

Did Seiri Seiton Seiso Seiketsu And Shitsuke Affected Medical Health Industry Business Performance?

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Abstract: *This research purpose to analyze the effect of implementation of 5S (Seiri, Seiton, Seiso, Seiketsu, and Shitsuke) to business performance in the medical health industry industries. This research uses a quantitative approach with Structural Equation Modeling (SEM) using smart PLS software. Data collection methods using online questionnaires and snowball sampling technique, the number of respondents to be used are 240 respondents of medical health industry managers in Indonesia . The results of this research conclude that Seiri has a positive and significant effect on the business performance, Seiton has a positive and significant effect on the business performance, Seiso has a positive and significant effect on the business performance, Seiketsu has a positive and significant effect on the business performance, Shitsuke has a positive and significant effect on the business performance. This novelty of this research is build a new model of the effect of applying Seiri, Seiton, Seiso, Seiketsu, and Shitsuke to the medical health industry industries in Indonesia.*

Keywords: *Seiri, Seiton, Seiso, Seiketsu, and Shitsuke, business performance*

I. INTRODUCTION

The 5S program (Seiri, Seiton, Seiso, Seiketsu and Shitsuke) is the basis for an employee mentality to make improvements and also to realize quality awareness (Heizer and Render, 2009). 5S is an approach in managing the work environment, which in essence seeks to eliminate waste so as to create an effective, efficient and productive work environment (Osada, 2004). While Hirano (1996) defines 5S as a tool to help express problems and if used appropriately can become a part of the process from a well-planned lean system. 5S itself is an abbreviation of Seiri (Sort), Seiton (Straighten), Seiso (Shine), Seiketsu (Standardize), and Shitsuke (Sustain). In Indonesian it is translated as 5R which means Concise, Neat, Clean, Rawat, Diligent. According to Imai (2001) 5S is very important because it is the foundation in making a process as short as possible, reducing production costs, quality output and

reducing the incidence of accidents in the presence of better conditions. Seiri (Sort) or Concise, is the stage of distinguishing items that are needed and not needed, take firm decisions and implement stratification management to dispose of unnecessary and store items that are still needed (Osada, 2004). The item differentiation is intended to make the work system become concise. Efforts are made to get rid of goods that are no longer useful, so the company will have a wider workspace. Seiton (Straighten) or Neat, is the stage of storing goods in the right place or in the right layout by emphasizing the aspects of safety, quality and effectiveness, so that it can be used in a sudden situation (Hirano, 1998). This is useful to eliminate time wasted in the process of finding goods and workplaces to be more presentable. Seiso (Shine) or Resik is the third stage in the 5S method. The principle of Seiso or shine is to clean the work place or environment, machinery or equipment and other items so that there is no dust or dirt and rubbish littered. Clean conditions can affect humans psychologically by making themselves feel comfortable and not feeling stressed (Hirano, 1998). The initial steps that can be done at this stage such as throwing trash in place and cleaning the floor in the workspace. Seiketsu (Standardize) or Rawat is an activity where everyone must try to maintain the progress that has been achieved through the Seiri, Seiton and Seiso stages before. At this stage the results achieved have been maintained by standardizing or standardizing (Imai, 2001). The last step in the 5S method is Shitsuke (Sustain) or Diligent. The principle of Shitsuke is the creation of personal habits of employees to maintain and improve what has been achieved. Discipline in the workplace is the development of positive habits in the workplace (Heizer and Render, 2009). Falkowski and Kitowski (2013) state that the application of Seiri is to remove tools and items that are not used in the operation process. Bhoi et al. (2014) states that tools and items released through the implementation of Seiri will be accommodated in the quarantine area. Reducing tools and materials that are not used can increase the area of work and increase the effectiveness of the movement of workers. Kaluarachchi (2009) states that implements seiri by sorting medical devices based on their conditions and making a place for collection and repair of medical devices that do not meet government standards. Zidel (2006) states that the application of seiton means that each tool and material in the work environment has its own place.

Michalska and Szewieczek (2007) state that the storage of tools and materials should be labeled (name tags) to make them easier to find. Storage of tools and materials will be adjusted to the operator's range, so that the operator's movements become more effective. Ramesh et al. (2014) states that the preparation of tools and materials is based on the level of use of tools and materials during the production process. Seiso (rehearsal) means that a comfortable work environment can be achieved by maintaining cleanliness. Seiketsu (care) means that a comfortable work environment must be maintained so that the working environment conditions remain comfortable and optimal. Shitsuke (diligent) means that the application of seiri, seiton, and seiso in a company will survive if workers are accustomed to applying it to their daily work. In practice, the first three S values (Seiri, Seiton, and Seiso) are values that are applied on an individual scale, while the last two S values (Seiketsu and Shitsuke) are values that are applied on a managerial scale. Seiketsu and Shitsuke are needed to maintain and improve the application of Seiri, Seiton and Seiso (Pasale, 2013). Lean 5S medical health industry is a production technique that considers the expenditure of resources in the production process. The technique aims to reduce the waste that can be generated during the production process. According to Kilpatrick (2003), one method for implementing lean medical health industry in companies is the 5S method. Seiri, Seiton, Seiso, Seiketsu, and Shitsuke method is a work method from Japan that applies work environment management and arrangement. This arrangement aims to create a neat and comfortable work environment so that work effectiveness can be increased. Kumar and Kumar (2012) state that

implementing 5S can reduce the number of defective products and maximize the use of space in the work environment.

The application of 5S method also instills discipline in workers so that workers have the desire to maintain the tidiness of the work environment. 5S method consists of five methods, namely seiri, seiton, seiso, seiketsu, and shitsuke. Seiri (conceive) means that a good work environment is free from excess tools and materials that are not used. Seiton (neat) means that a good layout arrangement for the tools and materials needed in the production process can increase worker effectiveness. Gürel (2013) states that seiri, seiton and seiso must have standards through the application of seiketsu to maintain the continuity of the 5S program. According to Lingareddy et al. (2013), the application of Seiketsu means that everyone must know their respective responsibilities in implementing 5S. One of the things that can be done is to make cleaning the work environment one of the daily work routines. Mallick et al. (2013) states that visual management such as the 5S picket schedule can be used as an effort to implement seiketsu. Kaluarachchi (2009) states that CSHW in Sri Lanka applies seitons by rearranging sterile fabric storage areas, and also provides direction markers for areas in hospitals. Pasale and Bagi (2013b) state that the application of SEISO also includes checking engine cleanliness, light sources, and air ducts. The hygiene facilities needed for the application of seiso include bins, brooms, dust cleaners, and floor mats. Korkut et al. (2008) stated that cleaning the work environment should be done at the beginning of a work shift, the end of a work shift, or after a break. Veža et al (2011) states that an example of applying seiso in the work environment is to use transparent plastic bags as trash bins. The use of transparent plastic bags is considered easier for handling garbage and other impurities compared to using plastic or cardboard boxes. The purpose of this study is to determine the influence of gemba kaizen and Seiri, Seiton, Seiso, Seiketsu, and Shitsuke on business performance. The benefit of this research is to provide an analysis and explanation of the influence of Seiri, Seiton, Seiso, Seiketsu, and Shitsuke on business performance. relationship Seiri and business performance, relationship Seiton and business performance, relationship Seiso and business performance, relationship Seiketsu and business performance, relationship Shiketsu and business performance.

II. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Relationship Seiri, Seiton, Seiso, Seiketsu and Shitsuke and Business Performance

According to Ito (2019) shitsuke (discipline) was significantly important in maintaining store cleanliness, especially for toilets; the steps for undertaking a planned change to improve shitsuke involved developing a shared outlook for the business and reaching an agreement on basic processes; and enforcement of 5S and development of effective managers were deemed necessary. Randhawa (2017) 5S is an outstanding Japanese philosophy for the development of any type organization all over the world. This study bring out the concept of 5S, requirements for its holistic implementation, relationship with other lean tools, benefits, success factors and obstacles in 5S implementation. The significant contributions through 5S initiatives in the organization like production, quality, safety and effective utilization of workspace for the sustained organizational improvement have also been highlighted in the study. Randhawa (2017) the implementation of 5S has facilitated medical health industry organizations to accrue significant benefits such as improvement in overall organizational, productivity, quality, safety, employee morale values, effective workspace utilization, and cost optimizations. The results also show the elimination of serious chronic medical health industry system problems such as delays, breakdown, demoralized employees, declining

profits, and dissatisfied customers through holistic 5S implementation. Ho (1996) states that Japanese factories and service organizations are well known for their cleanliness and orderliness. Suggests that this results from their ability to instil a sense of responsibility and discipline into their workers, particularly at plant level. Describes the Japanese 5-S practice, the logic behind which is that organization, neatness, cleanliness, standardization and discipline at the workplace are basic requirements for producing high-quality products and services, with little or no waste, while maintaining high levels of productivity. Aims to promote the 5-S technique and explore the reasons why it has been widely used in Japan as the first step towards TQM in both the medical health industry and services industries. Also discusses the implementation of the 5-S with the use of two case examples. Randhawa (2017) clearly indicate close association between the significant nine stimulants for 5S implementation and seven crucial business excellence performance parameters. The study also establishes that 5S initiatives can significantly facilitate achievement of business excellence in the medical health industry organizations. Ho (1995) workplaces in Japan are well-known for their cleanliness and orderliness. This results from the Japanese emphasis on training and discipline. The logic behind the 5-S practice is that organization, neatness, cleanliness, standardization and discipline at the workplace are basic requirements for producing high quality products and services, with little or no waste, while maintaining high levels of productivity. Outlines results of an intensive questionnaire survey on about 3,000 companies in the UK and 200 leading companies in Japan with a response rate of about 12 per cent. Ho (1995) determine whether the Japanese 5-S practice has a significant contribution to the successful total quality management (TQM) implementation. The main finding from the 205 medical health industry and 106 services firms in the UK as well as 16 leading companies from Japan is that the 5-S provides an essential total quality environment which is an important base for implementing TQM successfully. Inevitably, TQM training policy should incorporate the 5-S practice guidelines. Randhawa (2018) that effective practice of 5S program brings considerable level of improvements in the quality, production, cost optimizations, employee's morale values and work culture in the medical health industry industry. The industry accrued both tangible and non-tangible benefits through the holistic adoption of 5S principals. 5S principals have been envisioned to further support other quality improvement programs like lean medical health industry initiatives of the organizations.

According to Suarez (2012) a conceptual framework was also established, based on the results of comparing theory and fieldwork: this provides a glimpse into the relationship of the Seiri, Seiton, Seiso, Seiketsu and Shitsuke with other improvement programmes, known as Lean-thinking or Lean-Kaizen, in the organisations analysed. In particular, the framework show the importance between do (way: philosophy) and jyutsu (techniques) during the implantation process of Seiri, Seiton, Seiso, Seiketsu and Shitsuke. Cheng (2018) study identified the following factors in effective and efficient dissemination of 5S-KAIZEN-TQM activities in the Egyptian health sector: restructuring the quality management structure to establish Quality Improvement Teams and Work Improvement Teams in hospitals, generating strong leadership and commitment among leaders, conducting effective in-house trainings on the 5S-KAIZEN-TQM approach, monitoring and following up on 5S-KAIZEN-TQM activities and introducing the 5S-KAIZEN-TQM approach using non-clinical sections, which could also influence the sustainability of the activities. According to Randhawa (2017) Seiri, Seiton, Seiso, Seiketsu and Shitsuke is an outstanding Japanese philosophy for the development of any type organization all over the world. This study bring out the concept of Seiri, Seiton, Seiso, Seiketsu and Shitsuke, requirements for its holistic implementation, relationship with other lean tools, benefits, success factors and obstacles in Seiri, Seiton, Seiso, Seiketsu and Shitsuke implementation. Randhawa (2017) The significant contributions through 5S

initiatives in the organization like production, quality, safety and effective utilization of workspace for the sustained organizational improvement have also been highlighted in the study. According to Enshassi et al (2019) Seiri, Seiton, Seiso, Seiketsu and Shitsuke techniques applied to reduce the causes of accidents that were applicable were cleaning the workplace and removing materials and machines that are not required; conducting accident investigation and root cause analysis programmes; and using safety signs and labels on site. Suarez (2012) based on cross analysis findings, a group of reasons was found for applying the 5Ss in the multinational organisations analysed, along with a group of drivers and inhibitors responsible for enhancing or blocking the successful implementation of the Seiri, Seiton, Seiso, Seiketsu and Shitsuke.

Hypothesis 1 : Seiri has a positive and significant relationship with Business Performance

Hypothesis 2 : Seiton has a positive and significant relationship with Business Performance

Hypothesis 3 : Seiso has a positive and significant relationship with Business Performance

Hypothesis 4 : Seiketsu has a positive and significant relationship with Business Performance

Hypothesis 5 : Shitsuke has a positive and significant relationship with Business Performance

III. METHOD

The type of this research approach is quantitative research. In this study the type of data used is quantitative data.. The confirmatory factor analysis approach is utilized to generate the effective SEM_5S model. The data have been collected from different medical health industry organizations that have successfully deployed the 5S program by using well-designed questionnaire for the evaluation of SEM 5S model (Randhawa, 2017). With the help of a survey, data were collected and analyzed using structural equation modeling (Yadav, 2019).The method used to retrieve data from respondents is to use a questionnaire. For Gemba kaizen variables according to Risma (2008) measured by continuous improvement and improvement while the 5S indicator is 5 indicators namely seiri (concise), seiton (neat), seiso (rehearsal), seiketsu (caring), and shitsuke (diligent). Medical health industry performance variables according to Mangkunegara (2009) are measured by 4 indicators namely quality, quantity, performance of tasks, and responsibilities.

