MANAGEMENT

INTEGRATION MANAGEMENT SYSTEM DESIGN

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Abstract. Industrial Sector of Oil and Gas is a strategic point for Indonesia Economical Condition. The purpose of the paper is to design integration model system of Sistem SNI ISO 27001:2013, SNI ISO 37001:2016, SNI ISO 9001:2015, SNI ISO 20400:2017, and ISO 50001:2018 within PAS 99:2012 on Special Task Force for oil and Gas business activities and to identify its dominant factor. This paper presents quantitative-qualitative research with descriptive approach and the analysis of SEM LISREL 8.8. It was started with making a background of study and formulating research problem along with the purpose of analysis and then spreading questionnaire to respondents. The clause of management system is identified and the characteristic features of each management system are descriptively explained in the paper. The result of this analysis determined the structure of SNI ISO 27001:2013 and SNI ISO 37001:2016 as the main standard because Special Task Force of Oil and Gas has been applied that standard. Based on the result, it can be concluded that the significant level of questionnaire results is PAS 99: 2012 from the Integration Management system is obtaining the highest SL value in clause 7 at 0.99. According to PAS 99: 2012, clause 7 is a factor that supports the Integration Management System.

Keywords: SEM LISREL, Integration Management System, Industrial Sector.
JEL Classification: P41, P00.

INTRODUCTION

The fourth industrial revolution caused a big change on some sector which is related to information technology and communication. Industrial 4.0 is solution to overcome a dynamic global situation which has the quality of VUCA (volatile, uncertain, complex and ambiguous) (Tijiani, 2014). To accelerates the implementation of industrial 4.0. Indonesian government make new policy of "Making Indonesia 4.0" which bring the future industrial development within every important aspect such as industrial government, entrepreneur, technological related companies and others in order to make Indonesia able to enter global range competition (Boelsma, 2013). Industrial sector of oil and gas is the most strategic sector for Indonesian economic condition. Therefore, it will be important to support and strengthen the position of oil and gas industrial sector to compete on international range. Based on the supply condition of goods and services, the upstream oil and

gas sector has been obtain around US$8 million in 2019 which include every important parties on national and international range (Lestari, 2015). It needs a good strategy to manage oil and gas resource because it included as non-renewable natural resources in Indonesia.

Thus, it needs a strategy and organization management to obtain sustainability in oil and gas sector for long-term period and avoid an excessive exploitation

LITERATURE REVIEW

Organizational management system of oil and gas sector has to be able to apply the current system of professional management practice (Irhoma, 2017). Efficient and effective practice within the basic rule of Good Corporate Governance (GCG) in order to make a good quality development of oil and gas industrial sector. As the effort to deal with uncertainty in this sector such as fluctuation, new trend and field condition, it needs an improvement on management strategic role of goods and services supply that can create multiplier effect in economic, social and environment aspects. Integrated design of model system which involves management system that exist in information security management systems and anti-bribery systems along with sustainability management quality systems, and system management energy expected to gain more strength and improve the effectiveness of supervision in upstream oil and gas sector which is faster, prudent and adjust international best practice (Pudyantoro, 2012). Thus, it will not only improve the competitiveness of oil and gas sector but also can make this industrial sector can maintain their position and anticipate any uncertainty. The elements taken in related literature from the past ten years are classified into six pillars including: a company's sustainability strategy; corporate governance; management of Human Resources; knowledge and innovation management; independent measurement, disclosure and guarantee; and integrated management and management systems (Nunhes, Bernardo and José de Oliveira, 2020). The trend in energy management places the focus on reducing overall electricity costs without limiting peer consumption by determining to cut power consumption during peak hours (Pawar and Vittal K, 2019). Knowing the needs and objectives of stakeholders will carry out a far more accurate review of the conditions in which the company currently operates and will operate in the future (Kania & Spilka, 2016). An integrated management system is introduced, namely when the company wants to meet the conformity of various norms with the aim of reducing the number of documents, the time needed for assessment and costs in system construction and maintenance (Jurčević, 2019).

Based on the explanation above, in the effort on adjust with the condition of VUCA (volatile, uncertain, complex and ambiguous) in industrial revolution of 4.0 and it support to obtain "Making Indonesia 4.0" through infrastructural development of national digital and accommodate the sustainability standard, thus, there are a lot of problems which need to be resolved in oil and gas industrial sector (Donwa, Mgbame and Julius, 2015). Oil and gas industrial has to be adjusted and bring as much as possible advantages for citizen prosperity and it is related to regulation in 1945 constitution. Country income within the sector of oil and gas has to be used based on its function to improve citizen prosperity whether it for current era or for the future generation. Therefore, it needs the change on paradigm of making an effort to improve oil and gas sector should be started with improving the quality of organizational work become efficient and effective on maintain their sector and overcome all the problem occurred regarding business progress. Some studies argue that it's the most an important difficulty is the lack of specialized external consultants (Abad, Cabrera and Medina, 2016).

METHODOLOGY

Analysis based on nonparametric tests to detect differences in the distribution of perceived difficulties across groups of firms grouped according to strategic choices and business size (Abad et al., 2016). This analysis has a purpose to design integration model system of Sistem SNI ISO

