nomophobic with 71.42% suffer moderate nomophobia, 19.04% severe, and 9.52% mild. This literary study on the topic is significant because it focuses on the representation of the reality in the form of advertisement that—through the combined application of semiotics and psychology—may expose deeper meanings of the social practice of smartphone usage.

METHODOLOGY

This is a literary study of *Mophie* advertisement using Rolland Barthes’ semiotics comprising mythic or ideological concepts of modern cultures where commercials function as signs that signify key culturally adjustable concepts that reinforce a particular worldview such as individualism, capitalism, materialism, hedonism, etc. The semiotic concepts are also combined with psychology concepts in elaborating the meaning-making on impacts of smartphone (unsmart, uncontrolled) use. The study is also supported by the result of a questionnaire on nomophobia distributed to 42 students (15 males, 27 females, aged 19-25) studying at the English Department, Faculty of Humanities, Bina Nusantara University Jakarta, Indonesia. The questionnaire is designed by Caglar Yildirim and Ana-Paula Correia from Iowa State University. Based on 20 questions, they have categorized nomophobia into four: No nomophobia (01-20), Mild (21-59), Moderate (60-99), and Severe (>100).

RESULTS

Through the psychosemiotic study of nomophobia in the advertisement, it is concluded that beyond the surface denotative meaning that the ad is designed to simultaneously invite consumers to buy it and legitimize the disappearance of nomophobia, the deeper ideological meaning has surfaced: people have been psychologically attached too much to the very technology than to other human beings and God, signifying all are powerless in the face of technology.

OUTPUT

PUBLICATION:

[1] A Akun, W Andreani, "Powerfully tecnologized, powerlessly connected: The psychosemiotics of nomophobia", in the proceedings of 2017 10th International Conference on Human System Interactions, HSI 2017, 8005051, pp. 306-310

THE ROLE OF INDONESIAN GOVERNMENT IN REDUCING INDONESIAN FEMALE MIGRANT

RESEARCH LEADER: Paramitaningrum, Ph.D

TEAM MEMBERS: Tia Mariatul Kibtiah S.Ag, M.Si, Curie Savitrie Maharani Ph.D.

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INTRODUCTION

This research explains the existence of Indonesian Migrant Workers (PMI) working in Syria. This is a deep concern because Indonesian citizens (WNI) especially women prefer to work abroad even in conflicted countries rather than within the country. This research aims to examine the role of the Government of Indonesia to reduce women's PMI in conflict areas.

METHODOLOGY

The methods in this research is qualitative methods by referring to two data sources, namely primary and secondary. Primary data from interviews with several sources, such as women who have lived in Syria, BNP2TKI, PJTKI, IOM (International Organization for Migration) and Presidential Messenger for the Middle East Region, Alwi Shihab. While the secondary data is collected from the results of the analysis of books, journals, and similar publications on this topic.

RESULTS

Based on the research question, this research aims to know the role of the Indonesian government to resolve women migrant workers in conflict areas such as in Syria, the Middle East and various problems encountered, so this research can contribute to Indonesia's social and development problems, especially in the economic field. The trick is to solve various obstacles faced by the government so that female migrant workers leaving for the conflict area are reduced by using state level analysis to solve it.

The countries cooperating with Indonesia must have a Memorandum of Understanding (MoU) in the field of migrant worker protection and welfare. With the existence of prosperous, safe, protected female migrant workers working abroad, they will improve their family's economy in Indonesia, which will affect Indonesia's economic growth through remittances or money they send to families.

ANALYSIS OF IRAN-SEA ECONOMIC COOPERATION (INDONESIA, MALAYSIA, THAILAND) IN FACING US

RESEARCH LEADER: Tia Mariatul Kibtiah, S.Ag, M.Si

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INTRODUCTION

This research describes Iran’s cooperation with Southeast Asia (SEA/Southeast Asia). Researchers took three countries in Southeast Asia which were used as case studies of the Iran-SEA cooperation. Currently, Iran's economic conditions are getting worse due to economic sanctions imposed by the United States since 1979 until now. This research tries to look at the relationship between Iran-SEA economic cooperation with the improvement of Iran's economic growth. The concept used in this study is interdependence developed by Joseph Nye and Robert Keohane. Both figures of international relations explain the dependencies and interdependencies between the actors due to differences in power and natural resources. This paradigm shifts thinking of realism which is more inclined to approach the military power in resolving conflicts. The pattern of interdependence raises relations between actors to create world peace. The concept of interdependence emphasizes three things; 1) the state is not the only actor, there are transnational actors as the main players, 2) hard power is not the only instrument but the economy and international institutions also play a role, 3) welfare takes precedence over security.

In addition, this research is also expected to provide policy input to the Indonesian government to take advantage of wider economic cooperation opportunities for Iran, Indonesia, Malaysia, and Thailand.

METHODOLOGY

The methods used in this research is a qualitative method by referring to two data sources—primary and secondary data. Primary data is data obtained from interviews with several sources, such as with the Iranian Embassy in Jakarta, Indonesia, the Indonesian Ministry of Trade, BKPM (Investment Coordinating Board) and figures who understand this topic. While secondary data from the results of the analysis from books, journals, data from the ASEAN Secretariat (Jakarta), and similar publications on this topic.

RESULTS

Using the concept of interdependence from Keohane and Nye, the targeted research findings is how Iranian institutions (NGOs, cultural institutions, educational institution) and the Iranian government approached Asia Landmark to improve its economy due to US sanctions. Hopefully, Indonesia, Malaysia, Thailand welcome Iran's approach so that they could contribute to each other especially in the economic field.

A CONCEPTUAL STUDY ON BUSINESS PERFORMANCE INFLUENCED BY INTERNATIONAL EXPERIENCE, ENTREPRENEURIAL ORIENTATION, COMPANY REPUTATION AND ITS IMPLICATIONS ON COMPETITIVE ADVANTAGE (A STUDY ON OVERSEAS EDUCATION CONSULTATION IN INDONESIA)

RESEARCH LEADER: Rianto Nurcahyo, S.E., M.M

TEAM MEMBERS: Prof. Tirta Nugraha Mursitama, S.Sos., M.M., Ph.D., Dr. Engkos Achmad Kuncoro, S.E, M.M., Setyo Hari Wijanto

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INTRODUCTION

One of the most important aspects of any country's development and progress is education system, in which the institutions of higher education play an integral part. Higher Education Institutions (HEI) develop the human resource for various industries. One of the steps to aid and accelerate this development is offering scholarships to induce potential students to enroll. In Indonesia the number of students that have been studying on scholarships abroad is almost 35,000. This activity has opened up a new market for education consultants to function in the areas of providing details to students regarding availability of various opportunities and other relevant information. The objective of this research is to determine a relationship among entrepreneurial orientation, international experience, and company reputation on competitive advantage in business performance.

METHODOLOGY

This research uses descriptive and explanatory approaches. Descriptive research according to Whitney (1960) is the attempt to find the facts with the right interpretation. Descriptive research (Sekaran and Boogie 2016) is intended to collect and study the issues in the community, as well as the procedures applicable in a society and under certain circumstances, including with correlation, activities, attitudes, views and ongoing processes which are used to collect explanations from the research objects. Meanwhile, an explanatory survey (Sekaran and Boogie 2016) is meant to discover the characteristics of variables by studying the sample. The unit of analysis of this research is overseas education consultant companies in Indonesia. The research data are collected within one cross-sectional time frame. The entrepreneurial process of value creation is driven by entrepreneurs and entrepreneurial intentions (aspirations for entrepreneurial gifts).

RESULTS

International experience is essential for the interactions within organizations or with the company’s business partners, which are increasingly globalized and international. It will help you to navigate efficiently between different languages and cultures because you will have experienced how people operate in other environments. This can be a significant competitive advantage for you in the future when you will be targeting your dream jobs against other candidates

A previous study found that there is a significant association between an organization's competitive advantage and business-based performance where business-based performance is measured by the level of sales income, profitability, investment return, market share, and product growth. Moreover, a previous empirical study has described the significant correlation between competitive advantage and organization-based organization performance, when this organization-based performance is measured with an emphasis on the organization's efficient internal process, customer satisfaction, employee development and job satisfaction (Neely, 2005).

OUTPUT

PUBLICATION

[1] R. Nurcahyo, T. N. Mursitama, E. A. Kuncoro & S. H. Wijanto, "A conceptual study on business performance influenced by international experience, entrepreneurial orientation, company reputation and its implications on competitive advantage (A study on overseas education consultation in Indonesia)," *Journal of Critical Reviews*, vol. 7, no. 16, pp. 563-574, 2020. https://doi.org/10.31838/jcr.07.16.67

THE EFFECT OF COMPETITION AND CAPACITY ON INTERMEDIATION COST: A COUNTRY LEVEL STUDY

RESEARCH LEADER: Dr. Moch. Doddy Ariefianto

TEAM MEMBERS: Rindang Widuri, PhD, Prof. Edi Abdurachman, PhD, Irwan Trinugroho, PhD.

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INTRODUCTION

This study focuses on the conduct and performance at country level rather than individual bank level. We are also motivated by the existence of a comprehensive (and open access) country level financial sector database; released relatively recent by World Bank in 2013: Global Financial Development Database - GFDD (see Cihak et al, 2012 for description of the database). As of July 2019, the database contained 117 annual data series from 1960 – 2017 of 214 countries.

We use data from GFDD in our empirical model. Our sample comprises (initially) of annual data of 12 series from 1996 to 2016 of 212 countries. Our study is using static perspective therefore we employ standard panel data regressions techniques: Pooled OLS; Fixed Effect and Random Effect to estimate the empirical relationship of intermediation cost with various variables. In addition to baseline regressions, we elaborate the model further to include categoric variables: (a) country income stage category and (b) crisis episodes dummies. In this regard, we hope to obtain richer insights from the analysis.

METHODOLOGY

In this study, we attempt to model the relationship of several major factors to intermediation cost of banks based on Saunders and Schumacher (2000). The intermediation cost is proxied by ratio of Net Interest Income to Earning Assets (Net Interest Margin; NIM). Specifically, we focus on two variables of interests that drive this cost which are competition and capacity to lend (proxied by CAR and NPL). We include some controlling variables comprises of Bank Internal Characteristics, Financial Stability and Structural Factors.

