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THE STRUCTURAL RELATIONSHIP OF FACTORS AFFECTING MANAGERIAL EFFICIENCY OF MANUFACTURING INDUSTRIES

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ABSTRACT

This research aims to study and examine the structural relationship of factors affecting the managerial efficiency of manufacturing industries. A quantitative research methodology was employed using 102 samples of executives from manufacturing industries in Yala province. The instruments used included the questionnaire and structural equation modeling. The research result revealed that the structural relationship of factors affecting the managerial efficiency according to the hypothesis was in accordance with the empirical data. The index was as follows: Chi-Square = 125.39, df = 108, p-value = 0.12, and RMSEA = 0.04. The factor overall affecting the Managerial Efficiency (ME) the most was the Job-Relevant Information (JRI), secondly was the Decentralized in Organizational Culture (DOC), Management Accounting System (MAS), and Task Uncertainty (TU). Furthermore, the variance could be mutually described or predict the Managerial Efficiency (ME) at 85%.

INTRODUCTION

It is expected that in 2020 the world economy will be deflated 3% caused by the COVID-19 pandemic which damages the Gross Domestic Product (GDP) all over the world that its value is up to 9 trillion dollars, approximately)BBC, 2020; Oxford Economics, 2020). From this situation, all business sectors have to prepare themselves for the readiness to help their organizations step through this crisis steadily, by the potentials of executives who can monitor the performance effectively. However, the effective performance of executives has

to depend on the complex and sufficient information systems relevant to each business which will lead to the plan and decision making efficiently)Boonmunewai & Ussahawanitchakit, 2010; Suksomboon & Samritsakul, 2017).

Management Accounting System is an instrument that enables the executives to execute their work in the organization. Such information can be used for predicting other alternative activities, such as planning, following, as well as decision making etc., according to the currently changing situations (Gurendrawati, 2014). Nevertheless, there could have various factors which will lead to the effective use of the Management Accounting System to reach the utmost management. The previous researchers studied the factors under the Contingency Theory as follows: Perceived Environmental Uncertainty (Mat, 2010; Pumkaew et al., 2018), Job-Relevant Information)UI Aqmal & Soewarno, 2018; Pumkaew et al., 2018), Budgetary Participation (Cheng, 2012; Pumkaew et al., 2018), and Task Uncertainty (Chong, 2004). When having considered, there have been no researchers who brought the factor of Decentralized in Organizational Culture to study, therefore, it causes a gap in this research. Furthermore, it is a recommendation for further research of Ghasemi et al. (2016). Meanwhile, this study has been done together with the factor of Task Uncertainty and Job-Relevant Information. For the factor of Job-Relevant Information, it is adjusted its measure by remaining only 3 question items which are not the same as the reports of previous researchers who measured the results as each aspect)Pumkaew et al., 2018). And when studying with the context of manufacturing industries in Yala Province, which is one of the three southern border provinces, it can produce a new finding which will be useful to the academic field increasingly.

With these reasons, the researcher staff is interested to study and examine the structural relationship of factors affecting the managerial efficiency of manufacturing industries to consider which factors affect the managerial efficiency the most, which will be useful for strategies orientation, planning, and organization management until it can reach the sustainably competitive potentials further.

LITERATURE REVIEW

Management Accounting System according to the concept of Chenhall & Morris (1986) includes 1) Broard Scope; to monitor and assess with the none-financial reporting easily)Lillis, 2002), 2))Timeliness); to give requested information quickly)Hammad, 2013), 3) Aggregation; to help categorize the information according to the period of time for decision making)Hammad, 2013), and 4) Integration; to co-ordinate all work sectors within the organization. For Managerial Efficiency according to the concept of Mahoney et al. (1965) includes 1) Planning; the determined targets according to the policies of performance, 2) Investigating; the readiness preparation of the financial statement, 3) Coordinating; the information exchanging with the employees within the organization, 4) Evaluating; employees performance and recommendations, 5) Supervising; the leaders and subordinates development, 6) Staffing; the treatment of mobilization for the organization performance, 7) Negotiating; the negotiating of selling with the agencies or customers, and 8)

Representing; for contacting with the external persons or external group of persons of the organization.