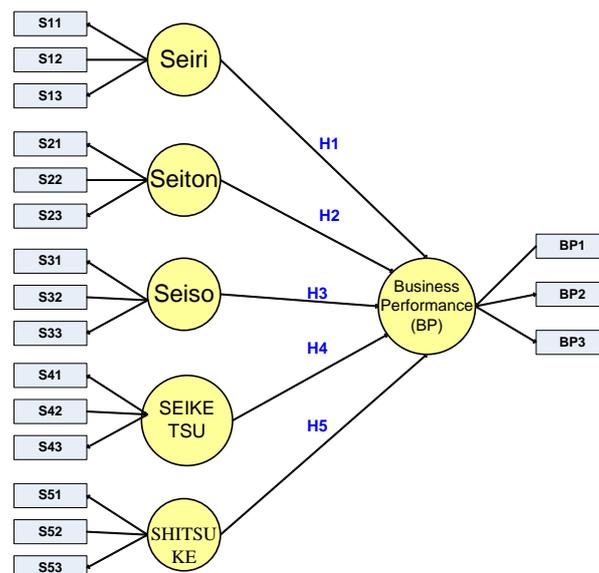


Figure 1. Research Model

H1 : Seiri has significant relationship with Business Performance

H2 : Seiton has significant relationship with Business Performance

H3 : Seiso has significant relationship with Business Performance

H4 : Seiketsu has significant relationship with Business Performance

H5 : Shitsuke has significant relationship with Business Performance

The questionnaire was designed closed except for questions or statements about the identity of respondents in the form of a semi-open questionnaire. Each closed question or statement item is given five answer options i.e. strongly agree (SS) score 5, agree (S) score 4, neutral (N) score 3, disagree (TS) score 2, and strongly disagree (STS) score 1. Case-study methodology was used for the quantitative analysis of self-assessed lean capability scores and key medical health industry performance indicators from medical health industry company.. The research methodology is based on the empirical study of the Indian ceramic industry through a questionnaire specifically developed for the study through literature review and discussions held with practitioners. Exploratory factor analysis, confirmatory factor analysis and structural equation modeling techniques have been used to propose and validate the model. Statistical tools have been used for the statistical analysis of the data (Singh Sangwan, 2014). The number of respondents used in this study were 240 medical health industry company managers in Indonesia. The sampling technique used in this research method is snowball sampling. The method for processing data is by PLS and using SmartPLS 3.0 . software version as a tool.

Tabel 1. Sample Descriptive Information

Criteria		Total
Age (per April 2020)	< 30 years	100
	30 - 40 years	90
	> 40 years	50
Work Period	< 5 years	120
	5-10 years	60
	> 10 years	60
Highest Education	Bachelor degree	160
	Magister degree	80

The total of respondents used in this study were 240 medical health industry company managers in Indonesia. The distribution of respondents' are 100 respondents below the age of 30, then 90 respondents to 40 years old and 50 respondents above the age of 40. Work periods under 5 years are 120 respondents, between 5 to 10 years are 60 respondents and above 10 years are 60 respondents. The level of education for bachelor degree are 60 respondents. and master degree is 80 respondents..

III. RESULT AND DISCUSSION

The results of the PLS analysis can be used to test the research hypothesis if all the indicators in the PLS model have met the requirements of convergent validity, discriminant validity and reliability testing. Partial least squares structural equation modelling (PLS-SEM) is used to analyse the lean implementation–performance relationship (Kovács, 2020). Lin (2019) establishes the mechanism model of medical health industry transformation and

upgrading based on the partial least squares approach to structural equation modeling. Convergent validity test is done by looking at the loading factor value of each indicator to the construct. For most references, a factor weight of 0.5 or more is considered to have validation that is strong enough to explain latent constructs (Chin, 1998; Ghazali, 2014; Hair et al., 2010).

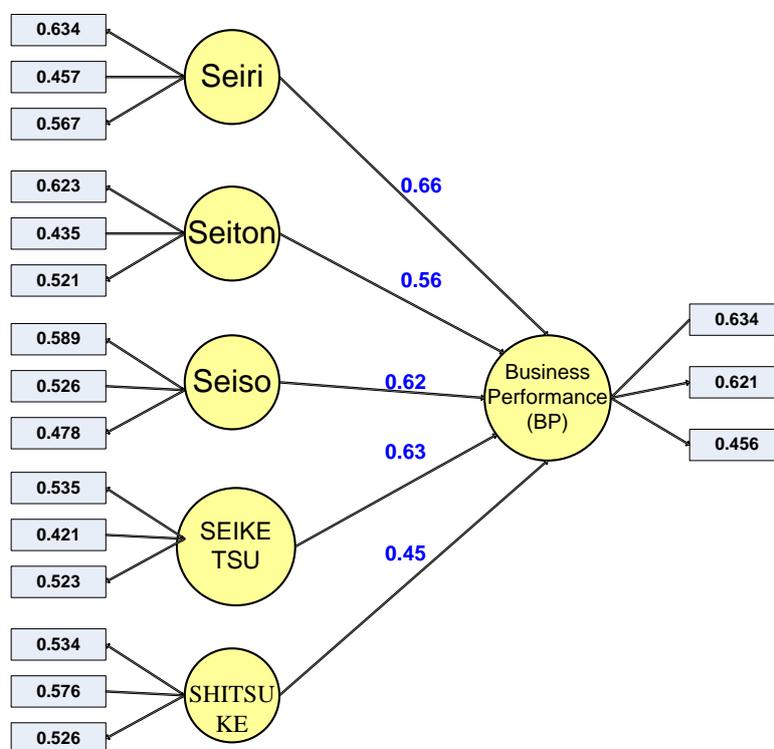


Figure 2. Research Model Result

In this research the minimum limit on the size of the loading factor received was 0.5, with the requirement that the AVE value of each construct > 0.5 (Ghazali, 2014). Based on the results of SmartPLS 3.0 processing and after issuing indicators or items that do not meet the requirements, as the results are shown in Figure 2, then now all indicators have a loading factor value above 0.5. Thus, the convergent validity of this research model has fulfilled the requirements. The value of loadings, Cronbach's alpha, composite reliability and AVE for each complete construct can be seen in the following Table 2:

Tabel 2. Items Loadings, Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE)

Variables	Items	Loadings	Cronbach's Alpha	Composite Reliability	AVE
Seiri	S11	0.634	0.745	0.721	0.734
	S12	0.457			
	S13	0.567			
Seiton	S21	0.623	0.765	0.876	0.621
	S21	0.435			
	S23	0.521			
Seiso	S31	0.589	0.743	0.776	0.768

	S31	0.526			
	S33	0.478			
Seiketsu	S41	0.535	0.722	0.768	0.654
	S41	0.421			
	S43	0.523			
Shitsuke	S51	0.534	0.711	0.876	0.613
	S51	0.576			
	S53	0.526			
Business Performance	BP1	0.634	0.714	0.712	0.610
	BP2	0.621			
	BP3	0.456			

Discriminant validity testing is carried out to ensure that each concept of each latent variable is different from the other latent variables. The model has good discriminant validity if the AVE squared value of each exogenous construct exceeds the correlation between the construct and the other construct (Ghozali, 2014). The results of discriminant validity testing using AVE squared values are by looking at the Fornell-Larcker Criterion Value obtained as follows:

Table 3. Discriminant Validity

Variables	Seiri	Seiso	Seiton	Seiketsu	Shitsuke	BP
Seiri	0.722					
Seiso	0.712	0.713				
Seiton	0.713	0.734	0.741			
Seiketsu	0.754	0.725	0.734	0.778		
Shitsuke	0.718	0.701	0.704	0.708	0.759	
Business Performance (BP)	0.714	0.712	0.745	0.713	0.707	0.709

Table 4. Collinearity Statistics (VIF)

Variables	Company Performance
Seiri	2.023
Seiso	2.245
Seiton	2.045
Seiketsu	2.078
Shitsuke	2.345
Business Performance (BP)	2.342

The results of the discriminant validity test in Table. 3 above show that all constructs have a AVE square root value above the correlation value with other latent constructs (through the Fornell-Larcker criteria). Similarly, the cross-loading value of all items from one indicator is greater than the other indicator items as mentioned in Table 4, so it can be concluded that the model has met the discriminant validity (Fornell & Larcker, 1981). Next, collinearity evaluation is carried out to find out whether there is collinearity in the model. To find

collinearity, VIF calculation is needed for each construct. If the VIF score is higher than 5, then the model has collinearity (Hair et al., 2014). As shown in Table 4, all VIF scores are less than 5, meaning that this model does not have collinearity.

