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EFFECT ISO 9001:2015, ISO 14001:2015 AND ISO 45001:2018 ON OPERATIONAL PERFORMANCE OF AUTOMOTIVE INDUSTRIES

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ABSTRACT - The purpose of this study was to analyze the effect of implementation ISO 9001: 2015 quality management system, ISO 45001: 2018 occupational safety management system on operational performance. The method used in this study is a quantitative method and data processed by structural equation modeling (SEM) using SmartPLS 3.0 software. Data collection by distributing questionnaires online to 220 managers in automotive industries in Indonesia who have implemented ISO 9001, ISO 14001 and ISO 45001 Questionnaire forms were distributed online and the sampling method using snowball sampling. The results of this study are the application of ISO 9001: 2015 quality management system has a positive and significant relationship to manufacturing performance, the application of ISO 14001: 2015 environmental management system has a positive and significant relationship to operational performance, the application of work safety management system ISO 45001: 2018 has a relationship positive and significant impact on operational performance in automotive industries.
Keywords: ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 , operational performance

I.INTRODUCTION

ISO (International Organization for Standardization) certification is one of the international standards in a management system for measuring organizational quality. This ISO certification has indeed become a standard that is widely used in various countries in the world because it plays an important role in measuring how credible companies want to compete globally. In addition, ISO certification is also one way to improve its quality management system. Until now, the positive influence of ISO certification on companies, both affecting sales and other aspects, there are still many pros and cons. But in the business world, those who have ISO certification will have more chances to win market competition, this certification shows the quality assurance of the products or services offered, as well as consumer confidence in related brands. Based on OSS Certification, ISO certification has several benefits for companies as a standard reference that is increasing company credibility and customer trust, guaranteeing quality with international standards, saving costs to anticipate deteriorating performance, optimizing employee performance, and improving the company's image. These benefits are expected to increase and affect sales.

The era of globalization and industry 4.0 companies can expand worldwide. Various conditions, provisions, and obstacles are eliminated as much as possible so that the mobility of people, goods, and services is more easily accepted. Because of that problem, business competition is getting tougher. Companies are racing to develop products to win the competition. Competition is not only carried out with fellow local businesses, but also cross-border business actors. Product

development alone is not enough to win the hearts of consumers. Other strategies and tactics need to be implemented. A good product is not enough, the market is asking for the best product to meet their needs. Business people can implement various strategies. There are strategies to deal with outside parties, there are also strategies for people within the company. External strategies related to promotion, branding, sales, distribution, and so forth. Unlike the internal strategy, it usually focuses on strengthening the management system. How to make employees productive, active, and creative is one of the questions that must be able to be answered by the company's internal strategy. Another way to strengthen and improve the company's internal performance is to implement The International Standards of Organization (ISO) and has long been known in the international business world. ISO has developed material standards in describing economic and social benefits. It is intended to be known by decision makers and stakeholders, as a concrete example of the value of standards. ISO as an International Standard is a guide and strategic tool to help companies overcome some of the most demanding challenges of modern business. Ensuring that business operations are as efficient as possible, increasing productivity and helping companies access new markets. The benefits of ISO are certainly not only felt by companies, but also clients and customers. The benefits of ISO for the company include helping to optimize operations, thereby increasing the bottom line both during production and marketing. Help improve the quality of goods, increase customer satisfaction and increase sales. Helps prevent trade barriers and open up global markets. Help improve company productivity and competitive advantage. Help reduce the negative impact on the environment.

When referring to research that has been done, several studies have shown that there is a positive impact of ISO certification affecting sales, but those that have no effect. Examples of ISO certification research results that show an influence on sales are research conducted by Forker (1996) with a sample of 65 furniture companies. On the other hand some researchers found that ISO certification did not significantly correlate with company performance both in financial and non-financial aspects. Research that shows no positive impact from ISO certification is research conducted by InakiHeras, Gavin P. M Dick, and Marti Casadessus (2002) with a sample of 400 ISO certified companies and 400 ISO noncertified companies in Spain. This study produces the conclusion that certification is not positively correlated with company profitability. Campailla (2019) The new ISO 45001 standard is expected to provide a significant boost to the growth of the number of companies that have adopted and certified an occupational health and safety (OHS) management system. The structure of the new standard reflects the Annex SL, thus facilitating the organizations in aligning and integrating their management systems. The requirements of the standard lead companies, across the Deming Cycle, to the continuous improvement of OHS performance starting from the essential process of leadership and commitment, through the implementation of the key processes of planning (context analysis, risk assessment, operational planning, and control), of the support processes (communication and participation, competence and awareness of resources, and documentation management) and, finally, the processes of performance evaluation (monitoring, auditing, and management review). The advantages are a full control of compliance obligations, a significant reduction in the injury indexes, a reduction in the associated costs, and an improvement in the corporate image.