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27001:2013, SNI ISO 37001:2016, SNI ISO 9001:2015, SNI ISO 20400:2017, and ISO 50001:2018 within PAS 99:2012 on Special Task Force for oil and Gas business activities and identified it dominant factor.
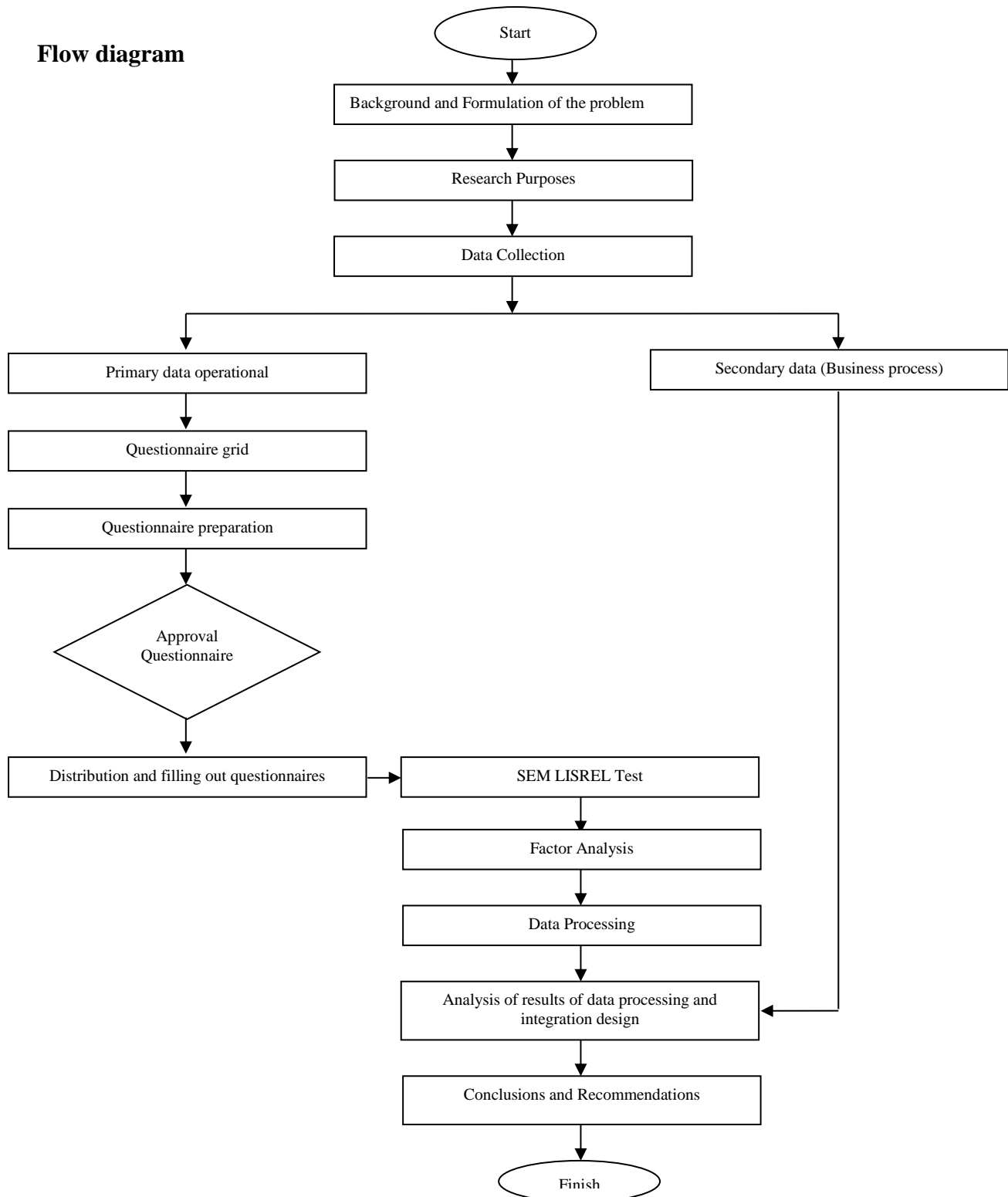
Flow diagram

Figure 1. Analysis Flow Diagram

Source: Own compilation

1. **Data Collection**

The respondents of the research conducted are the decision makers on SKK Migas with a total of 311 employees with positions from manager level to management level. A manager is someone who collaborates with others by organizing their activities together to realize the company's goals. But if viewed from the side of the management level or management level which can be divided into three levels of management according to their functions and duties, namely: 1. Top management (top level management); 2. Middle Level of Management. 3. First level management (low Level Management) (Akuntansi and Manajemen, 2015). This sampling consideration is carried out because currently there is no implementation of SNI ISO 20400: 2017, so it takes the perspective of decision makers on the plan to design a sustainable procurement system of ISO 20400: 2017 in SKK Migas. In this section 217 samples were taken determined by the KREJCIE and MORGAN formulas where the sampling method was determined using stratified sampling (P.D, 2014)

2. **Data Processing**

In this analysis, the data processed by SEM LISREL 8.8 using clauses data which is the result of simplification on some statements included through the program of LISREL. This clauses data used is the result from simplification of *second-order* to *first-order* Analysis factor of the taken data. The clauses in this model are actually rearranged by indicators, but due to model problems that are too complex, the indicators are merged into just one clause.

RESULT AND DISCUSSION

The result of SEM analysis using clause data is the result of simplification on some statements of LISREL program. It can be said that this data processed result which is better because the value of Goodness-of-Fit model has RMSEA (Root Mean Square Error of Approximation) under 0.08. The problem of missing data has been overcome by the imputation method, whereas for normality problems it is possible that the assumption of normality cannot be fulfilled because the data used has an ordinal scale (so that the assumption of normality can be met with minimal data having interval scale). To overcome this problem of normality, the Central Limit Theorem is used, a theory which states that data of any scale will have a distribution similar to the normal distribution when the amount of data increases. The data used in this study amounted to about 270, so it can be said to be very large and the Central Limit Theorem can be applied