Construct reliability can be assessed from the value of Cronbach's alpha and composite reliability of each construct. The recommended composite reliability and Cronbach's alpha values are more than 0.7 (Ghozali, 2014). The reliability test results in Table 2 above show that all constructs have composite reliability and Cronbach's alpha values greater than 0.7 (> 0.7). In conclusion, all constructs have met the required reliability.

Hypotheses Testing

Hypothesis testing in PLS is also called the inner model test. The effect test is carried out using the t-statistic test in the partial least squared (PLS) analysis model using the help of SmartPLS 3.0 software. With the bootstrapping technique, R Square values and significance test values are obtained as in the table below:

Table 5. R Square Value

	R Square	R Square Adjusted
Business Performance (P)	0.734	0.701

Table 6. Hypotheses Testing

Hypotheses	Relationship	Beta	SE	T Statistics	P-Values	Decision
H1	Seiri -> BP	0.661	0.063	3.012	0.002	Supported
H2	Seiso-> BP	0.560	0.054	3.121	0.001	Supported
H3	Seiton -> BP	0.621	0.068	3.067	0.003	Supported
H4	Seiketsu -> BP	0.630	0.062	3.134	0.001	Supported
H5	Shitsuke -> BP	0.450	0.069	3.178	0.003	Supported

Based on Table 5 above, the R Square value of Business Performance (BP) is 0.734 which means that the variable Business Performance (P) can be explained by 5S at 73.4%, while the remaining 26.6% is explained by other variables not discussed in this study

H1 : Seiri has positive and significant relationship with Business Performance

Based on the test results and summaries in Table 6, for Hypothesis 1 (H1) beta value is 0.661, SE is 0.063, t statistics is 3.012 and p values is 0.002 so this research concludes that Seiri has a positive and significant effect on Business Performance so H1 is accepted. These results are in line with Purwanto (2019) that 5S Seiri has a positive and significant effect with Company Performance, Asbari (2019) that 5S Seiri has a positive and significant effect with Employee Performance, Santoso (2019) that 5S Seiri has a positive and significant effect with Business Performance. Moriones et al (2020) that application of 5S Seiri has a positive and significant effect with Company Performance, Randhawa et al (2017) implementation of 5S Seiri has a positive and significant effect with Company Performance, Gupta et al (2015)

implementation of 5S Seiri has a positive and significant effect with business Performance , Attri et al (2017) 5S Seiri has a positive and significant effect with employee performance.

H2 : Seiso has positive and significant relationship with Business Performance

Based on the test results and summaries in Table 6, for Hypothesis 2 (H2) beta value is 0.560, SE is 0.054, t statistics is 3.121 and p values is 0.001 so this research concludes that Seiso has a positive and significant effect on Business Performance so H2 is accepted. These results are in line with Moriones et al (2020) that application of 5S Seiso has a positive and significant effect with Company Performance , According Randhawa et al (2017) implementation of 5S Seiso has a positive and significant effect with Company Performance, Gupta et al (2015) implementation of 5S Seiso has a positive and significant effect with business Performance , Attri et al (2017) 5S Seiso has a positive and significant effect with employee performance. Purwanto (2019) that 5S Seiso has a positive and significant effect with company Performance, According Asbari (2019) that 5S Seiso has a positive and significant effect with Employee Performance, According Santoso (2019) that 5S Seiso has a positive and significant effect with Business Performance.

H3 : Seiton has positive and significant relationship with Business Performance

Based on the test results and summaries in Table 6, for Hypothesis 3 (H3) beta value is 0.621, SE is 0.068, t statistics is 3.067 and p values is 0.003 so this research concludes that Seiton has a positive and significant effect on Business Performance so H3 is accepted. These results are in line with Attri et al (2017) 5S Seiton has a positive and significant effect with employee performance. Purwanto (2019) that 5S Seiton has a positive and significant effect with Company Performance, According to Asbari (2019) that 5S Seiton has a positive and significant effect with Employee Performance, Santoso (2019) that 5S Seiton has a positive and significant effect with Business Performance. According to Moriones et al (2020) that application of 5S Seiton has a positive and significant effect with Company Performance , According to Randhawa et al (2017) implementation of 5S Seiton has a positive and significant effect with Company Performance, According to Gupta et al (2015) implementation of 5S Seiton has a positive and significant effect with business Performance

H4 : Seiketsu has positive and significant relationship with Business Performance

Based on the test results and summaries in Table 6, for Hypothesis 3 (H4) beta value is 0.630, SE is 0.062, t statistics is 3.134 and p values is 0.001 so this research concludes that Seiketsu has a positive and significant effect on Business Performance so H4 is accepted. These results are in line with Santoso (2019) that 5S Seiketsu has a positive and significant effect with Business Performance. According to Moriones et al (2020) that application of 5S Seiketsu has a positive and significant effect with Company Performance , According to Randhawa et al (2017) implementation of 5S Seiketsu has a positive and significant effect with Company Performance, According to Gupta et al (2015) implementation of 5S Seiketsu has a positive and significant effect with business Performance , According to Attri et al (2017) 5S Seiketsu has a positive and significant effect with employee performance. Purwanto (2019) that 5S Seiketsu has a positive and significant effect with Company Performance, According to Asbari (2019) that 5S Seiketsu has a positive and significant effect with Employee Performance.

H5 : Shitsuke has positive and significant relationship with Business Performance

Based on the test results and summaries in Table 6, for Hypothesis 3 (H5) beta value is 0.450, SE is 0.069, t statistics is 3.178 and p values is 0.003 so this research concludes that Shitsuke has a positive and significant effect on Business Performance so H5 is accepted.

These results are in line with According to Moriones et al (2020) that application of 5S Shitsuke has a positive and significant effect with Company Performance, According to Randhawa et al (2017) implementation of 5S Shitsuke has a positive and significant effect with Company Performance, According to Gupta et al (2015) implementation of 5S Shitsuke has a positive and significant effect with business Performance, According to Attri et al (2017) 5S Shitsuke has a positive and significant effect with employee performance. Purwanto (2019) that 5S Shitsuke has a positive and significant effect with Company Performance, According to Asbari (2019) that 5S Shitsuke has a positive and significant effect with Employee Performance. Santoso (2019) that 5S Shitsuke has a positive and significant effect with Business Performance.