ISO 9001: 2015 is a standard for quality management systems, Background Changing ISO 9001: 2008 to ISO 9001: 2015 is an ISO standard that is reviewed every five years to ensure these standards remain up-to-date and in accordance with market needs. Respond to trends the latest and will be aligned with other management systems such as ISO 14001. There is a demand for the use of common language and in line with other standards. Consider risk management to achieve

organizational goals. ISO 14001 (Environmental Management System) is a company management system that serves to ensure that the processes used and the products produced have fulfilled commitments to the environment, especially in the effort to fulfill environmental regulations, pollution prevention and commitment to continuous improvement. The purpose of ISO 14001 is to enable organizations of all types or sizes to develop and implement policies that are committed to being environmentally responsible; such as resource sustainability, pollution prevention, climate change mitigation and minimization of environmental impacts. Benefits of Obtaining ISO 14001 Certificate are specifically for producers, Minimizing potential conflicts between workers and employers in the provision of a decent and healthy work environment and increasing worker productivity through time and cost efficiency Bridging the fulfillment of environmental regulations in a more planned and structured way. Wiser use of natural resources leads to the creation of eco-efficiency. Maintaining an industrial business image that has often been negatively associated with environmental pollution. ISO 14001 certification can help you comply with legal requirements, by provide a systematic approach to meeting current legal requirements and identifying future laws. ISO 14001 can help manage and improve performance in key criteria areas, such as lower energy use dah, waste reduction, increased recycling, and lower costs of raw materials and consumer goods. All of this reduces the need for reactive strategies, such as cleansing and litigation, which can damage reputation and lead to legal proceedings. By being independently assessed against ISO 14001: 2015, it can increase your credibility and provide a competitive advantage over unlicensed businesses when you are invited to enter the tender. ISO 45001 is an International Standard that sets the requirements for occupational health and safety management systems (OH&S), with guidance on their use, to enable an organization to proactively improve OSH performance in preventing injury and ill health. ISO 45001 is intended to be applied to any organization regardless from the size, type and nature. All requirements are intended to be integrated into the organization's own management process. ISO 45001 enables an organization, through its OHS management system, to integrate other aspects of health and safety, increase OHS awareness, evaluate performance & take corrective actions Ensure that workers actively implement OHS, improve their ability to comply with rules and regulations, reduce costs due to accident events, reduce down time and operating costs, reduce insurance costs, reduce absenteeism and employee turnover, International recognition

II. METHOD

The method used in this study is a quantitative method and data processed by structural equation modeling (SEM) using SmartPLS 3.0 software. How to collect data by distributing questionnaires online to 220 managers in automotive industries in Indonesia who have implemented ISO 9001, ISO 14001 and ISO 45001 in an integrated manner (integrated management system). The instrument used to measure all the variables of this study was adapted from (Bogler, 2001), with each variable of 3 (three) items. The questionnaire form is distributed online and the sampling method uses snowball sampling, where each respondent helps spread the online questionnaire to other respondents. Each closed question / statement item is given five answer options, namely: strongly agree (SS) score 5, agree (S) score 4, disagree (KS) score 3, disagree (TS) score 2, and strongly disagree (STS) score 1. The tool for processing data is with PLS and using SmartPLS software version 3.0.