From the past research, it was found that under the high uncertain situation, letting the personnel participate in applying all information or the guidance of complicated Management Accounting System, it led to the measurement of good managerial efficiency or good organization assessment that enabled the organization to achieve the competitive potentials in the market, or it led to the positive relationship or direct effect to the managerial efficiency, and it was the mediator variable of each factor well)Mia & Winata, 2014; Ismail et al., 2018; Agbejule, 2012; Nguyen et al., 2017; Zainuddin & Isa, 2011; Ghasemi et al., 2016; Pumkaew et al., 2018; Ghasemi, 2019). Hence, it can be written as a hypothesis as follows: Hypothesis 1) Management Accounting System affects the managerial efficiency.

The factor of Job-Relevant Information is internal information, and it is a fact direct to the point with a certain situation that can improve the performance efficiency)Royal Institute of Thailand, 2013). Researchers reveal that the Job-Relevant Information can be an instrument that supports the use of Management Accounting System to directly affect the managerial efficiency perfectly, and can be a moderator variable to affect the managerial efficiency as well)Pumkaew et al., 2018; Yuliansyah, 2015; UI Aqmal & Soewarno, 2018; Almasi et al., 2015). This can be written as a hypothesis as follows: Hypothesis 2) Job-Relevant Information affects the Decentralized in Organizational Culture, Hypothesis 3) Job-Relevant Information affects the Management Accounting System, Hypothesis 4 Job-Relevant Information affects the managerial efficiency, and Hypothesis 5) Job-Relevant Information indirectly affects the managerial efficiency via Management Accounting System.

The factor of Decentralized in Organizational Culture (DOC) is the central group of persons or businesses established as the same organization to run the businesses in accordance with the required purposes)Royal Institute of Thailand, 2013). Researchers indicate that the executives will perceive the organizational culture to design the management efficiently by proper decentralization that leads to the applying of internal control system, as well as resulting the applying of Management Accounting System that leads to the managerial efficiency)Bangchokdee & Mia, 2016; Moghaddam et al., 2014; Hammad et al., 2013; Kewo, 2014; Erserim, 2012). This can be written as a hypothesis as follows: Hypothesis 6) Decentralized in Organizational Culture affects the Management Accounting System, Hypothesis 7) Decentralized in Organizational Culture affects the managerial efficiency, and Hypothesis 8) Decentralized in Organizational Culture indirectly affects the managerial efficiency via the Management Accounting System.

Task Uncertainty is about the encountering of new tasks which have never been done before, or it is about the difference between essential information which has to be used for operating)Chong, 2004). Researchers identify that the Task Uncertainty or a changing leadership both directly and indirectly affects the managerial efficiency via the use of Management Accounting System information)Nguyen et al., 2017; Hammad et al., 2013; Ramdhani, 2014) that

can lead to a hypothesis as follows: Hypothesis 9) Task Uncertainty affects the Management Accounting System, and Hypothesis 10) Task Uncertainty indirectly affects the managerial efficiency via the Management Accounting System.