We model the estimated relationship as a linear form as follows

$$IC_{it} = \alpha_0 + \sum_{n=1}^{2} \alpha_n CTL_{nit} + \alpha_3 COMP_{it} + \sum_{n=4}^{5} \alpha_n CHAR_{nit} + \sum_{n=6}^{7} \alpha_n FS_{nit} + \sum_{n=8}^{9} \alpha_n SF_{nit} + u_{it}$$

$$u_{it} = v_i + e_{it}$$

Where IC is Intermediation Cost (here proxied as Net Interest Margin; NIM). As regressors we use Capacity to Lend proxies (CTL), Competition Indicators (COMP), Bank Internal Characteristic (CHAR), Financial Stability indicators (FS) and Structural Factors (SF). The residual of regression is a composite error term comprised of vi is cross section residual component (Fixed and/or Random Effect) and idiosyncratic residual component (e_{it})

RESULTS

Our hypotheses in the model are largely supported with quite satisfactory specification and robustness test. The intermediation cost is correlated positively with CAR, OHCTOTA, ROE and ZSCORE. The intermediation cost is correlated negatively with LDR, DEPOTOGDP and GDPPERCAP.

Unfortunately, the important competition proxies failed to show support or to contradict our conjecture. Further check to the data, it is considered that wide dispersion existing in the data may have caused the problem. It could be an important input for the World Bank, since the database is very rich and promising to be explored further, thus its reliability is critical.

The positive correlation of CAR, ROE and ZSCORE indicates the exercise of market power by banks. Therefore, regulators should monitor and establish close coordination with bank management to ensure the intermediation cost is still aligning with macro targets: growth and unemployment. Temporary shock might be absorbed by banks but not shock to the industry itself. Liquidity also has an effect on interest margin though not as important as we previously thought. Finally, our study has shown that income level and financial deepening have positive impact on efficiency; by decreasing interest margin. Therefore, expanding the coverage of bank service should be part of a country development plan.

OUTPUT

PUBLICATION

[1] M.D. Ariefianto, R. Widuri, E. Abdurachman, and I. Trinugroho, “The Effect of Competition and Capacity on Intermediation Cost: A Country Level Study“, *International Journal of Economics and Management*, vol 14, 2020.

STUDY AND APPLICATION OF BAMBOO MATERIALS FOR INTERIOR PRODUCT DESIGN IN "KNOCKDOWN" HOUSE SYSTEM

RESEARCH LEADER: Dr. Dra. Mita Purbasari, MFA

TEAM MEMBERS: Octaviana Sylvia Caroline, ST., M. Arch; Yunida Sofiana, S.Sn., M. Des.

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INTRODUCTION

The utilization of bamboo in interior products is intended to increase the use of bamboo as a supporting facility for people's daily lives. Among them is the use of bamboo in the home and interior products. The house and interior products can be used by some people who have limited access in the form of locations (remote areas) or emergency needs. So, there are needs of a practical and efficient made of bamboo design. The design concept used is a knock-down system. A knock-down system allows a product to be put into a box or package that makes it easy for shipping.

METHODOLOGY

The method used is Research and Development (R&D) using the 4D method, namely, Define, Design, Develop, and Disseminate. The research has been conducted for two years.

RESULTS

In the early stages of the design process, the layout design of a studio-sized house can be comfortably occupied for a maximum of 6 months due to the impermanent nature. Thus, the bathroom is placed outside of the house as a shared facility. The layout is made by considering the comfort of residents with a maximum capacity of two adults or one adult with two children. The activities done in this room are sleeping, sitting, studying, cooking, eating, and storing daily supplies. The design can be seen in Figure 1 to Figure 3. Then, Figure 4 is the patent called Knok Bam.

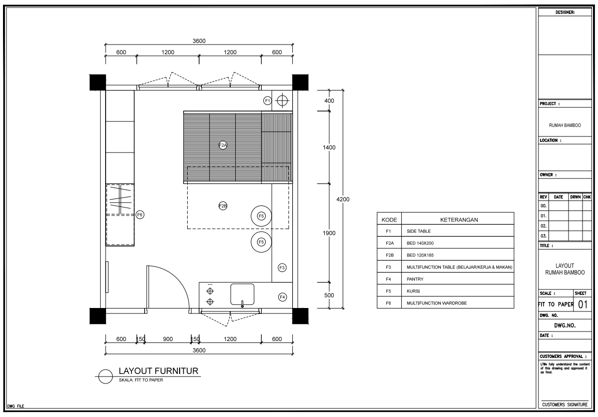

Figure 1 House Layout (Studio Type)

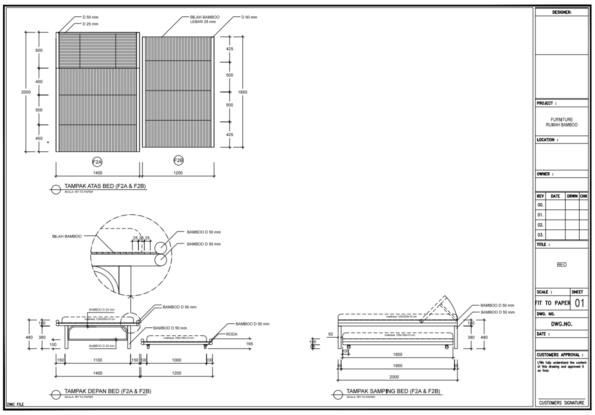

Figure 2 Multifunctional Wardrobe Design

Figure 3 Furniture Layout from Above

Figure 4 Patent: Knok bam

OUTPUT

PUBLICATION

[1] Y. Sofiana, C. O. Sylvia, and M. Purbasari, “Potential of bamboo as material for furniture in rural area in Indonesia,” *Adv. Sci. Lett.*, vol. 23, no. 1, pp. 263–266, 2017.

[2] Y. Sofiana, M. Wahidiyat, and O. S. Caroline, “Bamboo as sustainable material for furniture design in disaster and remote areas in Indonesia,” in *IOP Conference Series: Earth and Environmental Science*, 2018, vol. 126, no. 1, p. 12150.

INTELLECTUAL PROPERTY

[1] M. Purbasari, Y. Sofiana, and O. S. Caroline, “Bamboo House – Double Deck Bed”, Industrial Design A00201502829, IDD0000046223, 30 September 2015

[2] M. Purbasari, Y. Sofiana, and O. S. Caroline, “Knokbam”, Brant Patent DID2019054964, 20 September 2019

RESISTANCE OR RESILIENCE FOR CHANGE; AN EXPLORATORY STUDY OF HUMAN RESOURCES IN CULINARY SMES IN INDONESIA

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INTRODUCTION

Problems in SMEs (Small and Medium-sized Enterprise) become common that must be solved together by the government, educational institutions, and related associations. One of the main problems faced by MSMEs, especially those living in small cities in Indonesia, is organizational management. Human Resources (HR) are an important component of the formation of competent and highly competitive MSMEs. However, it occurs that there are still gaps in the improvement of HR competencies in the regions. This research is one of the problem areas mapped by Binus and Friends of MSME by focusing on three main objectives. They are (1) exploring and identifying cultural factors and organizational behavior that exist in MSME, (2) mapping HR issues in micro culinary businesses that in accordance with the context of each region, and (3) identifying and mapping the root causes of the gap by mapping the environmental institutions in each MSME area. This research method uses mixed methods by conducting a qualitative approach in the first year (interviews, FGDs, and observations) and a quantitative approach in the second year (questionnaire survey) to obtain more accurate and representative results. This research is expected to be a reference to improve the HR competencies in each region. The resulting TKT is TKT 2 in the form of a basic strategic concept of HR competency as the basis for creating a standard for culinary micro SMEs.

METHODOLOGY

This research uses a mixed-methods research approach due to the complexity and accuracy of the findings to minimize qualitative and quantitative limitations (Creswell and Creswell, 2017), The practical implications, the method is a reliable approach in order to explore and confirm a social phenomenon. The use of two methods serves to collect data to obtain answers that have not been known before and can be tested for significance. The researcher then simulates the use of these two methods by using a sequential exploratory strategy. This process involves the collection and analysis of qualitative data in the first phase, followed by the second phase of quantitative data collection and analysis. It is built based on the results of the first phase. The center of gravity is generally placed in the first phase, and data analysis is connected between qualitative and quantitative data analysis.

In year 1, the research used qualitative approach to conduct an in-depth exploration of the issues that arise from an MSME. Data collection is by interview, FGD, and observation. By using the perspective of phenomenology interpretivism theory, it is hoped that the factors that have not been identified so far can be revealed in depth (Crotty, 1998). The planned respondents are from micro MSME actors or owners in culinary and fashion in five regions in Indonesia (Sumatra, Java, Kalimantan, Sulawesi, and Eastern Indonesia). The number of interview/FGD respondents ranged from 15-20 people. These factors, with sufficient validity and reliability, can be used as new independent variables. While in year

2, the research used quantitative approach, namely by confirming variables that have a significant correlation on the findings of the first year. Data is collected by using survey techniques in the activities of UMKM training/assistance/seminars in five major cities in Indonesia. Sampling can increase the level of significance of the variables on the management problems of MSME organizations

RESULTS

The output of this research is to oversee the potential issues arising from the human resources perspective. It is believed that the SMEs predominantly have a lack of human resource problems, such as lack of training and development, educational background of the staff, and access to knowledge management. By employing both quantitative and qualitative research, we are expecting to retrieve a comprehensive solution on both industry and regional areas, as to how human resources issues can be addressed. There has been a lack of understanding, especially on how to solve this issue in various areas in Indonesia, due to different cultural, geographical, and human behavior backgrounds. Hence, this research aims to map such different approach in addressing SMEs in culinary sector.

THE EFFECT OF CUSTOMER EXPERIENCE AND DISTINCTIVE ORGANIZATIONAL CAPABILITY TO CO CREATION STRATEGY AND BUSINESS MODEL INNOVATION AND ITS IMPLICATION ON INNOVATION PERFORMANCE

RESEARCH LEADER: Prof. Dr. Ir. Sasmoko, M. Pd

TEAM MEMBERS: Firdaus Alamsjah, Ph.D; Dr. Elidjen, S.Kom, M.InfoCommTech; Dr. Leonardus W Wasono Mihardjo, ST., M.Eng., IP., CMA.