Table 1. Respondents profile

Criteria		Total
Tenure	<5years	82
	5 - 10years	63
	>10years	65
Sector	Metal	73
	Chemical	72
	Rubber	65
Gender	Man	142
	Woman	68

Based on the theoretical studies and previous research above, the research model in Figure 1.the hypothesis of this study as follows:

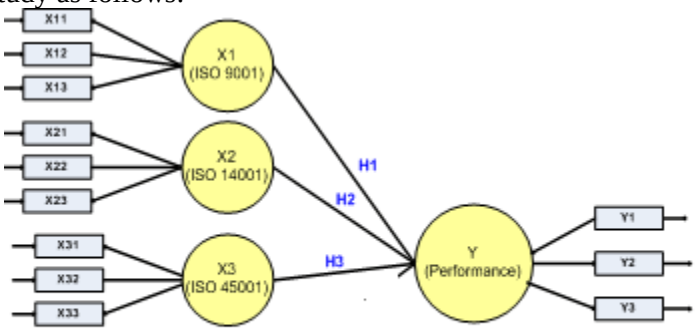

Figure 1. Research Model

H1: ISO 9001: 2015 Implementation has a significant effect on operational performance
H2: ISO 14001: 2015 Implementation has a significant effect on operational performance
H3: ISO 45001: 2018 Implementation has a significant effect on operational performance

III. RESULT AND DISCUSSION

The testing phase of the measurement model includes convergent validity, discriminant validity and composite reliability testing. 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. 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; Hair et al, 2010; Ghozali, 2014). In this study 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 **(Ghozali, 2014).** Based on the estimation results of the PLS model in the picture above, all indicators already have a loading factor value above 0.5 so that the model meets the convergent validity requirements. Apart from looking at the loading factor value of each indicator, convergent validity is also assessed from the AVE value of each construct. AVE value for each contract of this research is above 0.5. So the

convergent validity of this research model meets the requirements. The value of loadings, cronbach's alpha, composite reliability and AVE for each construct can be seen in table 1 below:

Tabel 1. Items Loadings, Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE)

Variables	Items	Loadings	Cronbach's Alpha	Composite Reliability	AVE
ISO 9001	X11	0.664	0.867	0.824	0.653
X1	X12	0.743			
	X13	0.823			
ISO 14001	X21	0.824	0.836	0.824	0.624
X2	X22	0.922			
	X23	0.742			
ISO 45001	X31	0.824	0.924	0.947	0.722
X3	X32	0.842			
	X33	0.842			
Performance	Y1	0.912	0.924	0.957	0.814
Y	Y2	0.923			
	Y3	0.831			

Discriminant validity 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 (the value on the diagonal) exceeds the correlation between the construct and the other construct (values below the diagonal) (Ghozali, 2014). The results of discriminant validity testing using AVE squared values are obtained as follows:

Tabel 2. Item Loading and Cross-Loading

	Performance	ISO 9001	ISO 14001	ISO 45001
Y1	**0.9**37	713	0.646	0.257
Y2	**0.940**	0.432	0.443	0.390
Y3	**0.906**	0.604	0.546	0.501
X11	0.390	**0.8**37	0.334	0.257
X12	0.337	**0.887**	0.181	0.099
X13	0.403	**0.809**	0.336	0.305
X21	0.359	0.411	**0.657**	0.273
X22	0.488	0.422	**0.700**	0.473
X23	0.476	0.427	**0.891**	0.461
X31	0.420	0.349	0.494	**0.868**
X32	0.464	0.363	0.520	**0.919**
X33	0.391	0.320	0.481	**0.769**
X41	0.403	0.809	0.336	0.305
X42	0.359	0.411	0.657	0.273
X43	0.488	0.422	0.700	0.473

Tabel 3. Discriminant Validity

Variables	Y	X1	X2	X3
Y	**0.898**			
X1	0.772	**0.845**		
X2	0.736	0.781	**0.786**	
X3	0.303	0.330	0.471	**0.797**

The results of the discriminant validity test in table 3 above show that all constructs have AVE square root values above the correlation value with other latent constructs (through the Fornell-Larcker criteria) so that it can be concluded that the model meets the discriminant validity.

Construction Reliability Testing

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.