RESEARCH METHODOLOGY

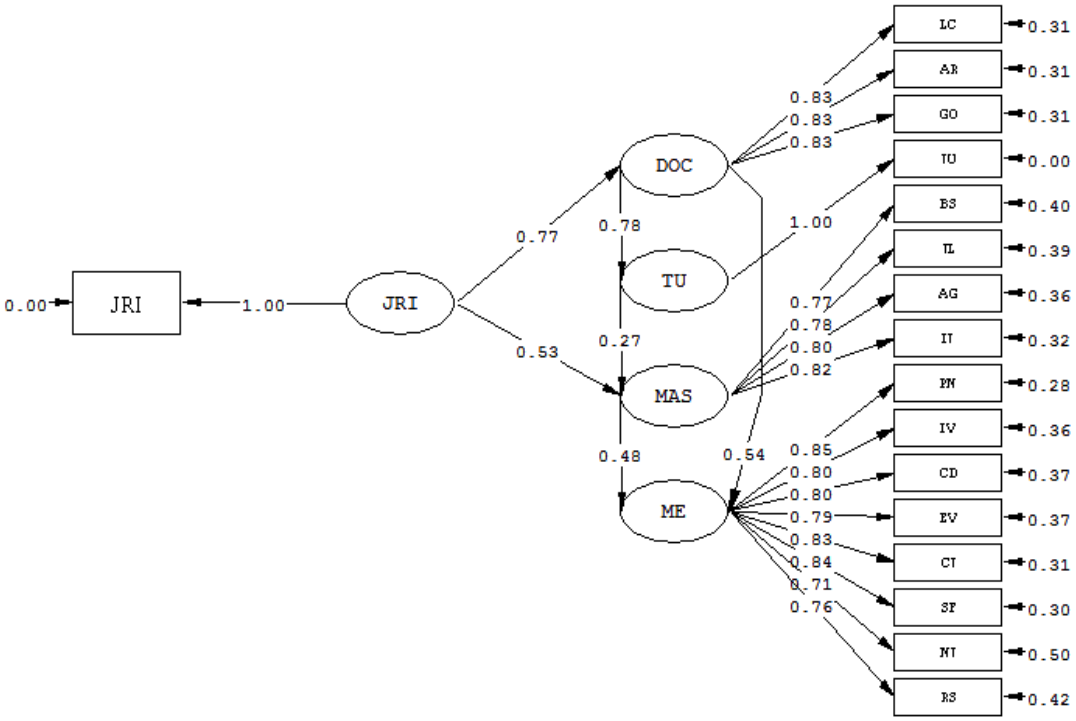
This research is a Quantitative Research. The population group is the group of major executives in 137 manufacturing industries in Yala Province)Department of Industrial Works, 2018). The sample group was selected by using the Table of Krejcie & Morgan (1970) to find out the proper sample group at the accepted error of 0.05, which was equal to 103 samples. The study focuses on various variables as follows: Job-Relevant Information according to the concept of Kren (1992) (Almasi et al., 2015; Pumkaew et al., 2018), Decentralized in Organizational Culture, which includes, degree of centralization, formalization of authority, and degree to which general characteristics of the organization, according to the concept of Gordon & Narayanan (1984) (Abernethy & Lillis, 2001), and Task Uncertainty (Withey et al. (1983), (Chong, 1996). Management Accounting System consists of Broad Scopes, Timeliness, Aggregation, and Integration, according to the concept of Chenhall & Morris (1986), (Agbejule, 2012; Ghasemi et al., 2016; Hammad, 2013), and Managerial Efficiency, which consists of planning, investigation, co-ordination, assessment, supervision, employee, negotiation, and agencies, according to the concept of Mahoney et al. (1965), (Gurendrawati, 2014; Ghasemi et al., 2016; Nguyen et al., 2016; Yuliansyah & Razimi, 2015; Almasi et al., 2015). The instrument used was a questionnaire, divided into 7 parts as follows: Part 1) general data of the respondents, Part 2) general data of the enterprises, which was designed as a check list, Part 3) a questionnaire about Job-Relevant Information, Part 4) a questionnaire about Decentralized in Organizational Culture, Part 5) a questionnaire about Task Uncertainty, Part 6) a questionnaire about applying Management Accounting System information, and Part 7) a questionnaire about managerial efficiency, done through 5 levels of rating scale. The instrument was investigated by 3 experts using content validity analysis together with finding out the Index of Item-Objective Congruence (IOC). The value of each question was not less than 0.5 (Turner & Carlson, 2003). The instrument got was tried out with a group which were not a sample group, consisting of 30 samples, then tested with the reliability through Cronbach's alpha in the Part 3-7, the value got was 0.98 which was over than 0.7, as well as the value of Construct Reliability (ρ_c) between 0.86-.94, considered as a good level, and the Average Variance Extracted (ρ_v) was between 0.63 - 0.68, considered as a good level)Hair et al., 2011). The data were collected by post and by the researchers staff themselves. The back response rate was 102 questionnaires (99.02%). The statistic used for analyzing the data was Descriptive Statistic with the Mean between 3.55-3.87 considered as a high level, the Standard Deviation was between 0.59-0.80 which was not over than 1, the Skew Index was between 0.00 – 0.59, and the Kurtosis Index was between 0.01 – 0.85, this indicates that all of the 17 variables were normal distribution according to the concept of Curran, West & Finch (1997, cited in Wanichbancha, 2013, page 98), the Tolerance value was between 0.27 - 0.42, whereas the Variance Inflation Factor (VIF) was between 2.40 - 4.05, this indicates that there is no Multicollinearity problem