According to Asbari (2020) the significant contributions through Seiri, Seiton, Seiso, Seiketsu, and Shitsuke initiatives in the organization like production, quality, safety and effective utilization of workspace for the sustained organizational improvement have also been highlighted in the study. Randhawa et al (2018) the empirical results of the study have revealed that effective practice of 5S program brings considerable level of improvements in the quality, production, cost optimizations, employee's morale values and work culture in the medical health industry industry. The industry accrued both tangible and non-tangible benefits through the holistic adoption of 5S principals. 5S principals have been envisioned to further support other quality improvement programs like lean medical health industry initiatives of the organizations. According to Moriones et al (2020) the existence of a positive relationship between the use of Seiri, Seiton, Seiso, Seiketsu, and Shitsuke and some contextual factors such as size, the integration of the plant in a multinational group, the type of product manufactured, the technology used and the quality programmes in the plant. Moreover, Seiri, Seiton, Seiso, Seiketsu, and Shitsuke is positively related to some operational performance measures, especially those referring to quality and productivity. Asbari (2020) the application of Seiri, Seiton, Seiso, Seiketsu, and Shitsuke has a positive effect on company performance, consistent application of 5S can make company performance increase.

According to Purwanto (2020) the application of Seiri, Seiton, Seiso, Seiketsu, and Shitsuke consistently has a significant and positive effect on industry performance, the application of 5S can improve industry performance. Santoso (2019) the application of Seiri, Seiton, Seiso, Seiketsu, and Shitsuke has a significant and positive effect on employee performance, the application of kaizen can improve employee performance. Randhawa et al (2017) association between the significant nine stimulants for 5S implementation and seven crucial business excellence performance parameters. Seiri, Seiton, Seiso, Seiketsu, and Shitsuke initiatives can significantly facilitate achievement of business excellence in the medical health industry organizations. Randhawa et al (2017) 5S is an outstanding Japanese philosophy for the development of any type organization all over the world. the concept of 5S, requirements for its holistic implementation, relationship with other lean tools, benefits, success factors and obstacles in 5S implementation. Randhawa et al (2017) the majority of organizations have shown total commitment toward the implementation and objective realization of Seiri, Seiton, Seiso, Seiketsu, and Shitsuke quality policy at all levels in the organizations. The implementation of 5S has facilitated medical health industry organizations to accrue significant benefits such as improvement in overall organizational, productivity, quality, safety, employee morale values, effective workspace utilization, and cost optimizations. 5S

also show the elimination of serious chronic medical health industry system problems such as delays, breakdown, demoralized employees, declining profits, and dissatisfied customers through holistic

According to Asbari (2020) the significant contributions through Seiri, Seiton, Seiso, Seiketsu, and Shitsuke initiatives in the organization like production, quality, safety and effective utilization of workspace for the sustained organizational improvement have also been highlighted in the study. Randhawa et al (2018) the empirical results of the study have revealed that effective practice of 5S program brings considerable level of improvements in the quality, production, cost optimizations, employee's morale values and work culture in the medical health industry industry. The industry accrued both tangible and non-tangible benefits through the holistic adoption of 5S principals. 5S principals have been envisioned to further support other quality improvement programs like lean medical health industry initiatives of the organizations. implementation. Randhawa et al (2017) during the implementation of 5S program, leading to attainment of high level of melioration in the BEPP. SEM has been deployed to evaluate the original and modification indices of the model, which further establishes the improvement in SEM's effectiveness. The model establishes the significant impact of Seiri, Seiton, Seiso, Seiketsu, and Shitsuke implementation on business excellence of medical health industry organization. Gupta et al (2015) implementation of Seiri, Seiton, Seiso, Seiketsu, and Shitsuke resulted in overall improvement of the organization. With the implementation of Seiri, Seiton, Seiso, Seiketsu, and Shitsuke major benefits in the form of tool searching time have been achieved. Tool searching time from shop floor has been reduced from 30 minutes to 5 minutes. Attri et al (2017) several key barriers which have high driving power and weak dependence power. In this concern, these barriers entail extreme care and handling for successful implementation of Seiri, Seiton, Seiso, Seiketsu, and Shitsuke. Financial constraints, lack of top management commitment, and no proper vision and mission are found to be the key barriers.

IV. CONCLUSION

This research concludes that implementation of Seiri has a positive and significant effect on Business Performance. Implementation of Seiton has a positive and significant effect on Business Performance. Implementation of Seiso, has a positive and significant effect on Business Performance. Implementation of Seiketsu has a positive and significant effect on Business Performance. Implementation of Shitsuke has a positive and significant effect on Business Performance. The majority of organizations have shown total commitment toward the implementation and objective realization of Seiri, Seiton, Seiso, Seiketsu, and Shitsuke quality policy at all levels in the organizations. The implementation of Seiri, Seiton, Seiso, Seiketsu, and Shitsuke has facilitated medical health industry organizations to accrue significant benefits such as improvement in overall organizational, productivity, quality, safety, employee morale values, effective workspace utilization, and cost optimizations. The results also show the elimination of serious chronic medical health industry system problems such as delays, breakdown, demoralized employees, declining profits, and dissatisfied customers through holistic 5S implementation. In the medical health industry, corporate growth and profitability are more challenging than ever before. The company reviewed in this study has been and is currently suffering tremendous growing pains with poor record of profitability. the significant contributions through Seiri, Seiton, Seiso, Seiketsu, and Shitsuke initiatives in the organization like production, quality, safety and effective utilization of workspace for the sustained organizational improvement. Some of the tasks involved in

identifying opportunities for improving operational efficiencies included analysis of current business processes, identification of non-value-added activities including wastes and proposing process changes. that effective practice of Seiri, Seiton, Seiso, Seiketsu, and Shitsuke program brings considerable level of improvements in the quality, production, cost optimizations, employee's morale values and work culture in the medical health industry industry . The implementation of 5S has facilitated medical health industry organizations to accrue significant benefits such as improvement in overall organizational, productivity, quality, safety, employee morale values, effective workspace utilization, and cost optimizations. 5S also show the elimination of serious chronic medical health industry system problems such as delays, breakdown, demoralized employees, declining profits, and dissatisfied customers through holistic . If properly implemented, Kaizen model can substantially contribute to continuous improvement and, thus, drive organizations for high competitiveness without a need for major investment. The limitation of this study is the small number of respondents so the results of the study may not be generalized to other places.