Hypothesis test

Hypothesis testing in PLS is also called the inner model test. This test includes a test of the significance of direct and indirect effects and measurement of the magnitude of the influence of exogenous variables on endogenous variables. To find out the effect of transformational leadership and transactional leadership on teacher work perceptions and teacher job satisfaction requires a direct and indirect influence test. The influence 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 boothstrapping technique, R Square values and significance test values are obtained as in the table below:

Table 4. Nilai*R Square*

	R Square	R Square Adjusted
Y	0.654	0.664

Table 5. Hypotheses Testing

Hypotheses	Relationship	Beta	SE	T Statistics	P-Values	Decision
H1	X1 ->Y	0.360	0.068	5.238	0.000	Supported
H2	X2 ->Y	0.421	0.078	5.144	0.000	Supported
H3	X3 ->Y	0.532	0.075	5.267	0.000	Supported

Based on the table above, the value of R Square Y (performance) is 0.654, which means that the Performance variable (Y) can be explained by the variables ISO 9001 (X1), ISO 14001 (X2), ISO 45001 (X3) of 65.4%, while the remaining 34.6% is explained by other variables not discussed in this study. While the table displays T Statistics and P-Values which show the influence between the research variables that have been mentioned.

Relationship of ISO 9001: 2015 (X1) to operational performance (Y)

Based on data analysis, beta values of 0.360, t-statistic of 5,238 and p value of 0,000 are obtained so that it can be concluded that the independent ISO 9001: 2015 (X1) quality management system has a positive and significant relationship to manufacturing performance (Y). This means that implementing ISO 9001: 2015 will improve manufacturing performance. This result is in line with research conducted by Santoso (2019) which states that the ISO 9001: 2015 quality management system has a positive and significant effect on company performance, by implementing an ISO 9001: 2015 quality management system will improve company performance. This result was also supported by Asbari (2019) who stated that the ISO 9001: 2015 quality management system had a positive and significant effect on employee performance, by implementing an ISO 9001: 2015 quality management system would improve employee performance. Hutagalung (2020) which concluded that the ISO 9001: 2015 quality management system has a positive and significant effect on manufacturing performance, by implementing an ISO 9001: 2015 quality management system will improve manufacturing performance and also Purwanto (2020) states that the ISO 9001 quality management system: 2015 has a positive and significant effect on organizational performance, by implementing a quality management system ISO 9001: 2015 will improve organizational performance.

Relationship of ISO 14001: 2015 (X2) on operational performance (Y)

Based on the analysis of the data obtained a beta value of 0.421, a t value of statistics of 5.144 and p value of 0.000 and it can be concluded that the independent variable ISO 14001: 2015 (X2) has a positive and significant relationship to manufacturing performance (Y). This means that the application of ISO 14001: 2015 environment management system will improve manufacturing performance. These results are in line with research conducted by Asbari (2019) which states that the ISO 14001: 2015 quality management system has a positive and significant effect on company performance, by implementing a ISO 14001: 2015 quality management system will improve company performance. This result was also supported by Purwanto (2019) who stated that the ISO 14001: 2015 quality management system had a positive and significant effect on employee performance, by implementing an ISO 14001: 2015 environmental management system would improve employee performance. Purwanto (2020) which concluded that the environmental management system ISO 14001: 2015 has a positive and significant effect on manufacturing performance, by implementing an ISO 14001: 2015 environmental management system will improve manufacturing performance and also Hutagalung (2020) states that the environmental management system ISO 14001: 2015 has a positive and significant effect on organizational performance, by implementing an environmental management system ISO 14001: 2015 will improve organizational performance.

Relationship of ISO 45001: 2018 (X3) on operational performance (Y)

Based on data analysis, beta value of 0.532, t value of statistics is 5.267and p value is 0.000, and it can be concluded that the independent variable of the safety management system of ISO 45001: 2018 (X3) has a positive and significant relationship to manufacturing performance (Y). This means that the application of ISO 14001: 2015 environment management system will improve manufacturing performance. This result is in line with research conducted by Hutagalung (2020) which states that the ISO 45001: 2018 occupational safety management system has a positive and significant effect on company performance, by implementing an ISO 45001: 2018 occupational safety management system will improve company performance. This result was also supported by Asbari (2019) who stated that the work safety management system ISO 45001: 2018 had a positive and significant effect on employee performance, by implementing an ISO 45001: 2018 work safety

management system would improve employee performance. According to Santoso (2020) which concluded that the work safety management system ISO 45001: 2018 has a positive and significant effect on manufacturing performance, by implementing an ISO 45001: 2018 work safety management system will improve manufacturing performance and also Purwanto (2020) states that the safety management system ISO 45001: 2018 work has a positive and significant effect on organizational performance, by implementing an occupational safety management system ISO 45001: 2018 will improve organizational performance.