(Hair et al., 2011). For the Correlation Coefficient, it was between 0.38 – 0.75, it is shown that there is a relationship which does not cause the problem of Collinearity or the variables have relationship too much highly, the value was lower than 0.80 (Pusrion, 2013, page 280). The analysis of structural equation modeling used the Confirmatory Factor Analysis)CFA) technique to examine the Measuring Model which included 3 variables including the Management Accounting System)MAS), the Decentralized in Organizational Culture)DOC), and the Managerial Efficiency)ME). While the Task Uncertainty)TU) and the Job-Relevant Information)JRI) were the variables observed directly which were not the latent trait, and analyzed the structural relationship factors affecting the Managerial Efficiency by investigating the Goodness of Model Fit. If the model was not harmonious, it had to be adjusted.

RESEARCH RESULTS

Regarding the analysis of the structural relationship of factors affecting the managerial efficiency that considered the index in the Absolute Fit Indices group, which tested the overall fit and considered the residual from the overall fit test, it was found that the Chi-Square of the model was equal to 169.58, the p-value was equal to .00, and Chi-Square/df was equal to 1.47. When considering the residual, it revealed that the (Standard Root Mean Square Residual (SRMR) was equal to 0.07 and the Root Mean Square Error of Approximation)RMSEA) was equal to 0.07. While the index in the group of Incremental Fit Indices was found that the Comparative Fit Index (CFI) was equal to 0.98, and the Normed fit index)NFI) was equal to 0.96. It can be seen that most of the indices passed the assessment criteria. However, there were only 102 samples in this research, which the p-value should be over than .05 (lower than .05 was allowed if the sample size was big(. Hence, the researcher staff adjusted the model to let it more concordance. The matrix correlated error terms for adjusting the model included TE (10,4), TE (9,3), TE (13,1), TE (15,3), TE (13,9), TE (16,14), and TE (13,10). The adjusted result can be shown in Figure 1 as follows:

Figure 1. Parameter of the structural relationship of factors affecting the managerial efficiency)after adjusting the model(



Chi-Square = 125.39, df = 108, p-value = 0.12, RMSEA = 0.04

Table 1: The Goodness of Fit Index of the structural relationship of factors affecting the managerial efficiency)after adjusting the model(

Index	**Considered Criteria**	**Index**	**Interpreted**
p-value)of χ^2 (	≤0.05	0.12	Pass
χ^2/df	≥3.00	1.16	Pass
SRMR	≥0.08	0.05	Pass
RMSEA	≥0.08	0.04	Pass
CFI	≤0.95	0.99	Pass
NFI	≤0.95	0.97	Pass

From **Table** 1, the index in the group of Absolute Fit Indices the overall fit test, and the residual from the overall fit test were found that the Chi-Square of the model was equal to 125.39, the p-value was equal to 0.12, and the Chi-Square/df was equal to 1.16. When considering the residual, it revealed that the Standard Root Mean Square Residual (SRMR) was equal to 0.05 and the Root Mean Square Error of Approximation)RMSEA) was equal to 0.04 whereas the Incremental fit indices were found that the Comparative Fit Index)CFI) was equal to 0.99 and the Normed fit index)NFI) was equal to 0.97. This indicated that every index value passed the considered criteria. Therefore, it can be concluded that the structural relationship of factors affecting the managerial efficiency according to the hypothesis was concordant with the empirical data. Next, the direct effect, indirect effect, and Coefficient of Determination of the model will be considered.

Table 2: Direct Effect)DE), Indirect Effect)IE), Total Effect)TE), and Coefficient of determination)R2) of the structural relationship of factors affecting the managerial efficiency

Factor	Internal Latent Variable											
	DOC			TU			MAS			ME		
	DE	IE	TE	DE	IE	TE	DE	IE	TE	DE	IE	TE
JRI	0.78**)0.08(	-	0.78**)0.08(	-	0.60**)0.07(	0.60**)0.07(	0.52**)0.07(	0.17**)0.04(	0.69**)0.07(	-	0.76**)0.07(	0.76**)0.07(
DOC	-	-	-	0.78**)0.09(	-	0.78**)0.09(	-	0.22**)0.06(	0.22**)0.06(	0.57**)0.08(	0.10**)0.09(	0.67**)0.09(
TU	-	-	-	-	-	-	0.29**)0.07(		0.29**)0.07(	-	0.13**)0.04(	0.13**)0.04(
MAS	-	-	-	-	-	-	-	-	-	0.45**)0.11(	-	0.45**)0.11(
R^2	0.60			0.60			0.54			0.85		