V. REFERENCES

- [1.] Al Smadi, S. (2009), "Kaizen strategy and the drive for competitiveness: challenges and opportunities", *Competitiveness Review*, Vol. 19 No. 3, pp. 203-211. <https://doi.org/10.1108/10595420910962070>
- [2.] Arya, A.K. and Choudhary, S. (2015), "Assessing the application of Kaizen principles in Indian small-scale industry", *International Journal of Lean Six Sigma*, Vol. 6 No. 4, pp. 369-396. <https://doi.org/10.1108/IJLSS-11-2014-0033>
- [3.] Chan, C.O. and Tay, H.L. (2018), "Combining lean tools application in kaizen: a field study on the printing industry", *International Journal of Productivity and Performance Management*, Vol. 67 No. 1, pp. 45-65. <https://doi.org/10.1108/IJPPM-09-2016-0197>
- [4.] Chiarini, A., Baccarani, C. and Mascherpa, V. (2018), "Lean production, Toyota Production System and Kaizen philosophy: A conceptual analysis from the perspective of Zen Buddhism", *The TQM Journal*, Vol. 30 No. 4, pp. 425-438. <https://doi.org/10.1108/TQM-12-2017-0178>
- [5.] Cheng, L.J. (2018), "Implementing Six Sigma within Kaizen events, the experience of AIDC in Taiwan", *The TQM Journal*, Vol. 30 No. 1, pp. 43-53. <https://doi.org/10.1108/TQM-02-2017-0017>
- [6.] Bortolotti, T., Boscarri, S., Danese, P., Medina Suni, H.A., Rich, N. and Romano, P. (2018), "The social benefits of kaizen initiatives in healthcare: an empirical study", *International Journal of Operations & Production Management*, Vol. 38 No. 2, pp. 554-578. <https://doi.org/10.1108/IJOPM-02-2017-0085>
- [7.] Cheser, R.N. (1998), "THE EFFECT OF JAPANESE KAIZEN ON EMPLOYEE MOTIVATION IN U.S. MEDICAL HEALTH INDUSTRY", *The International Journal of Organizational Analysis*, Vol. 6 No. 3, pp. 197-217. <https://doi.org/10.1108/eb028884>
- [8.] Doolen, T.L., Van Aken, E.M., Farris, J.A., Worley, J.M. and Huwe, J. (2008), "Kaizen events and organizational performance: a field study", *International Journal of Productivity and Performance Management*, Vol. 57 No. 8, pp. 637-658. <https://doi.org/10.1108/17410400810916062>
- [9.] Enshassi, A., Saleh, N. and Mohamed, S. (2019), "Application level of lean construction techniques in reducing accidents in construction projects", *Journal of*

Financial Management of Property and Construction, Vol. 24 No. 3, pp. 274-293. <https://doi.org/10.1108/JFMPC-08-2018-0047>

- [10.] Fonseca, L.M. and Domingues, J.P. (2018), "The best of both worlds? Use of Kaizen and other continuous improvement methodologies within Portuguese ISO 9001 certified organizations", *The TQM Journal*, Vol. 30 No. 4, pp. 321-334. <https://doi.org/10.1108/TQM-12-2017-0173>
- [11.] Kumar Arya, A. and Kumar Jain, S. (2014), "Impacts of Kaizen in a small-scale industry of India: a case study", *International Journal of Lean Six Sigma*, Vol. 5 No. 1, pp. 22-44. <https://doi.org/10.1108/IJLSS-03-2013-0019>
- [12.] Kumar, S. and Harms, R. (2004), "Improving business processes for increased operational efficiency: a case study", *Journal of Medical health industry Technology Management*, Vol. 15 No. 7, pp. 662-674. <https://doi.org/10.1108/17410380410555907>
- [13.] Kumar, S., Dhingra, A. and Singh, B. (2018), "Lean-Kaizen implementation: A roadmap for identifying continuous improvement opportunities in Indian small and medium sized enterprise", *Journal of Engineering, Design and Technology*, Vol. 16 No. 1, pp. 143-160. <https://doi.org/10.1108/JEDT-08-2017-0083>
- [14.] Mitra Debnath, R. (2019), "Enhancing customer satisfaction using Kaizen: a case study of Imperial Tobacco Company (ITC)", *Journal of Advances in Management Research*, Vol. 16 No. 3, pp. 277-293. <https://doi.org/10.1108/JAMR-01-2018-0009>
- [15.] Paul Brunet, A. and New, S. (2003), "Kaizen in Japan: an empirical study", *International Journal of Operations & Production Management*, Vol. 23 No. 12, pp. 1426-1446. <https://doi.org/10.1108/01443570310506704>
- [16.] Suárez-Barraza, M.F. and Ramis-Pujol, J. (2012), "An exploratory study of 5S: a multiple case study of multinational organizations in Mexico", *Asian Journal on Quality*, Vol. 13 No. 1, pp. 77-99. <https://doi.org/10.1108/15982681211237842>
- [17.] Randhawa, J.S. and Ahuja, I.S. (2017), "5S – a quality improvement tool for sustainable performance: literature review and directions", *International Journal of Quality & Reliability Management*, Vol. 34 No. 3, pp. 334-361. <https://doi.org/10.1108/IJQRM-03-2015-0045>
- [18.] Suárez-Barraza, M.F., Ramis-Pujol, J. and Estrada-Robles, M. (2012), "Applying Gemba-Kaizen in a multinational food company: a process innovation framework", *International Journal of Quality and Service Sciences*, Vol. 4 No. 1, pp. 27-50. <https://doi.org/10.1108/17566691211219715>
- [19.] Vo, B., Kongar, E. and Suárez Barraza, M.F. (2019), "Kaizen event approach: a case study in the packaging industry", *International Journal of Productivity and Performance Management*, Vol. 68 No. 7, pp. 1343-1372. <https://doi.org/10.1108/IJPPM-07-2018-0282>
- [20.] Woong Jin, H. and L. Doolen, T. (2014), "A comparison of Korean and US continuous improvement projects", *International Journal of Productivity and Performance Management*, Vol. 63 No. 4, pp. 384-405. <https://doi.org/10.1108/IJPPM-01-2013-0012>
- [21.] Bass, B., & Avolio, B. (2000). *Technical Report, Leader form, rater form, and Scoring Key of MLQ From 5x-Short*. Mind Garden, Inc.
- [22.] Chin, W. (1998). *The Partial Least Squares Approach to Structural Equation Modeling* (E. Modern Methods for Business Research, In: G. A. Marcoulides (ed.)). Lawrence Erlbaum Associates Publisher.
- [23.] Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), 39. <https://doi.org/10.2307/3151312>
- [24.] Ghozali, I. (2014). *Structural Equation Modeling, Metode Alternatif dengan Partial Least Square (PLS)* (4th ed.). Badan Penerbit Universitas Diponegoro.