According Chiarini (2016) ISO 9001 could improve performances in terms of effectiveness, such as citizens' satisfaction, reduction of defectiveness and claims, as well as staff awareness of citizens' needs. Moreover, ISO 9001 seems to have a negative effect on citizens' participation, internal communication and teamwork as well as cost reduction. Controversial issues related to the bureaucracy of documentation and the external auditing process emerged. Kakouris (2018) the certified companies in the F&B industry gain a number of both internal and external benefits, including: quality awareness, increased productivity, increased personnel participation and efficiency, improved image and penetration into new markets. Regarding the financial benefits of certification, the findings are not as convincing, as one company reported no financial benefits, and the rest reported that financial benefits are indirect and intangible. Conclusively, it can be said that SMEs that wish to pursue certification should certainly expect benefits. Psomas (2015) four performance dimensions reflecting ISO 9001 benefits are extracted and validated, namely, product/service quality, operational, market and financial performance. Psomas (2013) the dimensionality of the ISO 9001 effectiveness (evaluated by the degree of achievement of the standard's objectives, namely prevention of nonconformities, continuous improvement and customer satisfaction focus) and reveal its significant contribution to the performance of the service companies. The product/service quality and operational performance of the service companies are directly and significantly influenced by ISO 9001 effectiveness. However, the financial performance is directly influenced only by operational performance, while the impact of ISO 9001 effectiveness is indirect through its significant correlation with operational performance Starke 92012) ISO 9000 certification is found to be associated with an increase in sales revenues, decrease in cost of goods sold/sales revenue and increase in the asset turnover ratios of the certified firms. Ochieng (2015) ISO 9001 certification influenced return on net assets of the organizations thereby influencing their performance. There was significant differences in net asset value among organizations with ISO 9001 certification and those that did not possess the certification. On profit and revenue, there were no significant differences between the ISO 9001 certified and non-certified organizations. Tzelepis (2006) the study provide strong evidence that ISO 9000 implementation is highly associated with improvements in overall financial performance. Moreover, it was found that ISO implementation is directly associated with significant improvements in quality awareness, operations execution, market share, customer satisfaction and sales revenue. Finally, customers' demand was not found to be the most important motivation for implementing an ISO certification. Rather, it seems that companies seek for quality improvement due to internal motives. ISO 9001 operates as a factor affecting technical inefficiency with non-neutral effects on capital and labor. The combined effect of ISO 9001 with capital increases the level of technical inefficiency reflecting adjustment costs incurred when ISO 9001 is adopted. The combined effect of ISO 9001 with labor decreases the level of technical inefficiency reflecting the positive result of ISO 9001 on reducing x-inefficiency.

IV. CONCLUSION

Based on the analysis of the discussion it was concluded that the application of ISO 9001: 2015 quality management system has a positive and significant relationship to manufacturing performance, the application of ISO 14001: 2015 environmental management system has a positive and significant relationship to manufacturing performance, the application of work safety management system ISO 45001: 2018 has positive and significant relationship to manufacturing performance and the application of food safety management systems ISO 22000: 2018 has a positive and significant relationship to manufacturing performance. The importance of having an ISO certificate for companies can be seen from several benefits. To gain customer trust, no matter how big a company is, if it has not been ISO certified, then the taste is incomplete. Like eating without side dishes, something is lacking. Because modern society or customers are smart. They will choose a quality company. Promising marketing prospects, Marketing or marketing will have more promising prospects, because it will attract more and more consumers. Efforts to increase company profits are not difficult anymore. The implementation of the strategy is also smoother, because we can carry out the strategy comfortably under the ISO certificate. The quality of promotion is better, What consumers see when they get promotional info is whether there is an ISO certificate obtained. Like soap companies that have ISO certificates, the certificates will be stated on the packaging. Although tucked in the top corner, but never escape the user's attention. Save on company operating costs because the managerial system is supervised directly by experts, thereby minimizing poor company performance. Like a system done before, if poor performance will affect the addition of operating costs. Not profit, but loss. Spur company performance to be better in order to improve quality and maintain existing achievements This right will be associated with improving the quality of employees as well. Where employees are the managers. If the management continues to develop its quality, it will also have a positive impact on the company. Improving the company's image to be even better Where the face of the company that has been decorated with ISO certificates will make it more radiant and confident. Dare to provide quality assurance in an international standard, where the company's products have been tested and supervised by experts. Guaranteed consumers will not be disappointed. So many benefits of ISO certificates for the company. For this reason, for companies that do not yet have an ISO certificate, it would be better if they take care of it immediately. By using ISO services for example, all management will be easier. Just visit the website, then find lots of information. Follow the procedure and get an ISO certificate as soon as possible.