Note. *means the statistical significance was at 0.05, ** means the statistical significance was 0.01, and the value in ( ) was SE value (Standard error)

From **Table 2**, when considering the internal effect within the structural relationship of factors affecting the managerial efficiency, it indicated that the factors overall affecting the managerial efficiency)ME) the most was Job-Relevant Information)JRI), secondly was Decentralized in Organizational Culture)DOC), Management Accounting System)MAS), and Task Uncertainty)TU). The effect size was equal to 0.76, 0.67, 0.45, and 0.13, respectively.

When considering the direct effect, it was found that only Management Accounting System (MAS) and Decentralized in Organizational Culture (DOC) directly affected, the Decentralized in Organizational Culture (DOC) was affected the most, secondly was Management Accounting System)MAS), the effect size was equal to 0.57 and 0.45, respectively.

For indirect effect, it revealed that the Job-Relevant Information)JRI) was affected the most, secondly was Task Uncertainty)TU) and Decentralized in Organizational Culture)DOC). The effect size was equal to 0.76, 0.13, and 0.10, respectively.

For both direct and indirect effect between the variables, it was found that the Decentralized in Organizational Culture)DOC) was directly affected from the Job-Relevant Information)JRI), the effect size was equal to 0.78, the Task Uncertainty)TU) was directly affected from the Decentralized in Organizational Culture)DOC), the effect size was equal to 0.78, the Management Accounting System)MAS) was directly affected from the Job-Relevant Information)JRI) and Task Uncertainty)TU), the effect size was equal to 0.52 and 0.29, respectively. Furthermore, the relationship of the indirect effect was as follows: the Task Uncertainty)TU) was indirectly affected was indirectly affected from the Job-Relevant Information)JRI) through the Decentralized in Organizational Culture)DOC), the effect size was equal to 0.60. The Management Accounting System)MAS) was indirectly affected from Job-Relevant Information)JRI) through the Decentralized in Organizational Culture)DOC) and the Task Uncertainty)TU), the effect size was equal to 0.17. The Management Accounting System)MAS) was indirectly affected from Decentralized in Organizational Culture)DOC) through the Task Uncertainty)TU), the effect size was equal to 0.22.

Moreover, when considering the variance, it identifies that the factor of Management Accounting System)MAS), the Task Uncertainty)TU), the Decentralized in Organizational Culture)DOC), the Job-Relevant Information)JRI) could mutually describe or predict the variance of the Managerial Efficiency)ME) at 85%.

According to the research result mentioned above, the Hypothesis 1-3, 5, 7-10 can be accepted but the Hypothesis 4 and 6 were refused.

DISCUSSION AND CONCLUSION

According to the research result, the structural relationship of factors affecting the managerial efficiency of the manufacturing industries, it was found that the factors overall affected the Managerial Efficiency)ME) the most included the Job-Relevant Information)JRI), secondly was the Decentralized in

Organizational Culture)DOC), Management Accounting System)MAS), and the Task Uncertainty)TU). It identified that the organization of manufacturing industries emphasized the information relevant to various work sectors such as production plan, sales plan, etc. Furthermore, for the Decentralized in Organizational Culture, when it is decentralized properly, it is surely good for the performance and planning for the need of using the Management Accounting System extensively, however it should be considered the uncertainty condition or complicated work within the organization to lead to the managerial efficiency.

When considering the direct effect, it indicated that only the Management Accounting System)MAS) and the Decentralized in Organizational Culture)DOC) were affected directly, the Decentralized in Organizational Culture)DOC) was affected the most)Hypothesis 7 was accepted.) (Moghaddam et al., 2014; Hammad et al., 2013; Kewo, 2014; Bangchokdee & Mia, 2016; Erserim, 2012), secondly was the Management Accounting System)MAS) (Hypothesis 1 was accepted) (Nguyen et al., 2017; Zainuddin & Isa, 2011; Ghasemi et al., 2016; Pumkaew et al., 2018; Ghasemi, 2019; Kewo, 2014). From the result mentioned above, it is shown that the manufacturing industries focused on the state of the Decentralized in Organizational Culture, which is considered as a big axis in the administration of manufacturing industries. When there is a proper distribution, it will affect the work system as well as the information preparation of the Management Accounting System, which will lead to the use of correct information in concordance with the needs of each sector until it enhance the managerial efficiency to be better.