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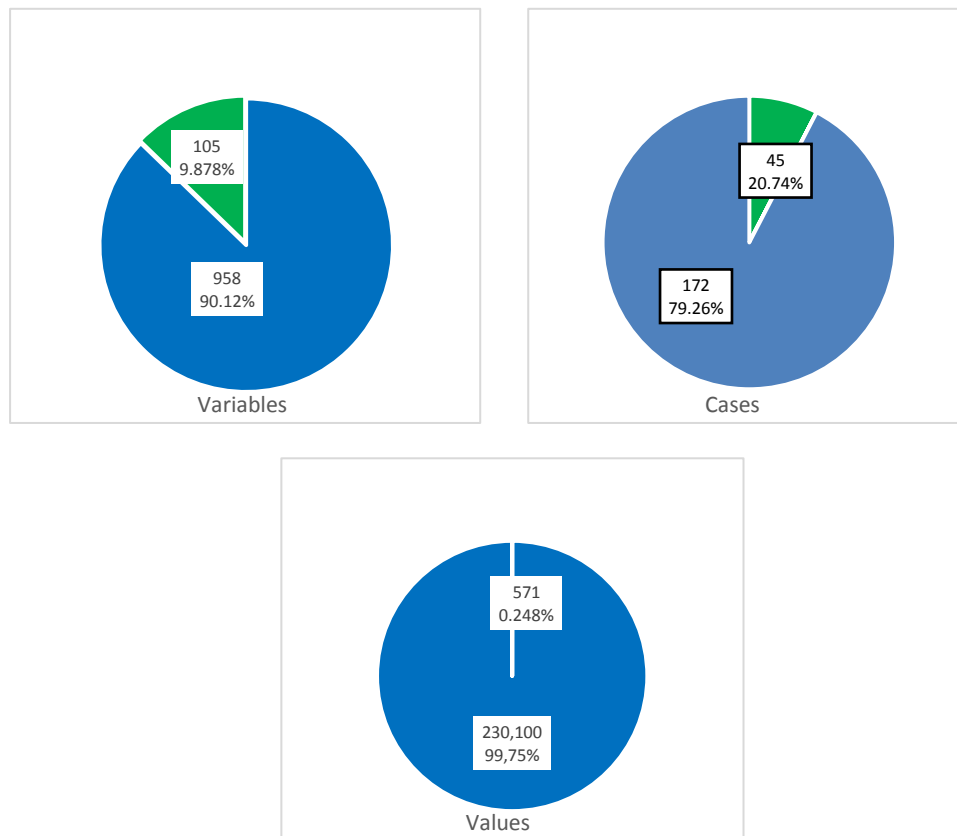
Overall Summary of Missing Values

Figure 2.Missing Data Condition

Source: Own compilation

It can be seen that from 172 respondents at least 45 respondents has a missing data, while overall, there are 571 empty data points. Data handling was done by imputation method (alternate the median value). Every missing point will be filled with median of each variable. This process was done by Hmisc package on R program. *Standardized Loading* value obtained from the relation value of clauses variable and latent variable. Generally, this value obtained around -1 to 1, negative value identified negative relation and positive value identified positive relation. A value close to absolute 1 indicates the strength of relation got higher because if there are clauses variable with the small standardize loading value inside the model, it affected the result of reliability and validity test, and it will affect the number of Composite Reliability and Average Variance Extracted value, and the observation will obtain a bad conclusion. Besides, Standardized Loading value, there are another aspect which needs to be noticed is t-test value, because this value will be decided if clauses variable significant has statistical related or not. What it means by significant here, clauses variable has systematic variable with latent variable. Clauses variable with the high standardized loading value is not always significant; therefore, t-test value has to be observed at the first place before concluding Standardized Loading Value of Clauses Variable.

Symbol (*) inside Significant value indicated significant *Standardized Loading* value on error level of 5%, and the value of t-test is higher than 1.96.

Table 1 Standardized Loading (SL)

Integration Management System PAS 99:2012

Clauses	SL	T-test	Significant
PAS.4	1.00	22.56	
PAS.5	0.85	97.20	*
PAS.6	0.99	32.62	*
PAS.7	0.92	31.29	*
PAS.8	0.77	17.68	*
PAS.9	0.91	31.29	*
PAS.10	0.90	29.52	*

Source: Own compilation

Validity test was done to test indicator variable and its ability to measure latent variable in a good way. The value used in this test is the value of Average Variance Extracted (AVE). AVE value has number around 0 to 1, a value close to 1 indicated the higher validity level. Based on the standard, a good AVE value is higher than 0.5 (> 0.5). If validity level is low, it indicated that not all of indicator variable of latent variable have different latent variable, thus it need further observation to look over that occurred different variable (such as using factor analysis). Reliability test was done to test reliability level of indicator variable. Reliability level is consistent measurement of questionnaire content / indicator to measure latent variable. And what it means by consistency here means distributed questionnaire and it question that being asked to respondent will obtain the same answer even it being asked several times to the same person. The value used as the content of reliability test is Composite Reliability (CR). CR value has number around 0 to 1, closer the value to 1, it means better reliability level. Based on it literary standard, a good value CR is higher than 0.7 (> 0.7).

The result of integration factor analysis PAS 99:2012 based on data processing using SPSS 24, explained as the table below:

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Analysis Factor SPSS 24

Factor Analysis		
SNI ISO Standard ╱ ╱ ╱ SPSS 24 Result	Factor	Statement
PAS 99:2012	2	93

Source: Own compilation

The result of factor analysis based on the table of rotate component matrix, researcher using the highest value 0.5 and deleted some variable because it did not meet the standard. To obtain the result of factor analysis, it was done by SPSS 24 which is PAS 99:2012 that obtain 2 factors within 93 questions.

Discussion

The dominant factor and the design of the Integration Management system, namely from 311 respondents and 271 respondents who returned the questionnaire. This amount include as enough according to minimum amount of respondents is 120 people. This integration management system design based on SEM used the clauses data which is obtained by the result on simplified the statements from LISREL 8.8 programs. The result will be explained as below. The elements taken in related literature from the past ten years are classified into six pillars including: a company's sustainability strategy; corporate governance; management of Human Resources; knowledge and innovation management; independent measurement, disclosure and guarantee; and integrated management and management systems.