V. REFERENCES

1. Almeida, D., Pradhan, N. and Muniz Jr, J. (2018), "Assessment of ISO 9001:2015 implementation factors based on AHP: Case study in Brazilian automotive sector", *International Journal of Quality & Reliability Management*, Vol. 35 No. 7, pp. 1343-1359. https://doi.org/10.1108/IJQRM-12-2016-0228
2. Asbari, M., & Santoso, P. (2020). Effect of Integrated Management System of ISO 9001:2015 and ISO 22000:2018 Implementation To Packaging Industries Quality Performance at Banten Indonesia. JurnalIlmiah MEA (Manajemen, Ekonomi, &Akuntansi), 4(1), 17-31. https://doi.org/10.31955/mea.vol4.iss1.pp17-31
3. Chiarini, A. (2017), "Risk-based thinking according to ISO 9001:2015 standard and the risk sources European manufacturing SMEs intend to manage", *The TQM Journal*, Vol. 29 No. 2, pp. 310-323. https://doi.org/10.1108/TQM-04-2016-0038

4. Santoso, P., & Purwanto, A. (2019). Influence of Leadership, Motivation, Competence, Commitment and Culture on ISO 9001:2015 Performance in Packaging Industry, Scholars Journal of Economics, Business and Management, 6(12): 577-582. DOI: http://doi.org/10.36347/sjebm.2019.v06i12.005
5. Agus Purwanto, Johannes ParlindunganLumbantobing, NanangS.Hadisaputra , Donny Setiawan , johanesBangunSuryono.(2020). Do ISO 9001:2015 Reinforce Company Performance?Anwers from Indonesian Industries,Management Science Letters,10(15). 3553–3560http://www.growingscience.com/msl/Vol10/msl_2020_217.pdf
6. Kartika, H., & Setia Bakti, C. (2020). Analysis of 6004-2RSL SKF Bearing Inventory By Economic Order Quantity (EOQ) Method in Spart Part Division. *Journal of Industrial Engineering & Management Research*, *1*(1), 17-27. https://doi.org/10.7777/jiemar.v1i1.19
7. Agus Purwanto, Yan Kurnia Hadi, RusmanZaenalAbidin, Suhendra, RommyFebriPrabowo, OctoberryJulyanto (2020) EXPLORING IMPECT OF OCCUPATIONAL HEALTH AND SAFETY ISO 45001 IMPLEMENTATION ON EMPLOYEE PERFORMANCE: EVIDENCE FROM INDONESIAN INDUSTRIES. Journal of Critical Reviews, 7 (15), 1981-1990. doi:10.31838/jcr.07.15.267
8. Hutagalung,L.,Yanthy,.E.,(2020). FOOD SAFETY MANAGEMENT LEADERSHIP STYLE: TRANSFORMATIONAL OR TRANSACTIONAL?.JurnalEkonomiManajemen.14(2).171-182.
9. Purwanto, A. (2020). Design of Food Product Using Quality Function Deployment in Food Industry. *Journal of Industrial Engineering & Management Research*, *1*(1), 1-16. https://doi.org/10.7777/jiemar.v1i1.20
10. Fahmi, K., Mustofa, A., Rochmad, I., Sulastri, E., Wahyuni, I. S., & Irwansyah, I. (2021). The Effect of Six Sixma on Quality, Innovation Capability and Work Productivity of Tyre Industries. *Journal of Industrial Engineering & Management Research*, *2*(1), 1 - 12. https://doi.org/10.7777/jiemar.v2i1.109
11. Hadidi, L., Assaf, S., Aluwfi, K. and Akrawi, H. (2017), "The effect of ISO 9001 implementation on the customer satisfaction of the engineering design services", *International Journal of Building Pathology and Adaptation*, Vol. 35 No. 2, pp. 176-190. https://doi.org/10.1108/IJBPA-01-2017-0004
12. Murmura, F. and Bravi, L. (2017), "Empirical evidence about ISO 9001 and ISO 9004 in Italian companies", *The TQM Journal*, Vol. 29 No. 5, pp. 650-665. https://doi.org/10.1108/TQM-11-2016-0097
13. 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://sersc.org/journals/index.php/IJCA/article/view/4834
14. Suwandi, S., & Hari Hadi, A. (2020). Value Analysis Method For Cost Reduction Analysis of Fuel Filter Poducts at PT Duta Nichirindo Pratama. *Journal of Industrial Engineering & Management Research*, *1*(1), 28-36. https://doi.org/10.7777/jiemar.v1i1.22
15. Babatunde, Y. and Sui Pheng, L. (2015), "TQM implementation through ISO 9001: findings from Chinese construction firms in Nigeria", *The TQM Journal*, Vol. 27 No. 6, pp. 671-682. https://doi.org/10.1108/TQM-06-2015-0076
16. Purwanto, A. ,Putri,R.S,. ArmanHj. 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