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INTRODUCTION

Industry 4.0 based on digital technology embraces the firm to transform in various aspects in term of strategy, operation, product, service and customer management. Previous study shown the main factors in transformation are related with fulfilment of customer need, business model innovation, and collaboration with partners in service and product creation (co-creation). The discussion on digital transformation based on co-creation-business model innovation from customer's need and core competence perspective in information and communication technology (ICT) industry has few been explored. This study has aimed to fulfill the gap on previous study in connection with transformational model in ICT industry, especially in relation with variable of distinctive operational capability, customer experience orientation, co-creation strategy, and business model innovation. Unit analysis in this study is Indonesia ICT firms with stratified random sampling. The number of samples are amounting to 368 firms out of 542 firm's population. Statistical tool uses structural equation model (SEM). The results of this research can contribute to theoretical in correlation with digital transformation with basis concept of service dominant logic. It is expected to contribute to practitioners, especially related with digital transformation model called as co-creation innovation transformation model as well as an input for Indonesia regulation, and provide priority program for Indonesia service provider and network providers. This section is used to announce your topic, provide context, and a rationale of your work.

METHODOLOGY

Research methods utilize quantitative confirmative research with empirical analysis with the following research activities:

1. Descriptive research is defined as a research method that describes the characteristics of the population or phenomenon that is being studied. This methodology focuses more on the "what" of the research subject rather than the "why" of the research subject.
2. Verification research is through the explanatory survey to explore, explain, and predict the phenomenon.

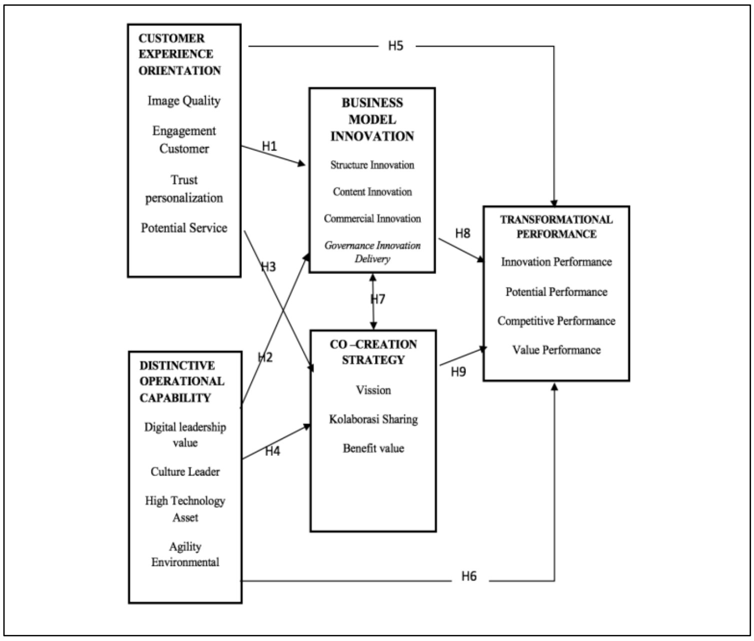


Figure 1. Research Model

Figure 1 shows the research model of digital transformation for ICT industry based on co-creation-innovation model.

RESULTS

The result of this research shows that the co-creation and business model innovation plays a significant role in driving transformational performance to change new paradigm performance as it is shown in Figure 2.

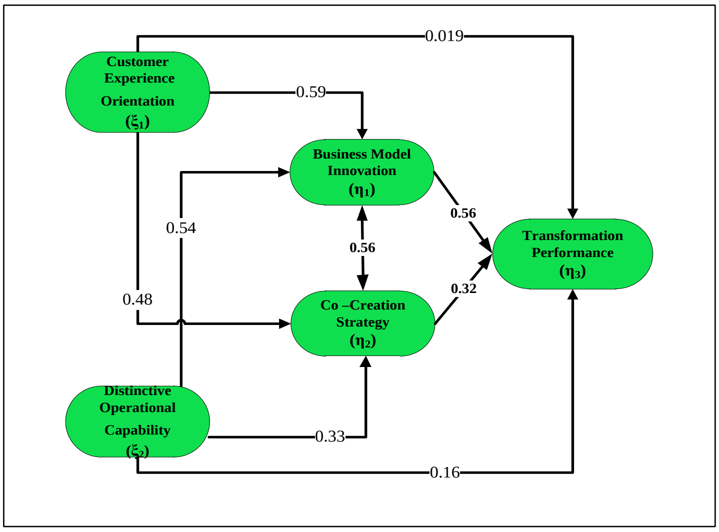
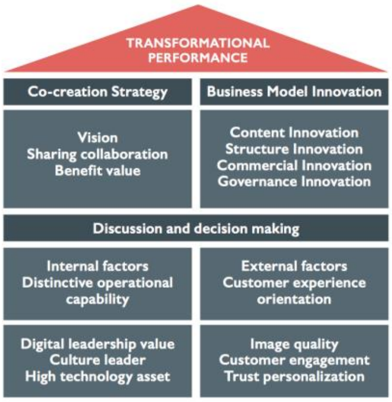
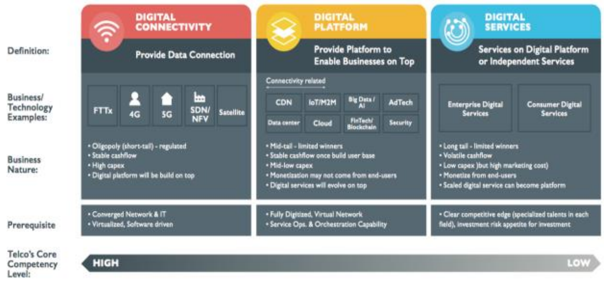


Figure 2. Research Result

The results bring implication on the model of digital transformation that may be relevant to Indonesia market as well as the phase of digital transformation as it is shown in Figure 3.



(a) Transformation Model



(b) Digital Transformation Phase

OUTPUT

PUBLICATION

Books

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SUSTAINABLE GROWTH FORMULA: AN ANALYSIS ON WORK ENGAGEMENT AND LEARNING AGILITY

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INTRODUCTION

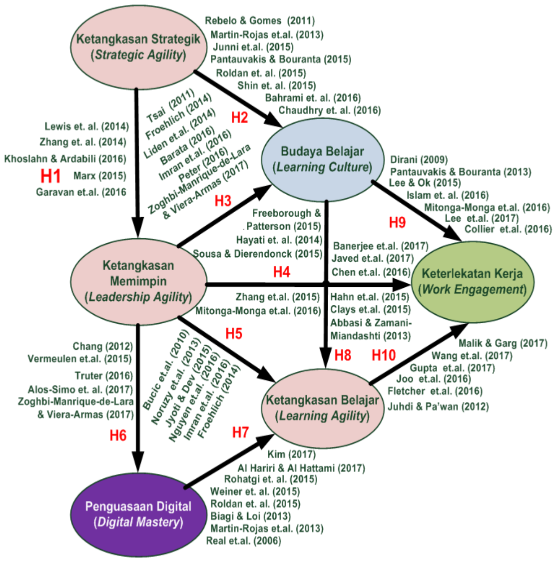
Indonesia oil palm industry is experiencing the revolutionary development and playing the important role in providing vegetable oil for the word and strategic role for the national interest. As an important and strategic industry, the Indonesian palm oil industry experiences a variety of challenges both in ecological, social, and managerial aspects. The research focuses on managerial aspect faced by oil palm plantation companies, particularly regarding the scarcity of agricultural fresh graduates. For oil palm plantation companies, agricultural fresh graduates are human resources that will be developed into managerial resources. In relation to the scarcity of agricultural fresh graduates, there are three main issues faced by oil palm plantation companies in Indonesia, those are talent shortage, talent war, and digital talent. Based on those phenomena, the research seeks to answer two main questions. First, how to obtain and maintain managerial resources to be able to work for a long time. Second, how to obtain and maintain managerial resources to be able to work in a challenging environment. To answer these two questions, the research uses the concept of work engagement and learning agility. By using an organizational behavior approach, the research identifies antecedents that affect work attachment and learning agility, both within the scope of individuals, work groups, and organizations.

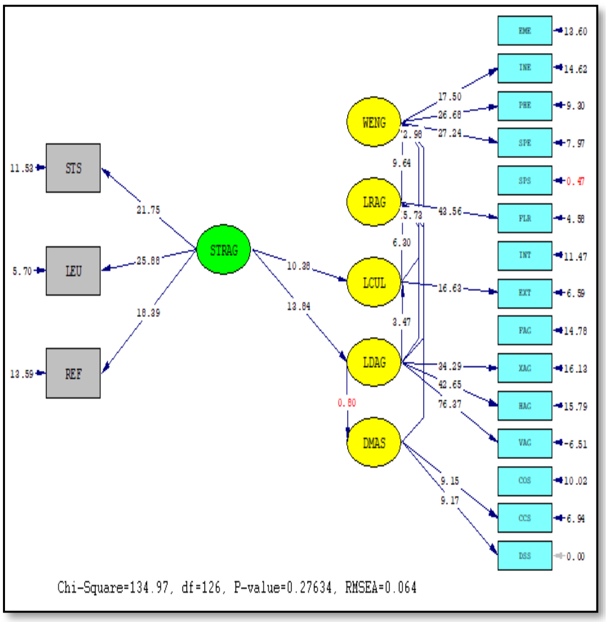
METHODOLOGY

The research is a quantitative research using a cluster stratified random sampling method for collecting data from 477 respondents who are assistants, assistant heads, and managers of 196 private oil palm plantation companies which is in Sumatra and Kalimantan. Based on the analysis of covariance based structural equation modeling, the research has tested ten hypotheses developed and nine of them have been proven to have a positive and significant relationship.

RESULTS

Based on the results of testing the hypothesis, the research recommends the problem solving in the Indonesian palm oil industry as follows. First, in facing ecological, social, and managerial problem, oil palm plantation companies are required to develop work engagement and learning agility from the existing managerial resources. Second, to obtain managerial resources who are engaged to the work and agile in learning, palm oil companies may develop two important things: leadership agility of the superiors and organizational learning culture. Third, managerial resources can also be increased in work engagement by increasing digital mastery. Fourth, oil palm plantation companies must develop strategic agility in order the learning culture and leadership agility may grow and develop, as shown in the following figures.