- [25.] Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis* (7th ed.). Pearson Prentice Hall.
- [26.] Hair, J. F., Hult, G. T., Ringle, C. M., & Sarstedt, M. (2014). *A primer partial least squares structural equation modeling (PLS-SEM)*. SAGE Publications.
- [27.] Hazriyanto, & Ibrahim, B. (2019). The factor analysis of organizational commitment, job satisfaction and performance among lecturers in Batam. *Journal of Technical Education and Training*, 11(1), 151–158.
- [28.] Sekaran, U., & Bougie, R. (2003). *Research Methods For Business: A Skill Building Approach* (Sixth edit). John Wiley and Sons, Inc.
- [29.] Weiss, D. J., Dawis, R. V., & England, G. W. (1967). Manual for the Minnesota Satisfaction Questionnaire. *Minnesota Studies in Vocational Rehabilitation*, 22, 120. <https://psycnet.apa.org/record/1968-08111-001>
- [30.] Wexley, K. N., & Yukl, G. A. (1977). *Organizational Behavior and Personal Psychology*. Richard D. Irwin Inc.
- [31.] M. N. Ab Rahman, N. K. Khamis, R. M. Zain, B. M. Deros, and W. H. W. Mahmood, "Implementation of 5S practices in the medical health industry companies: A case study," *American Journal of Applied Sciences*, vol. 7, pp. 1182-1189, 2010.
- [32.] M. A. Titu, C. Oprean, and D. Grecu, "Applying the Kaizen method and the 5S technique in the activity of post-sale services in the knowledge-based organization," in *Proceedings of the International MultiConference of Engineers and Computer Scientists*, 2010, pp. 1-5.
- [33.] A. Khan, "KAIZEN: the Japanese strategy for continuous improvement," *VSRD International Journal of Business & Management Research*, vol. 1, pp. 177-184, 2011.
- [34.] H. Chi, "1 5S implementation in Wan Cheng Industry Medical health industry Factory in Taiwan," 2011.
- [35.] T. Ohno, *Toyota production system: beyond large-scale production*: crc Press, 1988.
- [36.] R. Gapp, R. Fisher, and K. Kobayashi, "Implementing 5S within a Japanese context: an integrated management system," *Management Decision*, vol. 46, pp. 565-579, 2008.
- [37.] Attri, R., Singh, B. and Mehra, S. (2017), "Analysis of interaction among the barriers to 5S implementation using interpretive structural modeling approach", *Benchmarking: An International Journal*, Vol. 24 No. 7, pp. 1834-1853. <https://doi.org/10.1108/BIJ-07-2016-0110>
- [38.] Bayo-Moriones, A., Bello-Pintado, A. and Merino-Díaz de Cerio, J. (2010), "5S use in medical health industry plants: contextual factors and impact on operating performance", *International Journal of Quality & Reliability Management*, Vol. 27 No. 2, pp. 217-230. <https://doi.org/10.1108/02656711011014320>
- [39.] Randhawa, J.S. and Ahuja, I.S. (2017), "Examining the role of 5S practices as a facilitator of business excellence in medical health industry organizations", *Measuring Business Excellence*, Vol. 21 No. 2, pp. 191-206. <https://doi.org/10.1108/MBE-09-2016-0047>
- [40.] Randhawa, J.S. and Ahuja, I.S. (2017), "Structural equation modeling for validating impact of 5S implementation on business excellence of medical health industry organizations", *International Journal of Quality & Reliability Management*, Vol. 34 No. 9, pp. 1592-1615. <https://doi.org/10.1108/IJQRM-08-2016-0129>
- [41.] Randhawa, J.S. and Ahuja, I.S. (2018), "An investigation into medical health industry performance achievements accrued by Indian medical health industry organization through strategic 5S practices", *International Journal of Productivity and Performance Management*, Vol. 67 No. 4, pp. 754-787. <https://doi.org/10.1108/IJPPM-06-2017-0149>

- [42.] Randhawa, J.S. and Ahuja, I.S. (2017), "Evaluating impact of 5S implementation on business performance", *International Journal of Productivity and Performance Management*, Vol. 66 No. 7, pp. 948-978. <https://doi.org/10.1108/IJPPM-08-2016-0154>
- [43.] Randhawa, J.S. and Ahuja, I.S. (2017), "5S – a quality improvement tool for sustainable performance: literature review and directions", *International Journal of Quality & Reliability Management*, Vol. 34 No. 3, pp. 334-361. <https://doi.org/10.1108/IJQRM-03-2015-0045>
- [44.] Gupta, S. and Jain, S.K. (2015), "An application of 5S concept to organize the workplace at a scientific instruments medical health industry company", *International Journal of Lean Six Sigma*, Vol. 6 No. 1, pp. 73-88. <https://doi.org/10.1108/IJLSS-08-2013-0047>
- [45.] Al-Hyari, K.A., Abu Zaid, M.K., Arabeyyat, O.S., Al-Qwasmeah, L. and Haffar, M. (2019), "The applications of Kaizen methods in project settings: applied study in Jordan", *The TQM Journal*, Vol. 31 No. 5, pp. 831-849. <https://doi.org/10.1108/TQM-03-2019-0078>
- [46.] Chan, C.O. and Tay, H.L. (2018), "Combining lean tools application in kaizen: a field study on the printing industry", *International Journal of Productivity and Performance Management*, Vol. 67 No. 1, pp. 45-65. <https://doi.org/10.1108/IJPPM-09-2016-0197>
- [47.] Paul Brunet, A. and New, S. (2003), "Kaizen in Japan: an empirical study", *International Journal of Operations & Production Management*, Vol. 23 No. 12, pp. 1426-1446. <https://doi.org/10.1108/01443570310506704>
- [48.] Kumar Arya, A. and Kumar Jain, S. (2014), "Impacts of Kaizen in a small-scale industry of India: a case study", *International Journal of Lean Six Sigma*, Vol. 5 No. 1, pp. 22-44. <https://doi.org/10.1108/IJLSS-03-2013-0019>
- [49.] Ito, S. (2019), "Enhancing shitsuke: a planned change intervention model for convenience stores in Japan", *The TQM Journal*, Vol. 31 No. 1, pp. 70-93. <https://doi.org/10.1108/TQM-05-2018-0070>
- [50.] Randhawa, J.S. and Ahuja, I.S. (2017), "5S – a quality improvement tool for sustainable performance: literature review and directions", *International Journal of Quality & Reliability Management*, Vol. 34 No. 3, pp. 334-361. <https://doi.org/10.1108/IJQRM-03-2015-0045>
- [51.] Randhawa, J.S. and Ahuja, I.S. (2017), "Evaluating impact of 5S implementation on business performance", *International Journal of Productivity and Performance Management*, Vol. 66 No. 7, pp. 948-978. <https://doi.org/10.1108/IJPPM-08-2016-0154>
- [52.] Randhawa, J.S. and Ahuja, I.S. (2017), "Examining the role of 5S practices as a facilitator of business excellence in medical health industry organizations", *Measuring Business Excellence*, Vol. 21 No. 2, pp. 191-206. <https://doi.org/10.1108/MBE-09-2016-0047>
- [53.] Randhawa, J.S. and Ahuja, I.S. (2018), "An investigation into medical health industry performance achievements accrued by Indian medical health industry organization through strategic 5S practices", *International Journal of Productivity and Performance Management*, Vol. 67 No. 4, pp. 754-787. <https://doi.org/10.1108/IJPPM-06-2017-0149>
- [54.] Ho, S.K. and Cicmil, S. (1996), "Japanese 5-S practice", *The TQM Magazine*, Vol. 8 No. 1, pp. 45-53. <https://doi.org/10.1108/09544789610107261>
- [55.] Ho, S.K., Cicmil, S. and Fung, C.K. (1995), "The Japanese 5-S practice and TQM training", *Training for Quality*, Vol. 3 No. 4, pp. 19-24. <https://doi.org/10.1108/09684879510098222>
- [56.] Lin, S., Cai, S., Sun, J., Wang, S. and Zhao, D. (2019), "Influencing mechanism and achievement of medical health industry transformation and upgrading: Empirical