It is known that those analysis results considered as good enough because the value of Goodness-of-Fit model RMSEA (Root Mean Square Error of Approximation) is under 0.08. This integration management system design based on SEM used the clauses data which is obtained by the result on simplified the statements from LISREL 8.8 program. It is known that those analysis results considered as good enough because the value of validity on management system quality obtained the AVE value of 0,84 and considered as valid, reliability test result obtained the value of 0,97 which considered as reliable. Furthermore, the result of suitable Model can be seen as written on the table below:

Table 3

Suitable Integration Management System test

Indicator	Criteria Value	Threshold	Conclusion
Chi-Square (p-value)	0.00	> 0.05	Unsuitable
RMSEA	0.09	< 0.08	Unsuitable
SRMR	0.04	< 0.05	Suitable
NFI	0.88	> 0.90	Unsuitable
CFI	0.91	> 0.90	Suitable

Source: Own compilation

Explanation:
Chi-Sq   : Chi-Square Test
RMSEA   : Root Mean Square Error of Approximation
NFI   : Normed Fit Index
CFI   : Comparative Fit Index
SRMR   :   Standardized   Root   Mean   Square   Residual

Based on the table, RMSEA value and NFI value are close to the standard it can be said that those values considered as Marginal Fit. Actually, overall observation can be said as fit, besides the standardized loading, it only need to pay attention on the value of t-test, because this value will determine whether indicator variable significantly statistic or not. Significant means indicator variable has systematic relation with latent variable. Indicator variable within the high standardized loading value is not always significant, therefore t-test need to be observed first before obtain a significant standardized loading of indictor variable. Symbol (*) in significant column indicated that Standardized Loading value has an error level of 5%, and it t-test more than 1.96

Table 4

Standardized Loading (SL) of Integration Management System PAS 99:2012

Clauses	SL	T-test	Significant
PAS4	0.86		
PAS 5	0.90	19.20	*
PAS 6	0.96	22.21	*
PAS 7	0.99	23.82	*
PAS 8	0.84	16.52	*
PAS 9	0.93	20.40	*
PAS 10	0.92	19.92	*

Source: Own compilation

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It can be seen on the column of clause 7 that obtain the highest significant value of 0,99 where based on PAS 99:2012, clause 7 is a supporting process of Integration Management system (Mustika Lilis; Kusumaningrum, Harsi Dewantari, 2016). The next analysis factor can be seen based on *rotate component matrix* table. Researcher used the highest value 0,5 and removed several variables because it does not meet the required value. Variables included can be seen inside the table below:

Table 5

Integration Analysis Factor PAS 99:2012

Factor 1	I30	I33	I44	I41	I29	I36	I114	I118	I90	I79
	I125	I124	I54	I62	I119	I81	I53	I42	I127	I45
	I25	I56	I19	I122	I116	I82	I135	I26	I132	I43
	I40	I108	I133	I134	I93	I120	I31	I63	I80	I38
	I111	I16	I35	I57	I37	I61	I105	I104	I48	I11
	I131	I69	I130	I84	I85	I15	I97	I115	I28	I87
	I65	I106	I22	I103	I110	I64	I109	I83	I95	I20
	I58	I27	I23	I21	I102	I18	I74	I99	I60	I59
	I49	I14	I91	I100	I32					
Factor 2	I05	I07	I06	I04	I02	I01	I47	I03		

Source: Own compilation

Based on that integration factor analysis it can be seen that from the early statements of 135 obtained 2 factors which contain of 93 statements. During the process of Integration Management System design within the approach of PAS 99:2012, to make it easier, understand and compare the relation among variables in analysis Structural Equation Model (SEM) with LISREL, it used the analysis of matrix data. This analysis is one of seven quality tools. Here is the result of matrix data analysis:

Table 6

Analysis Data Matrix

ISO / Clause		Clause 4 Organizational Context	Clause 5 Leadership	Clause 6 Planning	Clause 7 Support	Clause 8 Operation	Clause 9 Performance Evaluation	Clause 10 Improvement
		SNI ISO 27001:2013						
SNI ISO 50001:2018	Clause 4 Organizational Context	O						
	Clause 5 Leadership		O					
	Clause 6 Planning			O				
	Clause 7 Support				O			
	Clause 8 Operation					O		
	Clause 9 Performance						O	
	Clause 10 Improvement							O
SNI ISO 20400:2017	Clause 4 Understand the basics	▲					O	O
	Clause 5 Integrating sustainability into procurement operations policies and strategies		O			O		
	Clause 6 Regulates the procurement function facing sustainability			▲				
	Clause 7 Integrating sustainability into the procurement process				O			
PAS 99:2012	Clause 4 Organizational Context	O						
	Clause 5 Leadership		O					
	Clause 6 Planning			O				
	Clause 7 Support				O			
	Clause 8 Operation					O		
	Clause 9 Performance Evaluation						O	
	Clause 10 Improvement							O

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Table 6 continuation

ISO / Clause		Clause 4 Organizational Context	Clause 5 Leadership	Clause 6 Planning	Clause 7 Support	Clause 8 Operation	Clause 9 Performance Evaluation	Clause 10 Improvement
SNI ISO 50001:2018	Clause 4 Organizational Context	O						
	Clause 5 Leadership		O					
	Clause 6 Planning			O				
	Clause 7 Support				O			
	Clause 8 Operation					O		
	Clause 9 Performance						O	
	Clause 10 Improvement							O
SNI ISO 20400:2017	Clause 4 Understand the basics	▲					O	O
	Clause 5 Integrating sustainability into procurement operations policies and strategies		O			O		
	Clause 6 Regulates the procurement function facing sustainability			▲				
	Clause 7 Integrating sustainability into the procurement process				O			
PAS 99:2012	Clause 4 Organizational Context	O						
	Clause 5 Leadership		O					
	Clause 6 Planning			O				
	Clause 7 Support				O			
	Clause 8 Operation					O		
	Clause 9 Performance Evaluation						O	
	Clause 10 Improvement							O