OUTPUT

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INTELLECTUAL PROPERTY

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THE ROLE OF COOPERATIVE MEDIATION IN INCREASING THE NUMBER OF ENTREPRENEURS: CASE STUDY OF THE DKI CREDIT COOPERATIVE

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TEAM MEMBERS: Dr. Agung Sudjatmoko, S.Pd., M.M., Aini Farmania, SE, MBA, Ph.D

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INTRODUCTION

Even though the investment sector generally governs economic growth in developed countries. Indonesia's economic growth so far has been dominated by the consumption sector. On the other hand, one of the significant contributors to the investment sector is the entrepreneurs' role in a country. Therefore, the challenge for Indonesia is to make the entrepreneurs reach substantial contributions. This study investigates three variables, namely, entrepreneurial orientation, cooperatives, and entrepreneurs. Entrepreneurial orientation is the exogenous variable. Then, cooperative is the mediator variable, and the entrepreneur is the endogenous variable. These three variables are formed into three sub-models and one complete model. Each sub-model is to determine whether the dimensions contribute to each variable, and the entire model is to find out a significant relationship among the variables.

METHODOLOGY

The method used is the Structural Equation Model (SEM), with computer software of LISREL.

RESULTS

This research will produce a breakthrough in how cooperative can mediate entrepreneurial orientation and entrepreneurs. Besides, the study will deliver how stakeholders in cooperatives understand entrepreneurial orientation so that cooperatives as an institution can persuade members of organizations to become entrepreneurs to be ready to contribute to economic growth. Moreover, the results provide sustainable management science on how to apply creativity and innovation to the cooperative organization.

OUTPUT

PUBLICATION

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ADMISSION OF INFORMATION TECHNOLOGY IN EXTERNAL AUDIT PROFESSION: AN IMPACT ON ORGANIZATIONAL, SOCIAL, AND INDIVIDUAL FACTORS

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TEAM MEMBERS: Nada Ayuanda, SE., M.Acc., Ari Tihar Marpaung, SE, Ak, M.Ak.

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INTRODUCTION

The aim of the research was to determine the auditor's external acceptance on the use of information technology in the process of carrying out financial audits. The research applied a quantitative method using primary data got from questionnaire which was distributed to the object of research, namely external auditors who worked at the public accountant office (KAP) in Jakarta area. The research examined the hypothesis between variables using path analysis, while the independent variables were Perceived Ease of Use (PEU) and Perceived Usefulness (PU), while the dependent variable was System Usage (SU). The research also used exogenous variables, namely: Organizational Factors, Social Factors, and Individual Factors. The results of the research indicates that there is auditor's external acceptance after being introduced to audit information technology. The research is expected to provide an overview of external audit expectations on the use of information technology-based audits, so as to improve the quality of audit work more effectively, efficiently, and accurately in the process of auditing financial statements.

METHODOLOGY

The quantitative approach is applied in the research, using primary data from respondent's filled questionnaires. There are three variables, those are social, individual, and organizational. The research uses intervening variables, namely PU and PEU. Act as dependent role is system usage. while as a system usage as a dependent variable. The questionnaire distributed to external auditors is developed and has been tested by previous research. The statement in the questionnaire is based on 6 variables, made by using scale number 1 to 5 from strongly unconfirmed to strongly confirmed. The research uses a method of multiple linear regression analysis and path analysis.

RESULTS

External auditors want to use information technology to help simplify their work. Their desire to use the system is influenced by their belief that information technology is applicable. While the factors that influence the auditor's external belief that useful information technology is the social and individual factors of the auditor itself, while the organizational factors, in this case such as the accounting firm itself does not affect. In other hand the factors that influence the auditor believe that information technology is easy to use is from within the auditor itself (individual), while the other two factors, namely social and organizational have no significant impact, as shown in the following Figure.

HYPOTHESIS TESTING 1

Variable	Unstandardized B	T	Sig.
PU	-0.319	-3.439	0.001
PEU	0.977	10.458	0.000
Dependent Variable: SU			

HYPOTHESIS TESTING 2

Variable	Unstandardized B	T	Sig.
PEU	0.689	9.285	0.000
Dependent Variable: PU			

HYPOTHESIS TESTING 3

Variable	Unstandardized B	T	Sig.
OF	0.009	0.135	0.893
SF	-0.297	-2.074	0.041
IF	0.573	7.219	0.000
Dependent Variable: PU			

HYPOTHESIS TESTING 4

Variable	Unstandardized B	T	Sig.
OF	0.065	0.830	0.408
SF	-0.106	-0.599	0.551
IF	0.235	2.398	0.018
Dependent Variable: PEU			

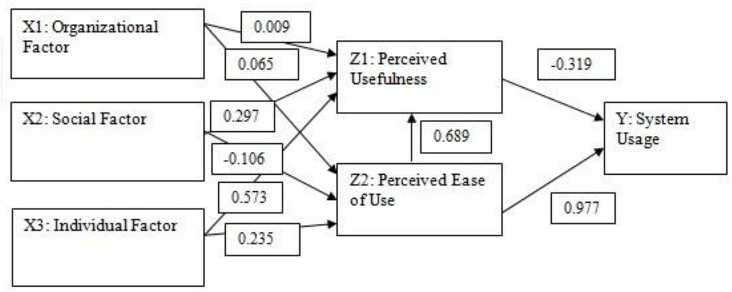

Figure 1 Path Coefficient

OUTPUT

PUBLICATION

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INTELLECTUAL PROPERTY

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DEVELOPMENT OF DATABASE APPLICATION SYSTEM FOR IDENTIFYING CREATIVE BEHAVIOR BASED ON NEURO AND BEHAVIORAL SCIENCE IN WORKERS OF CREATIVE INDUSTRIES SUBSECTOR

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INTRODUCTION

Although creative industry in Indonesia has accounted for 7.05% of Gross Domestic Product (GDP), there are still many challenges, especially related to human resources involved in the industry. Research on human capital and regional economic development is increasingly attractive to the role of 'creative work' in the growth of economy.

The research aimed at developing expert systems and database-based applications Neuro and Behavioral Science to identify the creative behavior of actors in several creative industry subsectors through internet-based technology.

The benefit of research is to prepare an action plan to overcome various obstacles to inhibiting behavior as well as efforts to initiate commitments in the development of creative behavior in the creative industries. The research is conducted at the object of the perpetrators in several sub-sectors of the creative industries in several creative cities in Indonesia.

METHODOLOGY

Method and measurement instrument testing procedures in the research are based on psychometric properties. This multi-year research is designed in several stages with Phase I in the form of exploring, understanding, and mapping the potential of workers in several sub-sectors of the creative industry by utilizing creative worker's characteristics index (outputs from the 2015 Competency Based Research) developed by researchers. Phase II, developing an expert identification system application to the creativity of workers based on Neuro and Behavioral Science in the creative industry subsectors. Phase III, apply a database application system based on Neuro and Behavioral Science while using it as an empirical proof of behavior based on the characteristics of workers in each sub-sector of the creative industry.

RESULTS

Through the research, it is expected to produce outcomes in the form of:

1. Manuscripts academics to support the acceleration of creative economic development in creative cities and models operational that can be reduced to implementation instructions (operational guidelines) and technical (technical guidelines) within the potential of the creative work of the actors realization in the creative industry subsector.

2. Technology Readiness Level Measurement as an expert system formulation and database application based on Neuro and Behavioral Science to identify the creative behavior of workers in the creative industry subsector.

OUTPUT

PUBLICATION

[1] Sutanto, H., Setiadi, N.J., Kuncoro, E.A., and Syahchari, D.H. (2019). Creative city as the rebranding strategy to accelerate new economic city. *Internal Journal of Innovation, Creativity and Change*, ISSN: 2201-1315

[2] Sutanto, H. (2016). Analysis the implementation of dynamic capability's approach in supporting Permodalan Nasional Madani Ltd's Transformation Program. *South East Asia Journal of Contemporary Business, Economics and Law* Vol. 11, Issue 2 (Dec 2016). ISSN 2289-1560.

[3] Sutanto, H. (2018). Organization culture and employee loyalty: Mediation impact on organizational commitment. Presented at *the 5th International Conference on Management Hospitality&Tourism and Accounting (5th IMHA 2018)*, Binus University, Jakarta-Indonesia, 3-4 September 2018.

[4] Sutanto, H. (2017). Integration of Islamic Microfinance Institutions management with modern business rules. Presented at the *2nd International Research Conference on Economics Business and Social Sciences-Indonesia Chapter, held by Center for Sustainability Research and Consultancy at IMM Makassar Indonesia*, 25-26 November 2017.

[5] Sutanto, H. (2016). Competitive strategy based on transformation and dynamic capabilities in resulting performance of Islamic Microfinance Institution. Presented at *the International Conference-Integrated Microfinance Management (IMM) for Sustainable Community Development (SCD)*, held by Padjadjaran University-Faculty of Economic and Business, Bandung Indonesia, 19-22 September 2016.

[6] Sutanto, H. (2014). Analysis of dynamic capability in supporting transformation and sustainability of PT Permodalan Nasional Madani, Ltd. Presented at *the 1st International Conference for Interdisciplinary Studies*, held by Youngsan University Korea, Padjadjaran University-Faculty of Economic and Business and Pasundan University, Busan, Republic of Korea, 22-23 September, 2014.

[7] Sutanto, H. (2012). Reinventing to increase the contribution of state owned enterprises to Indonesian's economy (Empirical and comprehensive study based on reinventing PT Kertas Padalarang). *Managing Innovation: Sustaining Competitive Advantage in Dynamics Business Environment Conference*, held by the Global Advanced Research Conference on Management and Business Studies (GARCOMB), Bandung Indonesia, 22-24 November 2012

[8] Sutanto, Harry; Syachcari, Dicky Hida; and Wahyuda, Arsel (2019). Effects of Media Motivation on Organizational Commitment to Civil Aparatus of Cilegon City-Government.

COMMUNICATION CULTURE IN TRAVELER VIRTUAL COMMUNICATION: A NETNOGRAPHY STUDI ON TRIPADVISOR VIRTUAL COMMUNICATIION

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INTRODUCTION

The social media industries open up opportunities for people who have the same interest to get together in a virtual world. In the middle of 1970, McLuhan predicts that there will be a change in people's lives because of a tribal influx of computer technology. People connect and socialize using computers to form new communities in virtual world even though they are in their own place (Pathak and Shelat, 2017).