17. Sweis, R.J., Saleh, R.A., Sharaireh, Y. and Moarefi, A. (2019), "An investigation of the satisfaction of project managers and team members: A comparative study between ISO 9001-certified and non-ISO 9001-certified project based companies in Jordan", *International Journal of Quality & Reliability Management*, Vol. 36 No. 5, pp. 708-734. https://doi.org/10.1108/IJQRM-03-2018-0071
18. Tomic, B. and Spasojevic Brkic, V.K. (2019), "Customer satisfaction and ISO 9001 improvement requirements in the supply chain", *The TQM Journal*, Vol. 31 No. 2, pp. 222-238. https://doi.org/10.1108/TQM-07-2017-0072
19. Setia Bakti, C., & Kartika, H. (2020). Analysis of Ice Cream Product Quality Control With Six Sigma Method. *Journal of Industrial Engineering & Management Research*, *1*(1), 63-69. https://doi.org/10.7777/jiemar.v1i1.29
20. Wilson, J.P. and Campbell, L. (2016), "Developing a knowledge management policy for ISO 9001: 2015", *Journal of Knowledge Management*, Vol. 20 No. 4, pp. 829-844. https://doi.org/10.1108/JKM-11-2015-0472
21. Orcos, R. and Palomas, S. (2019), "The impact of national culture on the adoption of environmental management standards: The worldwide diffusion of ISO 14001", *Cross Cultural & Strategic Management*, Vol. 26 No. 4, pp. 546-566. https://doi.org/10.1108/CCSM-10-2018-0168
22. Heras-Saizarbitoria, I., Arana Landín, G. and Molina-Azorín, J.F. (2011), "Do drivers matter for the benefits of ISO 14001?", *International Journal of Operations & Production Management*, Vol. 31 No. 2, pp. 192-216. https://doi.org/10.1108/01443571111104764
23. Eng Ann, G., Zailani, S. and Abd Wahid, N. (2006), "A study on the impact of environmental management system (EMS) certification towards firms' performance in Malaysia", *Management of Environmental Quality*, Vol. 17 No. 1, pp. 73-93. https://doi.org/10.1108/14777830610639459
24. Radonjič, G. and Tominc, P. (2006), "The impact and significance of ISO 14001 certification on the adoption of new technologies: The case of Slovenia", *Management of Environmental Quality*, Vol. 17 No. 6, pp. 707-727. https://doi.org/10.1108/14777830610702539
25. Paulraj, A. and de Jong, P. (2011), "The effect of ISO 14001 certification announcements on stock performance", *International Journal of Operations & Production Management*, Vol. 31 No. 7, pp. 765-788. https://doi.org/10.1108/01443571111144841
26. Searcy, C., Morali, O. and Karapetrovic, S. (2012), "An analysis of ISO 14001 and suggested improvements", *Journal of Global Responsibility*, Vol. 3 No. 2, pp. 278-293. https://doi.org/10.1108/20412561211260566
27. Zeng, S.X., Tian, P. and Shi, J.J. (2005), "Implementing integration of ISO 9001 and ISO 14001 for construction", *Managerial Auditing Journal*, Vol. 20 No. 4, pp. 394-407. https://doi.org/10.1108/02686900510592070
28. Campailla, C., Martini, A., Minini, F. and Sartor, M. (2019), "ISO 45001", Sartor, M. and Orzes, G. (Ed.) *Quality Management: Tools, Methods, and Standards*, Emerald Publishing Limited, pp. 217-243. https://doi.org/10.1108/978-1-78769-801-720191014
29. Hemphill, T.A. and Kelley, K.J. (2016), "Socially responsible global supply chains: The human rights promise of shared responsibility and ISO 45001", *Journal of Global Responsibility*, Vol. 7 No. 2, pp. 163-180. https://doi.org/10.1108/JGR-05-2016-0013