Table 6 continuation

ISO / Clause		Clause 4 Organizational Context	Clause 5 Leadership	Clause 6 Planning	Clause 7 Support	Clause 8 Operation	Clause 9 Performance Evaluation	Clause 10 Improvement
SNI ISO 50001:2018	Clause 4 Organizational Context	Θ						
	Clause 5 Leadership		Θ					
	Clause 6 Planning			Θ				
	Clause 7 Support				Θ			
	Clause 8 Operation					Θ		
	Clause 9 Performance						Θ	
	Clause 10 Improvement							Θ
SNI ISO 20400:2017	Clause 4 Understand the basics	Θ					Θ	Θ
	Clause 5 Integrating sustainability into procurement operations policies and strategies		Θ			Θ		
	Clause 6 Regulates the procurement function facing sustainability			Θ				
	Clause 7 Integrating sustainability into the procurement process				Θ			
PAS 99:2012	Clause 4 Organizational Context	Θ						
	Clause 5 Leadership		Θ					
	Clause 6 Planning			Θ				
	Clause 7 Support				Θ			
	Clause 8 Operation					Θ		
	Clause 9 Performance Evaluation						Θ	
	Clause 10 Improvement							Θ

Explanation:
ΘStrong Relation
OWeak
▲No Relation

Source: Own compilation

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The next process to design the integration management system within PAS 99:2012 based on matrix data analysis is making the checklist table of variable identification based on the existed relationship of matrix data analysis. The checklist table will be described as below:

Table 7

Integration Checklist Identification SNI ISO

ISO / Clause		SNI ISO 27001:2013						
		Clause 4 Organizational Context	Clause 5 Leadership	Clause 6 Planning	Clause 7 Support	Clause 8 Operation	Clause 9 Performance Evaluation	Clause 10 Improvement
SNI ISO 50001:2018	Clause 4 Organizational Context	√						
	Clause 5 Leadership		√					
	Clause 6 Planning			√				
	Clause 7 Support				√			
	Clause 8 Operation					√		
	Clause 9 Performance						√	
	Clause 10 Improvement							√
SNI ISO 20400:2017	Clause 4 Understand the basics						√	√
	Clause 5 Integrating sustainability into procurement operations policies and strategies		√			√		
	Clause 6 Regulates the procurement function facing sustainability							
	Clause 7 Integrating sustainability into the procurement process				√			
PAS 99:2012	Clause 4 Organizational Context	√						
	Clause 5 Leadership		√					
	Clause 6 Planning			√				
	Clause 7 Support				√			
	Clause 8 Operation					√		
	Clause 9 Performance Evaluation						√	
	Clause 10 Improvement							√

Table 7 continuation on the next page

Table 7 continuation

ISO / Clause		Clause 4 Organizational Context	Clause 5 Leadership	Clause 6 Planning	Clause 7 Support	Clause 8 Operation	Clause 9 Performance Evaluation	Clause 10 Improvement
SNI ISO 50001:2018	Clause 4 Organizational Context	√						
	Clause 5 Leadership		√					
	Clause 6 Planning			√				
	Clause 7 Support				√			
	Clause 8 Operation					√		
	Clause 9 Performance						√	
	Clause 10 Improvement							√
SNI ISO 20400:2017	Clause 4 Understand the basics						√	√
	Clause 5 Integrating sustainability into procurement operations policies and strategies		√			√		
	Clause 6 Regulates the procurement function facing sustainability							
	Clause 7 Integrating sustainability into the procurement process				√			
PAS 99:2012	Clause 4 Organizational Context	√						
	Clause 5 Leadership		√					
	Clause 6 Planning			√				
	Clause 7 Support				√			
	Clause 8 Operation					√		
	Clause 9 Performance Evaluation						√	
	Clause 10 Improvement							√

Suprayitno, G. and Stendel, A. P. (2020), "Integration management system design", *Management and entrepreneurship: trends of development*, Volume 3, Issue 13, pp. 35-56, available at: https://doi.org/10.26661/2522-1566/2020-3/13-04

Table 7 continuation

ISO \ Clause		Clause 4 Organizational Context	Clause 5 Leadership	Clause 6 Planning	Clause 7 Support	Clause 8 Operation	Clause 9 Performance Evaluation	Clause 10 Improvement
		SNI ISO 90001:2015						
SNI ISO 50001:2018	Clause 4 Organizational Context	√						
	Clause 5 Leadership		√					
	Clause 6 Planning			√				
	Clause 7 Support				√			
	Clause 8 Operation					√		
	Clause 9 Performance						√	
	Clause 10 Improvement							√
SNI ISO 20400:2017	Clause 4 Understand the basics	√					√	√
	Clause 5 Integrating sustainability into procurement operations policies and strategies		√			√		
	Clause 6 Regulates the procurement function facing sustainability			√				
	Clause 7 Integrating sustainability into the procurement process				√			
PAS 99:2012	Clause 4 Organizational Context	√						
	Clause 5 Leadership		√					
	Clause 6 Planning			√				
	Clause 7 Support				√			
	Clause 8 Operation					√		
	Clause 9 Performance Evaluation						√	
	Clause 10 Improvement							√

Source: Own compilation

The integration result between SNI ISO 27001:2013 - SNI ISO 37001:2016 - SNI ISO 9001:2015 - SNI ISO 20400:2017 - ISO 50001:2018 within PAS 99:2012 can be seen inside similarity, difference and integration table based on PAS 99:2012 below:

Table 8

Similarity, difference and integration table based on PAS 99:2012

Clauses	Similarity	Differences	Integration
1	2	3	4
Organizational Context	Management Determined the place of System Implementation	SMKI: Deciding the place of system, SMK,SMAP: Deciding the place considering any risk, SMM, SMPB: Deciding the place in order to maintain it sustainability, SME: deciding the place of SME	Referred to the requirements of SMKI and SMAP, considering the risk and the future target
Leadership	Leadership Management and Commitment of Organization	SMKI: Leadership, Commitment, Policy, Role, Responsibility and organizational rule. SMAP: Leadership Commitment, director council, anti-corruption management, decision maker management. SMM: Leadership, Commitment, Policy, Role, Responsibility, organizational rule and customer oriented. SMPB: Commitment, Accountability, purposes and target, implementation. SME: Leadership, Commitment, SME Policy, Role, Responsibility and organizational rule	Referred to requirements of SMKI and SMAP within the purposes and target make a clear delegation with anti corruption system
Planning	Managing the risk and opportunities to obtain the target of plan	SMKI: Scoring and Handling the risk of Information Safety. SMAP: Risk and Opportunities on Anti-Corruption. SMM: Risk and opportunities of management quality. SMPB: Managing the function of supply based on rule, procedure and system to obtain the target. SME: Handling the risk and opportunities and reviewing the energy	Referred to requirements of SMKI and SMAP within the function of rule, procedure, target and opportunities and formulating the plan to obtain the target

Table 8 continuation on the next page

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Table 8 continuation

1	2	3	4
Support	Resource Management which contain of Competences, Responsibility, Communication and Control	SMKI: Resources, Competences, Sympathy, Communication and Control. SMAP: Resources, Competences, working process, sympathy and training process, Communication and Control. SMM: human resources, facility and environment, awareness, communication and control. SMPB: current process, analysis of expense and market trend and Contract Management. SME: resources, competences, awareness and energy control.	Referred to requirements of SMKI and SMAP within the human resources, facility and environment including manage the supplier based on contract, analysis the organization needs and market target
Operation	Operational Plan and Control	SMKI: Scoring and Handling the risk of information safety. SMP: Audit, Financial Control, Investment and Controlling anti-corruption. SMM: Plan the product development and communicate the information to customer. SMPB: Controlling the sustainability. SME: Plan the operational system, design and supply	Referred to requirements of SMKI and SMAP within the product development design and commitment sustainability supply
Evaluation	Internal Audit and Organization Management Review	SMKI: internal audit and management review. SMAP: min management review and looter council. SMM: .Customer Satisfaction based on analysis and evaluation. SMPB: managing the risk, handling the impact and prioritizing the important matter. SME: obedience evaluation of law.	Referred to requirements of SMKI and SMAP within the priority on customer satisfaction
Improvement	Improve the quality and repair an unstability	SMKI: sustainability improvement. SMAP: Correction and Corrective Action. SMM: improvement of general matter. SMPB: the ability of influence and avoid any involvement. SME: Corrective action and sustainability improvement	Referred to requirements of SMKI and SMAP within the influence on management system, avoid any involvement which can caused system error

Source: Own compilation

Based on the comparison and integration, here is the integration model of SNI ISO 27001:2013 - SNI ISO 37001:2016 - SNI ISO 9001:2015 - SNI ISO 20400:2017 – ISO 50001:2018 within PAS 99:2012:
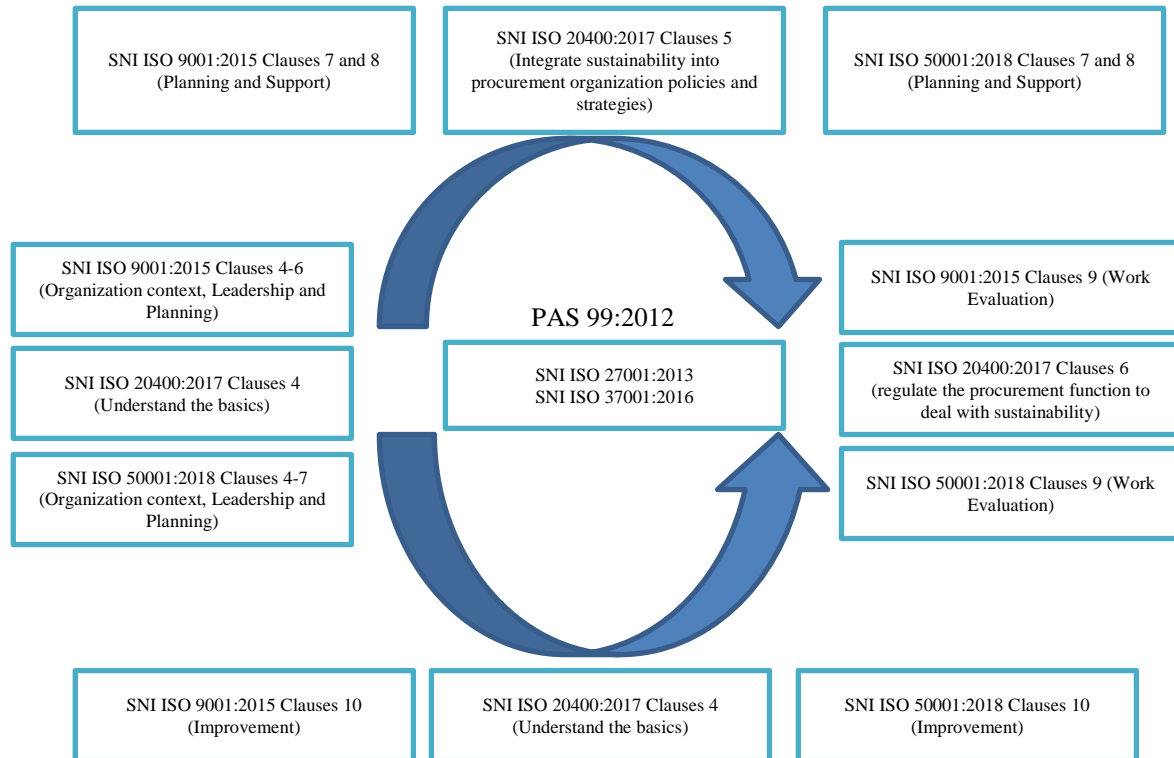