In the digital era, people tend to refer what is said by the community on the internet rather than asking directly to people they know. Ratings and reviews are trusted and become a reference as people will read ratings and reviews of tourist destinations before they make a visit. The aim of the research was to illustrate impressions of travelers on tourist destinations in Palembang that can help plan and provide travel inspiration for other tourists.

MODEL DESIGN

The Communication pattern in this virtual community create a virtual traveller communication culture information control model as shown in Figure 1.

The first stage to become a member of TripAdvisor must register by Sign up via email or Facebook. Membership on this TripAdvisor community is free. To become a member of the Traveler community must first sign up to the TripAdvisor page, then click on the "Register Now!" Link. at the top of almost every TripAdvisor page.

The second stage we should follow the standard set by the admin and the values applicable to the site. The standard to follow is the rules for posting reviews and photos, filing and answering questions in a travel forum, and creating a travel planning folder. There are also rules for getting badges.

The Third stage is interact using global language that can be understood by users from all countries, for example: people's names are replaced with accounts and one person can have more than one account, share opinions through typing text and emoticons, storage system in timeline while in the real world using the minutes, the discussion can be asynchronous means the question and answer can take place with the time difference and must be connected internet. Giving evaluation with non-verbal assessment of the form of circle symbols with the scale from 1 to 5 circles, 5 is the best.

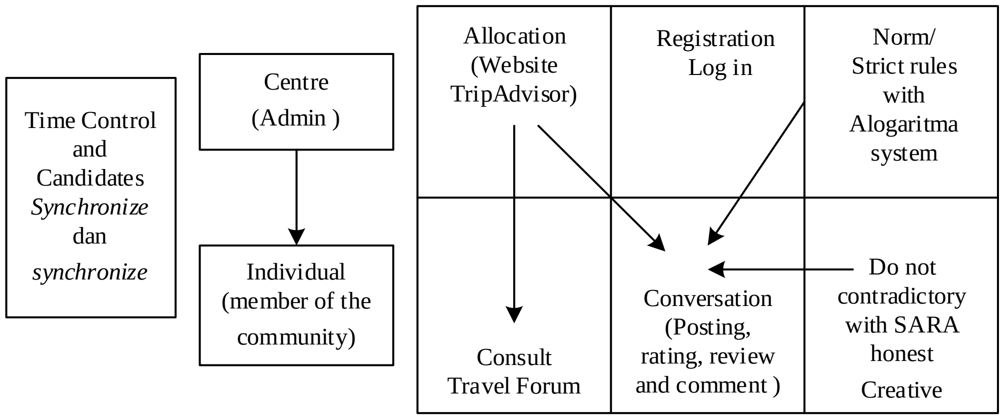

Figure 1 The Virtual Traveler Communication Information Control Model
Adapted from Information Control Model (Mc Quail, 2010: 148)

RESULTS

The finding of the research reveales that people who have the same interest can meet in cyberspace, although they are geographically and demographically in different places. In the research, it can be concluded that there is a change of communication behavior in the real world community with virtual community.

Virtual communication uses a low context culture. It means, texts and information are transparent. The specific of text on the virtual communities are not using 5 W + 1 H completely. This will push reaction from the readers to involve in the conversation. Communication can take asynchronous means using archive system; the response can take place with the time difference. Communication will take place when community members are connecting with the Internet.

OUTPUT

PUBLICATION

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UNDERSTANDING OFFLINE-ONLINE HYBRID SHOPPING PROCESS FOR IMPROVING MARKETING OF FASHION PRODUCTS IN WHOLESALE MARKET

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TEAM MEMBER: Ir. Julio Adisantoso, M.Kom.; Bobie Hartanto S.I.Kom., M.A.

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INTRODUCTION

This study introduces the term 'buyer-seller connectedness' to capture the power of psycho-social relationships in the wholesale fashion market. In this study, we argue that relationship quality, as the construct widely used in discussing dyadic relationships, is not strong enough to explain these phenomena. The power of the relationship between buyer and seller should incorporate the intensity of the two-way interaction to capture the strength of certain relationship qualities such as relatability, dependency, and sense of community.

The objectives of this study are (1) to study the connectedness construction in the context of millennial resellers-shop owners, (2) build a conceptual framework to explain the new phenomenon concerning both perspectives; buyer and seller, (3) to reveal the gap between the expectations of millennial resellers and the performance of shop owners and vice versa. The main theoretical contribution of this study is to present and analyze the components that constitute SME buyer-seller connectedness. From a managerial perspective, this study helps sellers and buyers better understand how to build relationships with each other as it includes the perspectives of both buyers and suppliers.

METHODOLOGY

The research procedures are carefully designed and executed. The validity requirement of qualitative studies is met through data triangulation. Various research techniques are employed and are useful in validating the insights of each stage; netnography, observation, unstructured Interview, mystery shopping, and in-depth interview. This research was conducted in three major cities in Indonesia: Jakarta, Medan and Surabaya, with13 fashion wholesale markets are known for offering good fashion products.

The exploration of insights through the internet, or netnography allows the researcher to observe the interactions that occur in online forums. Observation was conducted by visiting the wholesale stores to compare the situation in a crowded store vs a fairly quiet store to find out how stores have survived. At the mystery shopping stage, researchers position themselves as consumers who need to buy products to have a direct experience of becoming a buyer or reseller, and to experience and study the response given by the shop owner at 60 shops. In total, we interviewed 94 buyers and 137 sellers.

RESULTS

The dyadic relationship between buyer and seller is the key to successful transactions in business at wholesale malls. A good relationship can become a competitive advantage for both buyers and sellers. When the relationship is strong, the reciprocal dyadic relationship is felt by both parties. Therefore, with the discovery of the new measure presented in this study, buyer-seller connectedness, the dynamics can be measured and monitored from time to time.

This study has found that buyers' perceived value is not the same as that of resellers. Factors that must be considered by shop owners around value and deliveries are divided into several categories. For resellers, important factors that are considered to provide satisfaction to sellers are responsiveness, communication quality, empathy, payment process, return goods, and order process.

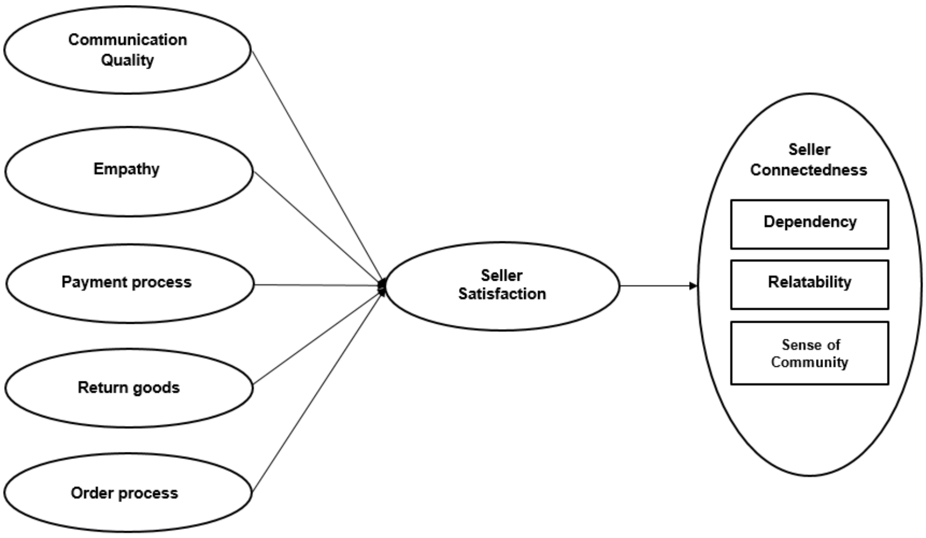

Figure 1 SME Connectedness: Seller Perspective

This study also found a mismatch between the desires of conventional traders and millennial resellers at wholesale stores. There is a millennial reseller desire or hope for a wholesale store, but not all of these wishes or expectations are directly proportional to the response of the wholesale store. Therefore, they also have knowledge and references related to products sold by wholesalers

OUTPUT

PUBLICATION

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SOCIAL MARKETING COMMUNICATION STRATEGY IN ACTIVITIES AGAINTS CHILD SEXUAL ABUSE

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INTRODUCTION

Child sexual abuse in Indonesia keeps happening and increasing. Data from the National Commission for Child Protection, sexual violence against children occurs in almost all corners of Indonesia from various walks of life classes. Efforts to handle cases of sexual violence against children need to be done in various ways, one of which is through prevention. Social marketing communication against sexual violence against children needs to be done so that many people are aware of the dangers of sexual predators targeting children, and also aware of the prevention efforts. NGOs are profit institutions, usually using social marketing communication to introduce their institutions and programs. As an organization with a non-profit goal, efforts to appeal to the public are very different from profit-oriented organizations. Profit organizations are usually easier to market their products since the offer is related to consumer needs. Unlike nonprofits, product offerings are more social directed so that not everyone will be interested. Social marketing communication for social institutions plays an important role in building public awareness of the existence of these institutions. Social marketing communication is also essentially instrumental in introducing organizational programs. Efforts to introduce the program have different challenges than considering the profit organization. Social organizations touch programs more towards awareness or concern, not for individual consumers but for fellow humans. This research focuses on preventing sexual violence against children through activities carried out by child care institutions located in Jakarta, Malang and Yogyakarta. Child care institutions through a series of programs play an important role in creating awareness in the community about the dangers of sexual violence against children. It also helps the community to recognize and understand ways to anticipate it.

METHODOLOGY

This research uses qualitative methods with observation data collection techniques, documentation research and in-depth interviews with informants involved in the field of social marketing communication in Jakarta, Yogyakarta and Malang.

RESULTS

The results of this research are expected to create an appropriate social marketing communication strategy on child sexual education in Jakarta, Yogyakarta and Malang.

THE INFLUENCE OF ONLINE OPINION LEADERSHIP ON CONSUMER'S PURCHASE DECISION

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INTRODUCTION

With the growing online selling activities through social commerce, an increasing number of online influencers have been grooming and becoming online opinion leaders that acting as sources of recommendation for other consumers. Their opinion leaderships are related with the degree that shows how far the information provided by them are considered attractive and persuading to others. Nevertheless, despite the increasing interest in online opinion leadership use for industries, practitioner guidance and literature still lack studies in relation to the impact of these opinion leadership in consumer decision making, in particular in fashion industry. Hence, this research aims to investigate how online opinion leaderships brought by the Indonesian fashion influencers on social media may affect consumers' decision making such as the intention to purchase fashion products and the intention to adopt new fashion.