30. Coletto, M. and De Monte, T. (2019), "ISO 9000 Quality Standards", Sartor, M. and Orzes, G. (Ed.) *Quality Management: Tools, Methods, and Standards*, Emerald Publishing Limited, pp. 187-198. https://doi.org/10.1108/978-1-78769-801-720191012
31. Kafetzopoulos, D., Gotzamani, K. and Psomas, E. (2013), "Quality systems and competitive performance of food companies", *Benchmarking: An International Journal*, Vol. 20 No. 4, pp. 463-483. https://doi.org/10.1108/BIJ-08-2011-0065
32. Escanciano, C. and Leticia Santos-Vijande, M. (2014), "Implementation of ISO-22000 in Spain: obstacles and key benefits", *British Food Journal*, Vol. 116 No. 10, pp. 1581-1599. https://doi.org/10.1108/BFJ-02-2013-0034
33. Gianni, M., Gotzamani, K. and Vouzas, F. (2017), "Food integrated management systems: dairy industry insights", *International Journal of Quality & Reliability Management*, Vol. 34 No. 2, pp. 194-215. https://doi.org/10.1108/IJQRM-05-2015-0076
34. Chiarini, A. (2016), "Strategies for improving performance in the Italian local government organizations: Can ISO 9001 really help?", International Journal of Quality & Reliability Management, Vol. 33 No. 3, pp. 344-360. https://doi.org/10.1108/IJQRM-03-2014-0038
35. Kakouris, A.P. and Sfakianaki, E. (2018), "Impacts of ISO 9000 on Greek SMEs business performance", International Journal of Quality & Reliability Management, Vol. 35 No. 10, pp. 2248-2271. https://doi.org/10.1108/IJQRM-10-2017-0204
36. Psomas, E. and Pantouvakis, A. (2015), "ISO 9001 overall performance dimensions: an exploratory study", The TQM Journal, Vol. 27 No. 5, pp. 519-531. https://doi.org/10.1108/TQM-04-2014-0037
37. Psomas, E.L., Pantouvakis, A. and Kafetzopoulos, D.P. (2013), "The impact of ISO 9001 effectiveness on the performance of service companies", Managing Service Quality: An International Journal, Vol. 23 No. 2, pp. 149-164. https://doi.org/10.1108/09604521311303426
38. Starke, F., Eunni, R.V., Manoel Martins Dias Fouto, N. and Felisoni de Angelo, C. (2012), "Impact of ISO 9000 certification on firm performance: evidence from Brazil", Management Research Review, Vol. 35 No. 10, pp. 974-997. https://doi.org/10.1108/01409171211272697
39. Ochieng, J., Muturi, D. and Njihia, S.N. (2015), "The impact of ISO 9001 implementation on organizational performance in Kenya", The TQM Journal, Vol. 27 No. 6, pp. 761-771. https://doi.org/10.1108/TQM-06-2015-0071
40. Tzelepis, D., Tsekouras, K., Skuras, D. and Dimara, E. (2006), "The effects of ISO 9001 on firms' productive efficiency", International Journal of Operations & Production Management, Vol. 26 No. 10, pp. 1146-1165. https://doi.org/10.1108/01443570610691111