Figure 3. Model SNI ISO 27001:2013 - SNI ISO 37001:2016 - SNI ISO 9001:2015 - SNI ISO 20400:2017 - ISO 50001:2018 within PAS 99:2012

Source : (Purnomo, Putri and Amrina, 2017)

The explanation of figure above explained as below:

a.   SNI ISO 27001:2013 Clauses 4-6 regarding organizational context of leadership and planning system, SNI ISO 37001:2016 clauses 4-6 regarding organizational context of leadership and planning system, support and PAS 99:2012 clause 4-7 regarding organizational context of leadership and planning system integrated by SNI ISO 9001:2015 clauses 4-6 regarding organizational context of leadership and planning system, SNI ISO 20400:2017 clause 4 regarding the basic understanding and SNI ISO 50001:2018 clause 4-6 regarding organizational context of leadership and planning system

b.   SNI ISO 27001:2013 clause 7-8 regarding support and operation, SNI ISO 37001:2016 clause 7-8 regarding support and operation and PAS 99 clause 7-8 regarding support and operation integrated by SNI ISO 9001:2015 clause 7-8 regarding support and operation, SNI ISO 20400:2017 clause 5 regarding the integration of further sustainability of organizational policy and strategy of supply and SNI ISO 50001:2018 clause 7-8 regarding support and operation.

c.   SNI ISO 27001:2013 clause 9 regarding work evaluation, SNI ISO 37001:2016 clause 9 regarding work evaluation and PAS 99 clause 9 regarding work evaluation integrated by

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SNI ISO 9001:2015 clause 9 regarding work evaluation, SNI ISO 20400:2017 clause 4 regarding organizational context and SNI ISO 50001:2018 clause 9 regarding work evaluation.

d.   SNI ISO 27001:2013 clause 10 regarding the improvement, SNI ISO 37001:2016 clause 10 regarding the improvement and PAS 99 clause 10 regarding the improvement integrated by SNI ISO 9001:2015 clause 10 regarding the improvement, SNI ISO 20400:2017 clause 4 regarding organizational context and SNI ISO 50001:2018 clause 10 regarding the improvement.

based on the explanation of that figure, integrated model SNI ISO 27001:2013 - SNI ISO 37001:2016 - SNI ISO 9001:2015 - SNI ISO 20400:2017 - ISO 50001:2018 with PAS 99:2012 is more clear and specific figured by the model of Plan Do Check Action (PDCA) Integration SNI ISO 27001:2013 - SNI ISO 37001:2016 - SNI ISO 9001:2015 - SNI ISO 20400:2017 - ISO 50001:2018 within PAS 99:2012 as below:
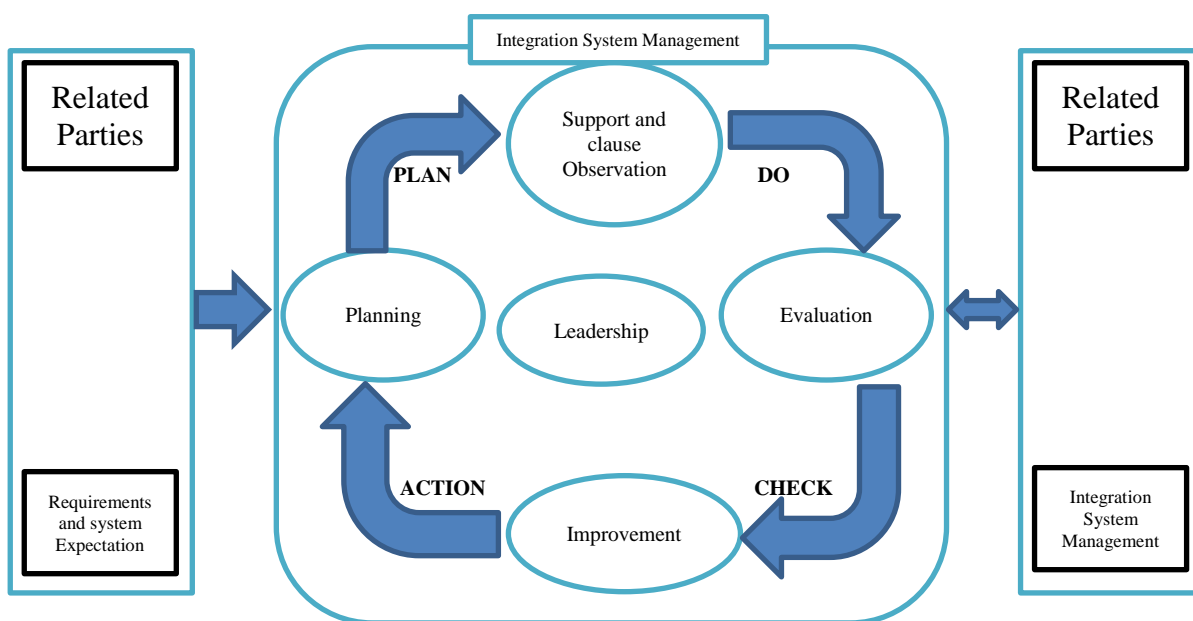