METHODOLOGY

This research posits the following hypotheses:
H1: Perceived opinion leadership has a positive relationship with purchase intention.
H2: Perceived opinion leadership has a positive relationship with intention to adopt new fashion.
H3a: Perceived fit of personal interests with the opinion leader's Instagram profile strengthens the relationship between opinion leadership and purchase intention.
H3b: Perceived fit of personal interests with the opinion leader's Instagram profile strengthens the relationship between opinion leadership and intention to adopt new fashion.
The proposed research model is summarized by Figure 1.

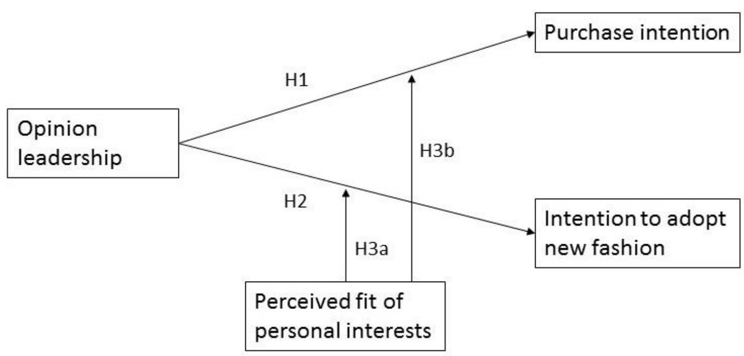

Figure 1. Research model

Data collection for this research uses convenience sampling method. The approach of this research is quantitative with online survey method. Research subjects are members of local Indonesian fashion influencers' Instagram accounts. The sample consists of 53 men and 166 women. All respondents resided in Indonesian cities. Data analysis utilizes SmartPLS version 3.0.

RESULTS

The patch coefficients suggest that H1 and H2 are accepted, thus fashion opinion leadership on Instagram tend to affect positively consumers' purchase intention and intention to adopt new fashion. However, the moderating effects are rejected (H3a and H3b) because the strengthening effects of consumers' perceived fit of personal interests with the influencer towards the influencers' perceived opinion leaderships are not evitable. The perception of the influencers' opinion leaderships on Instagram has a tendency to affect positively consumers' intention to purchase fashion products and to adopt new fashion styles as suggested by the fashion influencers. This is happened both in the consumers of followers of traditional Instagram celebrities and followers of the non-traditional Instagram celebrities.

The results imply that the more an online influencer is perceived as an opinion leader in fashion, the more their social media community members will follow their recommendations, advices, and suggestions about fashion. The finding that the effect of consumers' perception of the influencers' opinion leadership towards their adoption and purchase intention does not affected by their perceived fit with personal interests suggest the importance of the Instagram content published by the influencers. This research is expected to assist fashion managers in utilizing the fashion opinion leaders to influence their consumers

OUTPUT

PUBLICATION

[1] A. S. Ananda, P. K. M. Soesilo, W. Rukmana, K. D. Susanto, "Fashion Opinion Leadership on Instagram and Its Relationships with Intention to Purchase and Adopt New Fashion", *IOP Conference Series: Materials Science and Engineering*, IOP Publishing, ahead of print, 2020.

DRIVER AND MOTIVATION: A STUDY OF PEER-TO-PEER LENDING SECTOR IN JAKARTA

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INTRODUCTION

Peer-to-peer (P2P) lending is a new financial market emerging in recent years (Zeng et al., 2017). Encouraged by the global financial crisis, which results in less trust toward banks and less attractive consumer loans caused by more strict regulatory oversight and more requirements of capital, P2P lending has become an alternative source of profit by investors worldwide (Busch & Mak, 2016). Banks are forced to become stricter on disbursing loans due to the heavy losses. The weakness in the system creates dissatisfaction among borrowers toward commercial banks (Bajpai, 2016). Furthermore, P2P lending is also seen as a representation of one of the latest financing forms that work toward “financial inclusion” (Rogers & Clarke, 2016). Therefore, P2P lending is a non-bank alternative, and it works significantly different than traditional banks.

When talking about P2P lending, financial technology is often considered as its “mother”. Financial technology (FinTech) is a relatively new innovation in Indonesia. However, it has been in the global financial market for more than a decade. It combines the use of technology with financial services, which aims to help the users to be able to get easy access in financial services such as banking, money transfer, money lending, general payment, stock investment, etc. Almost everything can be purchased online as well through different e-payment apps. Moreover, lending and borrowing money have become a lot easier, especially for non-bankable people, who do not meet the legal requirements to lend/borrow from a bank. Thus, it creates a new and changing market behavior that pushes the traditional system to adapt.

Although there are arguments about whether fintech is a threat for official banks or perhaps an opportunity as more and more banks are adapting by launching their own mobile or digital banking system, its development is surely inevitable. In addition, one of the reasons why fintech is getting more spotlight is because it creates ease of use for both bankable and non-bankable people. Therefore, it reaches a more prominent market scope than official banks or other financial institutions.

METHODOLOGY

This study uses a qualitative method with exploratory research that explores a case, problem, or event (Saunders et al., 2017) to observe a case or a situation in order to develop a new angle of such a case. Therefore, this study will explore the drivers and challenges in the P2P lending sector. This study will use non-probability sampling with purposive sampling that is highly subjective and determined by the researcher generating the criteria. It is qualified and must be met by each participant for the study of the research. Sampling is taken from fintech P2P companies, two persons, from borrowers four-person, and decision-maker and analyst from Indonesia Financial Service Authority (OJJK). This study will use a thematic analysis method. Researchers who conduct this method makes diverse yet meaningful conclusions and interpretations by studying different factors.

RESULTS

Based on the code mapping, the results are found that explored the drivers and challenges in the P2P lending sector. It can be summarized from the first research question, "what are the drivers of P2P lending sector in Indonesia?" from the three perspectives:

1. Users. There is a significant opportunity to invest in P2P lending platforms, which drives investors into participating. This could result in an increased number of P2P lenders in the future, especially with more trust, which is developed toward the sector. Then, it gives P2P lenders the convenience that banks do not have, such as understandable platforms, good customer service, easy process of lending, etc.
2. Business players. Innovation in financial technology development has driven business players in the P2P lending sector. Many P2P lending companies aim to help financial inclusion by helping small businesses get funding. This business has impacted economic growth as it supports SMEs and increases financial inclusion.
3. Regulators. Financial inclusion, expansive growth, and increased employment rate are among many proofs of economic growth that drives OJK in regulating P2P lending sector. According to OJK, the 2018 economic growth has increased by IDR 25,97 billion because of the Fintech lending sector and tajes this opportunity to improve Indonesia's economy. Fintech innovations and P2P lending being in an early stage are the P2P lending development opportunities that drive OJK in this regulating this sector as well, as stated in the interview that this sector is still considered new and its ecosystem can be more expanded.

The second research question, "what are the challenges of peer-to-peer lending in Indonesia?" from the three perspectives can be summarized as follows:

1. Users. Return policy and data policy are among the risks that are faced by P2P lending users (lenders). Here, there are still lenders that feel risked in investing in these platforms because of the inconsistent of P2P lending platforms policies; for example, different platforms have a different return policy. Competition between lenders is a challenge faced by P2P lending users (lenders) because more people are interested in investing in these platforms. There is an imbalance between lenders and borrowers. Thus lenders compete in getting the good potential investments, and some are left with the 'leftovers'. Data policy is a risk that is faced by P2P lending borrowers. Grading and collecting systems are the challenges that are faced by P2P lending borrowers.
2. Business Players. With a growing number of competitors, it is a challenge for the P2P lending business to compete. Especially as the P2P lending sector is still relatively new, and it is found that illegal P2P lending platforms are part of the competition that legal businesses have to face. Then, limited human resources in this sector have been an on-going challenge. As more businesses in P2P lending emerged, they need more workers that have experienced in the fintech P2P lending industry. However, the numbers might not match the needs of this sector. There is a need for comprehensive regulations as it has become a challenge in P2P lending for business players. As mentioned in the interviews, it can be different from one another; thus, a more detailed regulation is needed to benefit all P2P lending businesses in the market.
3. Regulators. Lack of academic sources in P2P lending and comparison in regulations are among the many challenges in development that OJK faces. OJK itself has compared its regulation to other regulations in other countries such as the US and China. In the future, OJK seeks to improve the

regulation according to the nature of the industry. Players' participation in following the regulations is a challenge faced by OJK in the P2P lending sector. Among all P2P lending companies in Indonesia, almost 80% of it is illegal companies operating without being registered under OJK. Thus, it is difficult to control if there is an issue with such companies.

OUTPUT

PUBLICATION

[1] Syamil, A., Heriyati, P., Devi, A., & Hermawan, M. S. "Understanding Peer-to-peer Lending Mechanism in Indonesia: A Study of Drivers and Motivation," ICIC Express Letters, Volume 11, Issue 3, p. 267, 2020,

THE DEVELOPMENT OF NATIONAL STEEL INDUSTRY STRATEGIES FOR THE FUTURE

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INTRODUCTION

To be a world-class company is every company's dream. However, to realize this aspiration, a company must transform itself into a powerhouse that contributes significantly to economic growth and the nation's prosperity. As a powerhouse in the Indonesian steel industry, PT KS believes that it should be ready to compete in the regional and global markets to become a world-class steel company. Then, it is followed by scenario planning development regarding how this company can adaptively develop these core competencies along the way to the journey to the world-class level. In the end, early warning signals should be anticipated by the company to implement the developed scenarios effectively.

METHODOLOGY

The research method is qualitative and descriptive. The analysis units are regulator, expert, resource person, and staff of steel SOE engaged in the business of long steel products. The nature of the observation is one-shot/cross-sectional. The research design is shown in Table 1. Meanwhile, Table 2 presents the analysis method in this research.