Regarding the indirect effect, it was found that the Job-Relevant Information)JRI) was affected the most)Hypothesis 5 was accepted) (Pumkaew et al., 2018; Yuliansyah, 2015; UI Aqmal & Soewarno, 2018), the secondly was the Task Uncertainty)TU) (Hypothesis 10 was accepted) (Ramdhani, 2014; Nguyen et al., 2017; Hammad et al., 2013), and the Decentralized in Organizational Culture)DOC) (Hypothesis 8 was accepted) (Moghaddam et al., 2014; Hammad et al., 2013; Kewo, 2014; Bangchokdee & Mia, 2016). It indicated that the manufacturing industries emphasized the information relevant to the fields of every sector to support the administration, planning, by linking to the applying of for making the managerial efficiency to the organization.

For the direct and indirect effect between variables included the Decentralized in Organizational Culture)DOC), which was directly affected from the Job-Relevant Information)JRI) (Hypothesis 2 was accepted.), Task Uncertainty)TU) was directly affected from the Decentralized in Organizational Culture)DOC). This is in accordance with the research of Moghaddam et al. (2014) which was found that the executives would perceive the organizational culture to design the effective management. For the Management Accounting System)MAS), it was directly affected from the Job-Relevant Information)JRI) (Hypothesis 3 was accepted) (Pumkaew et al., 2018; Yuliansyah, 2015), and the Task Uncertainty)TU) (Hypothesis 9 was accepted) (Chong, 1996; Chong, 2004). Furthermore, there was the relationship of indirect effect as follows: the Task Uncertainty)TU) was indirectly affected from the Job-Relevant Information)JRI) through the Decentralized in Organizational Culture)DOC).

It indicates that in the increasingly complicated situation, it is certainly from the suitable Decentralized in Organizational Culture which leads to the proper management of the relevant information further. Regarding the Management Accounting System)MAS), it was indirectly affected from the Job-Relevant Information)JRI) through the Decentralized in Organizational Culture)DOC) and the Task Uncertainty)TU). Concerning the Management Accounting System)MAS), it was indirectly affected from the Decentralized in Organizational Culture)DOC) through the Task Uncertainty)TU) (Nguyen et al., 2017; Ismail et al., 2018) to integrate all regulations for making understanding in the changing situations and be able to apply them for developing the organization efficiently.

Moreover, when considering the variance, it revealed that the factor of the Management Accounting System)MAS), the Task Uncertainty)TU), the Decentralized in Organizational Culture)DOC), and the Job-Relevant Information)JRI) could be mutually described the variance or predicted the Managerial Efficiency)ME) at 85%. Hence, it is shown that all factors which have been studied can be considered as a crucial part of the organizational management or manufacturing industries for the managerial efficiency strongly, and able to compete in the market sustainably, when the executives realize the significance of such factors. Regarding the rejection of Hypothesis 4, which was the Job-Relevant Information affected the Managerial Efficiency (Almasi et al., 2015), this is because this study focuses on the group of executives on manufacturing industries in Yala Province which is one of the three southern border provinces, hence the research result is definitely different from the previous researches that had ever been through the accounting executives who were operating in the rubber industries all over the country)Pumkaew et al., 2018). For the rejection of Hypothesis 6, which was the Decentralized in Organizational Culture affected the Management Accounting System; this might be because the previous researches were studied through the group of financial organizations)Moghaddam et al., 2014), which the context was different from the context of the organizational management as targeted.

The structural relationship of factors affecting the managerial efficiency in the manufacturing industries, arranged according to the effect size, which included, the Job-Relevant Information, the Decentralized in Organizational Culture, the Management Accounting System, and the Task Uncertainty, respectively. Hence, the executives should emphasize such factors to enable the organizational management to achieve the competitive competence strongly further. For the further research, it should increase the study of various factors under the situational theory to catch up with the current change.

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