Figure 4. PDCA Model Design

Source: own study

Archetypes containing Special Task Force of Oil and Gas in the preservation of the implementation management system include processes and structures in each branch of the special task force for oil and gas. Based on the international standards integrated in the principles of integrated management systems that form professional, efficient, effective and have good corporate governance (GCG) practices, which in order to support the investment development and effort to make good oil and gas, with success rates that can be measured on standards and codes. *Plan* means designing a plan which refers to management system. This step has a purpose to identify the process, found, and conclude a solution to overcome the current problem. *Do* mean implementing and observing the activities and process that has been planned before. Dominant factor of 7 supporting clauses and factor analysis result which contains of several statements inside that 7 supporting clauses include as a part of *Do* process. *Check* means doing the observation, evaluation and checking the purpose and target of implementation. The technique used for evaluation here is observing and survey to understand the weakness inside process, and then reported the result and making an improvement plan. *Action* means making a real action of the evaluation result within the

standardized changes such as considering the place of action, process revision, develop the plan and regularly measure and control of a process. Based on the Integration Design based on PAS 99:2012, suggestion result design concluded as below:

- a. Determined the structure of SNI ISO 27001:2013 and SNI ISO 37001:2016 as the main standard because Special Task Force of Oil and Gas has been applied that standard.
- b. Identified the comparison and equality criteria between clauses and sub clauses SNI ISO.
- c. Increase several clauses/ sub clauses based on the requirements of SNI ISO 9001:2015, SNI ISO 20400:2017 and SNI ISO 50001:2018 within PAS 99:2012 to the main standard in order to complete

By applying integrated design of SNI ISO 27001:2013, SNI ISO 37001:2016, SNI ISO 9001:2015, SNI ISO 20400:2017, SNI ISO 50001:2018 within PAS 99:2012 it expected to improve the competitiveness level of special task force oil and gas to make a better contribution in upstream oil and gas industry in Indonesia.

CONCLUSION

Based on the analysis above, it can be concluded that significant level of questionnaire result PAS 99:2012 Integration Management system obtain the highest SL value in clauses 7 of 0,99 where according to PAS 99:2012, clauses 7 is a supportive factor on Integration Management System. Thus, the dominant factor of Integration Management System within the analysis of SEM LISREL indicated in clauses 7. Integration Model Design of SNI ISO 27001:2013 - SNI ISO 37001:2016 - SNI ISO 9001:2015 - SNI ISO 20400:2017 - ISO 50001:2018 within PAS 99:2012 began with analysing similarity and difference of each clauses SNI ISO, analysing the relation among each SNI ISO using analysis matrix data, divided the clauses into the same strength group then integrated it, made integrated system model, made PDCA model of integrated system and suggested the integration system design based on the clauses of PDCA model.

The research conducted has the significance for the future studies. First, five SNI ISO of Integration Model Design were used in the research: SNI ISO 27001:2013 – SNI ISO 37001:2016 – SNI ISO 9001:2015 – SNI ISO 20400:2017 – ISO 50001:2018 within PAS 99:2012 on Special Task Force for oil and Gas business activities (SKK Migas). Second, the Software used for data analysis is LISREL. Data analysis in this study uses the Structural Equation Model (SEM) and the result of SEM analysis using clause data is the result of simplification on some statements of LISREL program.

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ПРОЕКТУВАННЯ СИСТЕМИ УПРАВЛІННЯ ІНТЕГРАЦІЄЮ

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Промисловий сектор нафти та газу є стратегічним пунктом для економічного стану Індонезії. Метою статті є розробка інтегральної модельної системи Sistem SNI ISO 27001: 2013, SNI ISO 37001: 2016, SNI ISO 9001: 2015, SNI ISO 20400: 2017 та ISO 50001: 2018 в рамках PAS 99: 2012 спеціальної робочої групи для нафтогазової підприємницької діяльності та визначити її домінуючий фактор. У цій роботі представлені кількісно-якісні дослідження з описовим підходом та аналіз SEM LISREL 8.8. Дослідження було розпочато з підготовки попереднього вивчення та формулювання проблеми дослідження разом з метою аналізу, а також подальшого розповсюдження анкети серед респондентів. В статті визначено пункт системи управління та описано характеристичні особливості кожної системи управління. Результат аналізу визначив структуру SNI ISO 27001: 2013 та SNI ISO 37001: 2016 як основний стандарт, оскільки Спеціальний Робочий Колектив Нафти та Газу застосував цей стандарт. На підставі результату можна зробити висновок, що значним рівнем результатів

анкетування є PAS 99: 2012 із системи управління інтеграцією, що отримує найвище значення SL у пункті 7 на рівні 0,99. Відповідно до PAS 99: 2012, пункт 7 є фактором, який підтримує систему управління інтеграцією.

Ключові слова: SEM LISREL, Система управління інтеграцією, промисловий сектор

РАЗРАБОТКА СИСТЕМЫ УПРАВЛЕНИЯ ИНТЕГРАЦИЕЙ

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Промышленный сектор нефти и газа является стратегическим пунктом для экономического положения Индонезии. Целью статьи является разработка системы интеграционной модели SNI ISO 27001: 2013, SNI ISO 37001: 2016, SNI ISO 9001: 2015, SNI ISO 20400: 2017 и ISO 50001: 2018 в рамках PAS 99: 2012 в специальной рабочей группе для нефтегазового бизнеса и определить его доминирующий фактор. В данной статье представлены количественно-качественные исследования с описательным подходом и анализом SEM LISREL 8.8. Исследование было начато с создания формулировки поставленной задачи с целью анализа, а затем распространения анкеты среди респондентов. В статье представлены характерные особенности каждой системы менеджмента, которые описательно объясняются в документе. Результат этого анализа определил структуру SNI ISO 27001: 2013 и SNI ISO 37001: 2016 в качестве основного стандарта, так как Специальная рабочая группа по нефти и газу применила этот стандарт. Основываясь на результате, можно сделать вывод, что значительный уровень результатов анкетирования – это PAS 99: 2012, когда система управления интеграцией получает наивысшее значение SL в пункте 7 на уровне 0,99. Согласно PAS 99: 2012, пункт 7 является фактором, поддерживающим систему управления интеграцией.

Ключевые слова: SEM LISREL, система управления интеграцией, промышленный сектор