Table 1. Research Design

Aim Research	Design			
	Type Research	The method	Unit of Analysis	Horizon Time
T-1	Descriptive	Open-ended interview	Organization → Steel SOE. Personal → Staff Business Development & Marketing.	One shoot - cross sectional
T-2	Descriptive	Open-ended interview	Organization → Department of Metallurgical & Material Engineering, Faculty of Engineering, University of Indonesia.	One shoot - cross sectional
T-3	Descriptive	Open-ended interview	Organization → Leader of Ministry Industry.	One shoot - cross sectional

Table 2. Analysis Method

Aim Research	Method Analysis
T-1	Descriptive - Protocol Interview
T-2	Descriptive - Protocol Interview
T- 3	Descriptive - Protocol Interview
T-4	Study and overview from the results of T-1, T-2 & T-3

Description:
T-1: Dig issues, obstacles, and constraints faced and opportunities that arise to product steel
T-2: Know the various actions which have been taken to utilize and develop the steel business
T-3: Map the development of national steel products
T-4: Conduct scenario planning and aspect implementation

RESULTS

Four basic scenarios have been developed for the development of the national steel industry through systematic steps. These scenarios also refer to the aspects of the dependence and complexity in business and markets faced by the national steel industry in the future. The scenario of "Beauty and the Beast" may require a significant increase in domestic production capacity through a more efficient expansion and selection process of steel processing technology. The scenario of "Lion King" is characterized by a national steel industry that is fully supported by the government. It strengthens the downstream and diversification of steel products, including special steel. This scenario is ideal for the national steel industry to accelerate to world-class steel industry. In this scenario, the synergy between universities, companies, and the government remains aligned and maintained. While in the scenario of "Sleeping Beauty", Indonesia is in the grip of steel imports and national steel players are stuck on status quo situations that lead to their lack of innovativeness and creativity. Finally, the "Finding Nemo" scenario makes the national steel industry increasingly dependent on imports caused by the lack of synergies and the strength of the industry. It is because the players of the national steel prioritize business survival. Every national steel player thinks individually and is transactional in dealing with internal problems and challenges for future business growth.

ANALYSIS OF CONSUMER MOTIVATION TOWARDS BEHAVIOR OF COLLABORATIVE PARTICIPATION (STUDY OF APPLICATION BASED TRANSPORTATION IN INDONESIA)

RESEARCH LEADER: Dr. Lim Sanny, S.T., M.M.

TEAM MEMBERS: Sari Apriza, S.Pd., M.M, Lea Simek, B.A., M.A, Rama Deswantiar

LEADER EMAIL: Dr. Lim Sanny, S.T., M.M.

INTRODUCTION

Collaborative consumption puts forward the principle of "co-produce together," which can reduce the distance between producers and consumers so that everything is easier and cheaper to obtain. The purpose of this study is to examine the consumer motivation factors that influence attitude of collaborative consumption directly and behavior of participation in collaborative consumption indirectly through attitude towards collaborative consumption on application-based online transportation. The factors of consumer motivation used are economic, practical, social, idealistic, reputation, curiosity, and technology.

METHODOLOGY

The research method used is a combination with quantitative analysis techniques using path analysis through data collection techniques in the form of a questionnaire followed by qualitative analysis.

RESULTS

The results of this study indicate that technology, idealistic, practical, social, and curiosity have a positive and significant impact on collaborative consumption directly. Meanwhile, economic and reputation factors have a positive effect but do not have a significant effect. Then, technology, idealistic, practical, and curiosity factors have a positive and significant impact on the behavior of participation in collaborative consumption indirectly. However, social, economic factors have a positive but insignificant impact.

OUTPUT

PUBLICATION

[1] L. Sanny and R. Deswantiyar, “Participation on Collaborative Consumption of Online Transportation in Indonesia,” *Int. J. Sci. Technol. Res.*, vol. 8, no. 10, pp. 3435–3448, 2019.

THE IMPACT OF SOCIAL BEHAVIORS ON KNOWLEDGE MANAGEMENT BEHAVIOR: A LITERATURE REVIEW

RESEARCH LEADER: Dr. Maria Grace Herlina, S.Sos., MM.

TEAM MEMBERS: Nugroho Juli Setiadi, S.E., M.M., Ph.D., Nopriadi Saputra, S.T., M.M.

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INTRODUCTION

Knowledge has become a key factor for achieving a competitive advantage since the mid-1990. At present, the most valuable resources are skills, expertise, and relationships, all of which are based on knowledge. Information technology or the enterprise-wide network is initially believed to the core. However, most organizational members remain reluctant to share their knowledge even though the organization has installed various sophisticated information technology systems to facilitate knowledge management activities. There are other influential factors in the organization that encourage every person to share knowledge willingly. This study aims to create a research framework by exploring the influential factors on knowledge management based on behavioral perspectives.

METHODOLOGY

One of the social factors is Organizational Citizenship Behavior (OCB), which consists of five dimensions. Previous researchers find out that the OCB dimensions may influence knowledge sharing. Knowledge sharing is not the only knowledge-based behavior since other behaviors can encourage knowledge management behavior. Therefore, this study tries to build research instruments based on the indicators of OCB and knowledge management behavior. After creating the research instrument, it will assess the validity and reliability of the research instruments. Furthermore, the research instrument can be used to evaluate the impact of OCB on knowledge management behavior.

RESULTS

Currently, the focus of learning and development in organizations is on individual learning as the source of creation, transfer, and use of knowledge. Individual learning is the starting point of knowledge management as a part of organizational learning and knowledge sharing is the core of knowledge management. Each person in an organization may have a knowledge sharing attitude and intention. Yet, there is still a lack of knowledge sharing behavior caused by some external factors that impact knowledge sharing attitude, intention, or behavior. It can be concluded that OCB is a supporting factor for knowledge management behavior that will create a learning culture in the organization. Then, it supports organizations to achieve sustainable competitive advantage.

THE INFLUENCE OF INDEPENDENT COMMISSIONERS, AUDITOR'S REPUTATION AND RISK MANAGEMENT COMMITTEES ON DISCLOSURE OF ENTERPRISE RISK MANAGEMENT (EMPIRICAL STUDY ON MANUFACTURING COMPANIES LISTED IN INDONESIA STOCK EXCHANGE PERIOD 2014-2016)

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INTRODUCTION

This study aims to examine the effect of independent commissioners, auditor reputation and risk management committees on enterprise risk management (ERM) disclosure.

METHODOLOGY

This research uses literature study and observation study of the research object, research object used is manufacturing sector companies listed on the Indonesia Stock Exchange with observation years 2014 up to 2016. Research data are analyzed using SPSS software with multiple linear regression analysis method. The result shows that the auditor reputation has a positive effect on ERM disclosure, while the independent commissioner negatively affects the ERM disclosure and the risk management committee have no effect on ERM disclosure. However, simultaneous testing results in the fact that independent commissioners, auditor reputation and risk management committees together have an impact on ERM disclosure.

RESULTS

From this research, it can be concluded that in the company of manufacturing sector, auditor reputation gives a positive impact for better ERM disclosure.

MILLENIALS' BEHAVIORAL PREFERENCE'S ON SAVING AND SPENDING

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INTRODUCTION

Millennial generation is considered as an interesting subject to be the target of research, especially seen from the habits of this generation in life. The purpose of this study is to see how the patterns of financial behavior among the millennials, viewed from the behavior of saving and consumption. The conceptual approach used in this study refers to the concepts of age, preferences, and financial behavior.

METHODOLOGY

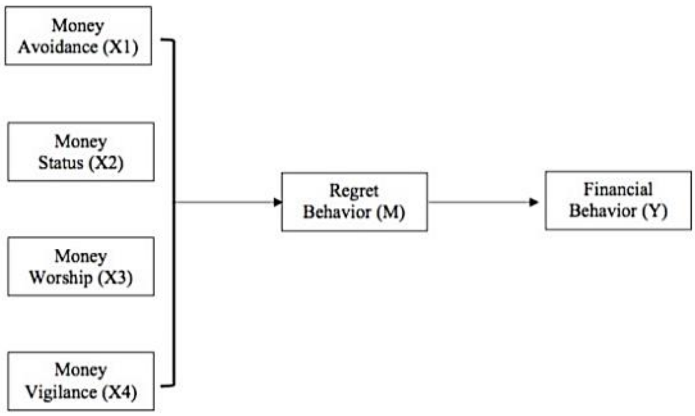

Figure 1. Research model

RESULTS

We propose a study of the preferences of millennials, related to their desire to save and use their money. This is based on the phenomenon obtained from secondary data, about the millennial point of view related to money. The perspective shown from the results of existing studies shows that the generation of money values is challenging, in terms of the potential they have to obtain an adequate amount of money and assets at a certain age. Then, looking at the picture from a dataset of several countries, it can be said that millennial generation does have a tendency to be very struggling with financial problems, because there is no desire to use the services of third parties to grow the money they have.

OUTPUT

PUBLICATION

[1] A. Maharani, “Millenials preferences on their savings and consumptions: Proposed framework,” *International Journal of Management (IJM), International Association of Engineering and Management Education (IAEME)*, vol. 10, pp. 543 – 550, 2020.

INFORMATION ON BUSINESS MARKETING WITH CULINARY FRANCHISE (SIPWARA-CULINARY)

RESEARCH LEADER: Dr. Erwin Halim, S.Pt., M.M

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INTRODUCTION

This follow-up research starts with Halim (2017) who found that the problem most franchisors face is the problem of recruiting potential franchise recipients. The Indonesian Franchise Association (AFI) states that the percentage of local franchise growth is currently relatively stagnant (Halim, 2017) but on the other hand, new franchise format businesses (namely Business Opportunity or licenses) are emerging, which are relatively high growth. Problems faced are: 1) The franchisor does not know what information needs to be conveyed to the franchisee, 2) the franchisee has difficulty getting information about the franchise business that you want to buy and the incomplete business information needed, and 3) the absence of a marketing information system for the culinary franchise business. Providing information that suits the needs of the franchisee has been answered in previous research. This research aims to build a mockup (prototype) of the application for the three problems with the output in the first year in the form of a design and in the second year in the form of a mockup (prototype) web-based application of the Franchise Marketing Information System (SIPWARA) in the culinary field.