- analysis based on PLS-SEM model", *Journal of Medical health industry Technology Management*, Vol. 30 No. 1, pp. 213-232. <https://doi.org/10.1108/JMTM-05-2018-0126>
- [57.] Kovács, T., Kö, A. and Demeter, K. (2020), "Measuring the impact of lean practices on medical health industry performance – case study from the process industry", *International Journal of Lean Six Sigma*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/IJLSS-01-2019-0004>
- [58.] Yadav, V., Jain, R., Mittal, M.L., Panwar, A. and Lyons, A. (2019), "The impact of lean practices on the operational performance of SMEs in India", *Industrial Management & Data Systems*, Vol. 119 No. 2, pp. 317-330. <https://doi.org/10.1108/IMDS-02-2018-0088>
- [59.] Randhawa, J.S. and Ahuja, I.S. (2017), "Structural equation modeling for validating impact of 5S implementation on business excellence of medical health industry organizations", *International Journal of Quality & Reliability Management*, Vol. 34 No. 9, pp. 1592-1615.
- [60.] Singh Sangwan, K., Bhamu, J. and Mehta, D. (2014), "Development of lean medical health industry implementation drivers for Indian ceramic industry", *International Journal of Productivity and Performance Management*, Vol. 63 No. 5, pp. 569-587. <https://doi.org/10.1108/IJPPM-06-2013-0105>
- [61.] Purwanto, A. Sulistiyadi, A. Primahendra, R. Kotamena, F. Prameswari, M. Ong, F. (2020). Does Quality, Safety, Environment and Food Safety Management System Influence Business Performance? Answers from Indonesian Packaging Industries. *International Journal of Control and Automation*. 13(1). 22-35. <http://sersec.org/journals/index.php/IJCA/article/view/4834>
- [62.] Purwanto, A., Putri, R.S., Arman Hj. Ahmad, Asbari, M., Bernarto, I., Santoso, P.B., Sihite, O.B. (2020). The Effect of Implementation Integrated Management System ISO 9001, ISO 14001, ISO 22000 and ISO 45001 on Indonesian Food Industries Performance. *TEST Engineering & Management*. 82.14054 – 14069. <http://www.testmagzine.biz/index.php/testmagzine/article/view/3078>
- [63.] Innocentius Bernarto, Diana Bachtiar, Niko Sudibjo, Ian Nurpatria Suryawan, Agus Purwanto, Masduki Asbari. (2020). Effect of Transformational Leadership, Perceived Organizational Support, Job Satisfaction Toward Life Satisfaction: Evidences from Indonesian Teachers. *International Journal of Advanced Science and Technology*. 29(3). 5495 -5503
- [64.] Andika Putra Wijaya, Innocentius Bernarto, Agus Purwanto. (2020). How to Achieve Value Creation in Digital World? The Influence of IT Response on Value Creation and Customer Satisfaction. *International Journal of Advanced Science and Technology*, 29(3), 6705 - 6715. Retrieved from <http://sersec.org/journals/index.php/IJAST/article/view/7322>
- [65.] Ronald Susilo, Innocentius Bernarto, Agus Purwanto. (2020). Effect of Trust, Value and Atmosphere towards Patient Satisfaction (Case Study on Prema Clay of Wae Laku, Indonesia). *International Journal of Advanced Science and Technology*, 29(3), 6716 - 6723. Retrieved from <http://sersec.org/journals/index.php/IJAST/article/view/7324>
- [66.] Masduki Asbari, Innocentius Bernarto, Rudy Pramono, Agus Purwanto, Dylmoon Hidayat, Ardian Sopa, Virza Utama Alamsyah, Pierre Senjaya, Miyv Fayzhall, Mustofa. (2020). The Effect of work-Family conflict on Job Satisfaction and Performance: A Study of Indonesian Female Employees. *International Journal of Advanced Science and Technology*, 29(3), 6724 - 6748. Retrieved from <http://sersec.org/journals/index.php/IJAST/article/view/7325>

- [67.] Mirza Prameswari, Masduki Asbari, Agus Purwanto, Freddy Ong, Sekundina Williana Kusumaningsih, Anggaripeni Mustikasiwi, Gusli Chidir, Winanti, Ardian Sopa. (2020). The Impacts of Leadership and Organizational Culture on Performance in Indonesian Public Health: The Mediating Effects of Innovative Work Behavior. *International Journal of Control and Automation*, 13(02), 216 - 227. Retrieved from <http://sersec.org/journals/index.php/IJCA/article/view/7630>
- [68.] Hermas Kornelius, Innocentius Bernarto, Anton Wachidin Widjaja, Agus Purwanto. (2020). Competitive Strategic Maneuverability: The Missing Link Between Strategic Planning and Firm's Performance. *International Journal of Advanced Science and Technology*, 29(3), 7413 - 7422. Retrieved from <http://sersec.org/journals/index.php/IJAST/article/view/7612>
- [69.] Nonot Yuliantoro, Vasco Goeltom, Juliana, Innocentius Bernarto, Rudy Pramono, Agus Purwanto, (2020). Repurchase intention and word of mouth factors in the millennial generation against various brands of Boba drinks during the Covid 19 pandemic. *African Journal of Hospitality, Tourism and Leisure*, 8(2), 1-11. https://www.ajhtl.com/uploads/7/1/6/3/7163688/article_42_vol_8_2_2019_indonesia.pdf
- [70.] Vasco Adato H. Goeltom , Yustisia Kristiana , Juliana, Rudy Pramono , Agus Purwanto.(2020). The influence of intrinsic, extrinsic, and consumer attitudes towards intention to stay at a Budget Hotel. *African Journal of Hospitality, Tourism and Leisure*, 8(2), 1-11. https://www.ajhtl.com/uploads/7/1/6/3/7163688/article_43_vol_8_2_2019_indonesia.pdf
- [71.] BUDIANTO, A., SIHOMBING, J., KRISANTI, V. D., JAMIN, S., PRAMONO, R., & PURWANTO, A. (2020). Obligation to Prove Appearer Document Authenticity as Deelneming Claim Exception. *Journal of Advanced Research in Law and Economics*, 9(3), 761. [https://doi.org/10.14505/jarle.v11.3\(49\).08](https://doi.org/10.14505/jarle.v11.3(49).08)
- [72.] Rudyanto, Lyly Soemarni, Rudy Pramono and Agus Purwanto.(2020) The influence of antecedents of supply chain integration on company performance, *Uncertain Supply Chain Management* , 8(4). DOI: 10.5267/j.uscm.2020.5.006. http://www.growingscience.com/uscm/online/uscm_2020_23.pdf
- [73.] Agus Purwanto, Johannes Parlindungan Lumbantobing, Nanang S.Hadisaputra , Donny Setiawan , ohanes Bangun Suryono.(2020). Do ISO 9001:2015 Reinforce Company Performance?Answers from Indonesian Industries, *Management Science Letters*,10(15). 3553–3560 http://www.growingscience.com/msl/Vol10/msl_2020_217.pdf
- [74.] Agus Purwanto, Joko Supono, Puji Rahayu, Henri Ponda, Nur Fadilah Fatma, Mochammad Fahlevi (2020) DEVELOP RISK AND ASSESSMENT PROCEDURE FOR ANTICIPATING COVID-19 IN FOOD INDUSTRIES. *Journal of Critical Reviews*, 7 (15), 1991-2004. doi:10.31838/jcr.07.15.268
- [75.] Nonot Yuliantoro,* Vasco Goeltom, Juliana, Innocentius Bernarto (2019). Repurchase intention and word of mouth factors in the millennial generation against various brands of Bobadrinks during the Covid 19 pandemic . *African Journal of Hospitality, Tourism and Leisure*, Volume 8 (2) - (2019).1-11