METHODOLOGY

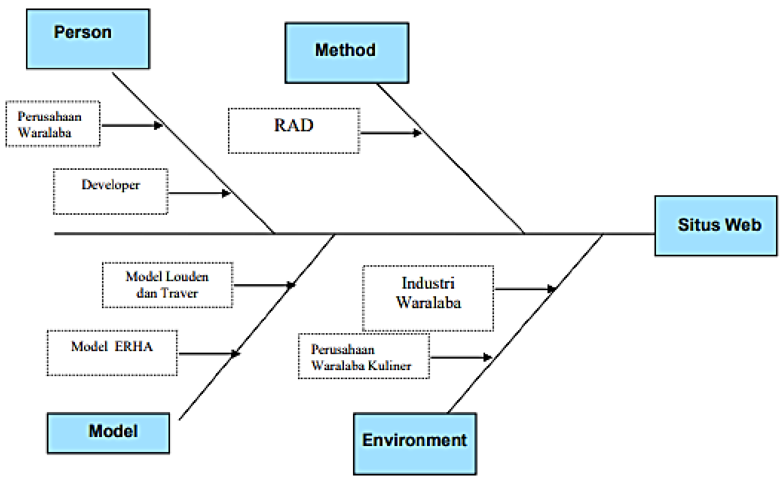

Figure 1. Fish Bone Diagram

RESULTS

The results show the franchisor can create a website to help potential investors get well-systemized, orderly and complete information. Potential investors need significant information in making decisions of potential investors that will affect the success of the franchisor or partnership owner in conveying the state of the company. The making of this web system is a continuation of previous research which will indeed take a turn in making a website. According to previous quantitative research, each significant indicator of the study is made into a sub-menu of the website. In terms of potential investors (prospective franchisees or potential partners), getting a website like this will help potential investors in making decisions supported by more comprehensive information. Therefore, making decision to buy or delay purchases can be done more quickly and with careful consideration.

OUTPUT

PUBLICATION

[1] E. Halim, "The impact of website quality, trust and behaviour control to intention to purchase franchise business based on theory of planned behavior and D&M model," in *International Conference on Information Management and Technology (ICIMTech), Jakarta/Bali, Indonesia*, pp. 554-558, 2019. doi: 10.1109/ICIMTech.2019.8843830.

THE ROLE OF ENTERPRISE ORIENTATION MEDIATION IN CONNECTING MARKET ORIENTATION AND BUSINESS PERFORMANCE MODE IN JAKARTA

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INTRODUCTION

The role of the fashion sub-sector in Indonesia is important due to its contribution to Gross Domestic Product (GDP) growth, added value, labor creation, productivity, national participation rates and international trade. There are gaps and problems in achieving the vision of fashion development for the 2015–2019 period which states that Indonesia is becoming one of the world's fashion centers by optimizing local strengths focusing on the concept of ready-to-wear craft fashion. This research aims to examine the mediating role of entrepreneurial orientation in linking market orientation with business performance in the fashion industry in Jakarta.

METHODOLOGY

This research is conducted through a survey of 117 ready-to-wear fashion companies in Indonesia, using purposive judgement sampling method and descriptive and verification analysis to test hypotheses through Structural Equation Modelling (SEM) with SmartPLS software.

RESULTS

The research comes up with conclusions that: (1) Market orientation has a positive but insignificant influence on the performance of the ready-to-wear fashion business in Indonesia. This shows that ready-to-wear fashion companies in Indonesia are required not only to have a market orientation but also to have a learning orientation and technology orientation to achieve higher business performance, (2) Entrepreneurial orientation has a partial role in mediating the relationship between market orientation and business performance in the ready-to-wear fashion industry in Indonesia, (3) Business performance in the ready-to-wear fashion industry in Indonesia consisting of indicators of satisfaction with company performance, profitability and growth can be achieved with market orientation through entrepreneurial orientation.

OUTPUT

PUBLICATION

[1] A. D. Handrimurtjahjo, Y. Indrianti & Sasmoko, "The effect of technological and entrepreneurial orientation on business performance of ready to wear fashion industry in Indonesia," *Journal of Critical Reviews*, vol. 7, no. 17, pp. 1696-1702, 2020. doi:10.31838/jcr.07.17.217

THE EFFECT OF ENTERPRISE RESOURCE PLANNING SYSTEM AND RISK MANAGEMENT TOWARDS QUALITY OF INFORMATION AND ITS IMPACT TOWARDS DECISION-MAKING

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INTRODUCTION

Information is seen as something that allows users to take actions to solve problems, reduce uncertainty and make decisions. Quality accounting information is useful for assisting and supporting users in the decision-making process. In improving the quality of accounting information, enterprises resources planning and risk management system are required to improve the quality of information. The research problem being studied is how much influence the enterprise resources planning system and risk management have on the quality of information and its impact on decision making. This research aims to examine and analyze the magnitude of the influence of enterprises resources planning systems and risk management on the quality of information, as well as the magnitude of the influence of the quality of information on decision making. This research is expected to become an input for science, especially those related to the discipline of economics, especially accounting science as well as the study of the application of theories with actual conditions in the company.

METHODOLOGY

This research used a cross-sectional explanatory survey method, and data testing used the Structural Equation Model (SEM) with the approach of Partial Least Square (PLS) analysis tools, statistically processed using SEM PLS. Besides, the research uses an explanatory research method, to obtain answers to basic causes and effects by analyzing the causes of problems in the quality of accounting information.

RESULTS

The results indicate that the problem of inadequate accounting information occurs because the enterprises resources planning system is not easy to use and the integration is not harmonious. Risk management has not optimally anticipated risks in the design and use of accounting information systems.

THE EFFECTS OF SUPPLY CHAIN INFORMATION INTEGRATION TOWARDS ORGANIZATIONAL PERFORMANCE

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INTRODUCTION

Sharing information with large companies does not only involves what is within their company but also their supply chain partners to increase their supply chain efficiency and respond quickly to their customers' demands and desires. This shows that obtaining information along the supply chain has been the key for companies and their supply chains to survive and thrive in a changing business environment.

This research aims to examine the effect of supply chain information integration which consists of the integration of internal and external information on organizational performance. In this case, the performance includes customer satisfaction, supply chain performance and financial performance.

METHODOLOGY

This research uses quantitative research methods. Quantitative is often used as a synonym for data collection techniques (such as questionnaires) or data analysis procedures (such as graphs or statistics) that generate or use numerical data (Saunders, et al., 2016).

The data collection technique is done by distributing questionnaire to the owners of the small food industry as many as 185 respondents. Methods of data analysis uses SEM-PLS.

RESULTS

The results show that the integration of internal information affects customer satisfaction, supply chain, and financial performance. The integration of external information has been shown to have a non-linear effect on customer satisfaction and supply chain performance. Customer satisfaction and supply chain performance affect financial performance. Internal information integration is more dominant due to having an important role in improving organizational performance

OUTPUT

PUBLICATION

[1] S. Hamali, D. Prihandoko, S. Kurniawan & R. Ramdhani, “The effects of supply chain information integration on organizational performance in food small industry,” *Management Science Letters*, vol. 10, no. 3, pp. 695-702, 2020.

EFFECT OF ORGANISATIONAL COMMUNICATION AND CULTURE ON EMPLOYEE MOTIVATION AND ITS IMPACT ON EMPLOYEE PERFORMANCE

RESEARCH LEADER: Prof. Idris Gautama So, S.E., S.Kom., M.M., Ph.D.

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INTRODUCTION

Human Resource Management is one of the most important factors in a company's operations. When changes happen, employees need to adapt to the work environment and this can influence many aspects of employees' working life. The performance of employees will influence the performance of an organisation and one of the factors that influences employee performance is employee motivation. The changes can be through communication and culture differences. Television broadcasting service companies must focus on their human resource because they employ a large number of workers. There are 19 major television companies in Indonesia. The broadcasting industry is one of the pioneers of private television stations in Indonesia. Media Citra Nusantara owns RCTI, Global TV and iNews TV. The purpose of this study is to determine the influence of organizational communication and organisational culture on employee motivation and its impact on employee performance in the broadcasting industry.

METHODOLOGY

The method of data collection used in this study is the questionnaire. Questionnaires were distributed to 300 employees. The data analysis method used in this study is path analysis. The results of this study shows that organisational culture does not influence employee performance, while organisational communication and employee motivation influence employee performance.

RESULTS

Based on the analysis of this study, the following could be concluded: (1) Organizational communication significantly influenced employee motivation in broadcasting companies i.e. by increasing effective communication within the organisation, companies will increase employee motivation as well; (2) Organisational culture has no significant influence on employee motivation in broadcasting companies; (3) Organisational communication significantly influenced employee performance i.e. by increasing effective communication within the organisation, companies will increase employee performance as well; (4) Culture has no significant influence on employee performance; and (5) Employee motivation significantly influenced employee performance i.e. by increasing employee motivation within the organisation, companies will improve employee performance.

OUTPUT

PUBLICATION

[1] Gautama So, I., Djunggara, A. A., Fahrobi, R., Simamora, B. H., & Ruangkanjanases, A. (2018). Effect of Organisational Communication and Culture on Employee Motivation and Its Impact on Employee Performance. *Pertanika Journal of Social Sciences & Humanities*, *26*(2).

THE EFFECT OF CORPORATE GOVERNANCE, E-BUSINESS AND INNOVATION ON COMPETITIVE ADVANTAGE AND IMPLICATION ON FINANCIAL PERFORMANCE

RESEARCH LEADER: Prof. Dr. Adler Haymans Manurung, ME., M.Com.

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INTRODUCTION

This research examined the effect of implementing corporate governance, e-business and innovation to competitive advantage, and assessed the implication to the company's financial performance. It was conducted among 67 companies in the financial industry listed on the Indonesian Stock Exchange.

METHODOLOGY

The research was conducted using a cross-sectional study with a questionnaire to obtain a response from top management, during the period of May to November 2016. Multivariate analysis was done to test the hypothesis, using Structural Equation Modelling based on variance or Partial Least Square (PLS).

RESULTS

It was found that implementation of corporate governance had a negative impact on competitive advantage, but had a positive effect on financial performance. Application of E-Business had a positive impact on financial performance, while the application of innovation had a positive effect on competitive advantage and financial performance. This research also confirmed that competitive advantage had a positive impact on the company's financial performance.

OUTPUT

PUBLICATION

[1] Manurung, A. H., Alamsjah, F., & Hamsal, M. (2020). The Effect of Corporate Governance, E-Business and Innovation on Competitive Advantage and Implication on Financial Performance. *Pertanika Journal of Social Sciences & Humanities*, *28*.

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