FACTORS INFLUENCING THE SUCCESS OF THE INFORMATION SYSTEMS STRATEGIC PLANNING AT HIGHER EDUCATIONAL INSTITUTIONS IN INDONESIA

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BERNADUS GUNAWAN SUDARSONO

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ABSTRACT

This study focuses on the proposed development of a successful model of Information Systems Strategic Planning (ISSP) at Higher Education in Indonesia and its evaluation. In the current era of uncertainty in the evolution of ISSPs, complete ISSP success factors are needed. This research was conducted because at that time the success model of ISSP in Higher Education in Indonesia was only determined by the success factors, which are partial in number, namely only one factor and are considered incomplete. The methodology to solve this problem is carried out by adopting a combination of the 2003 Delone and McLean model whose forming factors have been modified, namely Planning System Quality, Product Quality, System Delivery Quality, Use, Satisfaction, and ISSP Net Benefit factor as well as additional adjustment factors to the ISSP context, namely the Facilitator factor as the human aspect and independent factor, namely the Culture factor. The research evaluation used a quantitative approach, with the distribution of questionnaires at an early stage to test the questionnaire as an instrument, and then continued with pretest and pilot test activities which produced instruments that had met the reliability and validity. The next stage is the distribution of the questionnaires and the data is filtered by purposive sampling technique with a total of 223 samples. Processing of this sample data used the Partial Least Square - Structural Equation Modeling (PLS-SEM) method. Evaluation of statistical test results concluded that all factors have a significant role in the success of ISSP, but the effect and level of importance are different results. The factors that significantly influence the success of ISSP are the System Delivery Quality factor and the Culture factor. The system Delivery Quality factor is also a mediating factor with a significant influence on success. Other factors such as Facilitator, Satisfaction, Planning System Quality, Product Quality, Use factor and their combination have no significant effect on the success of ISSP. Based on the level of importance, it is also concluded that there are only three factors that have a high level of importance, namely Culture, System Delivery Quality and Satisfaction factors, while other factors have a low level of importance.

Keywords: Success Model, Success Factor, Information System Strategic Planning

APPROVAL

This is to certify that this thesis conforms to acceptable standards of scholarly presentation and is fully adequate, in quality and scope, for the fulfillment of the requirements for the degree of Doctor of Philosophy

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(17 April 2023)

DECLARATION

I hereby declare that the thesis submitted in fulfillment of the PhD degree is my own work and that all contributions from any other persons or sources are properly and duly cited. I further declare that the material has not been submitted either in whole or in part, for a degree at this or any other university. In making this declaration, I understand and acknowledge any breaches in this declaration constitute academic misconduct, which may result in my expulsion from the programmed and/or exclusion from the award of the degree.

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TABLE OF CONTENTS

ABSTRACT ii
APPROVAL iii
DECLARATION iv
ACKNOWLEDGEMENTS vi
TABLE OF CONTENTS vii
LIST OF TABLES x
LIST OF FIGURES xii
LIST OF ABBREVIATION xiii

CHAPTER 1 INTRODUCTION 1

1.1 Background of the Study 1
1.2 Problem Statements 5
1.3 Research Questions 6
1.4 Research Objectives 6
1.5 Research Hypotheses 7
1.6 Justifications and Significance of the Study 7
1.7 Theoretical Contributions 8
1.8 Practical Contributions 9
1.9 Chapter Summary 9

CHAPTER 2 REVIEW OF LITERATURE 11

2.1 Concept of ISSP 11
2.2 Definition of ISSP 12
2.3 Use of ISSP 14
2.4 Evolution of ISSP 14
2.5 Key Success of ISSP Issues 15
2.6 Determinant Factors of ISSP Success and its Weaknesses in an Uncertain Era of ISSP Evolution 16
2.7 IS Success Model 18
2.8 Confirmation of the Adoption of the DeLone & McLean's Updated IS Success Model for the Proposed Expansion of the ISSP Success Model 20
2.9 The Proposed ISSP Success Model and Factors Affecting It 20
2.9.1 ISSP Product Quality 24
2.9.2 Planning System Quality 26
2.9.3 ISSP Service Delivery Quality 27
2.9.4 ISSP Facilitators 28
2.9.5 ISSP Culture 29
2.9.6 Use 30
2.9.7 Satisfaction 31
2.9.8 ISSP Net Benefit 33
2.10 Theoretical Framework 33
2.10.1 Building of Model of Information Systems Strategic Planning Success 34
2.10.2 Assumption of Delone & McLean (ISSP) Mapping on Strategy Formulation 38

2.10.3 Assumptions of Delone & McLean Mapping (ISSP) in Strategy Implementation 39
2.10.4 Assumption of Delone & McLean (ISSP) Mapping on ISSP Success 39
2.10.5 Determination of Dependent and Independent Variable 40
2.11 ISSP for Higher Education 40
2.12 Population and Sample Size Concept 41
2.13 Instrumentation Validation Concept 42
2.13.1 Pretest Study Concept 42
2.13.2 Pilot Study Concept 43
2.14 PLS-SEM Statistic 44
2.14.1 Direct Effect 44
2.14.2 Indirect Effect 44
2.14.3 Total Effect 44
2.14.4 Effect Size (f^2) 44
2.14.5 VAF 45
2.15 Chapter Summary 45

CHAPTER 3 METHODOLOGY 47

3.1 Conceptual Framework 49
3.2 Hypothesis Formation 49
3.2.1 Relationship between Delone & McLean (ISSP) and ISSP Success 50
3.2.2 Relationship between Culture Factor and ISSP Success 51
3.2.3 Relationship between Facilitators Factor and ISSP success 51
3.2.4 Relationship between the Combination of Facilitators, Culture, Delone & McLean (ISSP) Factors on ISSP Success 51
3.3 Research Design 52
3.3.1 Operational Definitions 52
3.3.2 Population and Sample Size 59
3.3.3 Sampling Technique 59
3.3.4 Data Collection Technique 60
3.3.5 Permissions, Ethics Clearance and Informed Consent 61
3.3.6 Instrumentation 61
3.3.7 Data Analysis 63
3.3.8 Instrumentation Validation 64
3.4 Final Research of Study 66
3.5 Chapter Summary 66

CHAPTER 4 RESULTS AND DISCUSSION 68

4.1 Introduction 68
4.2 Results and Discussion of the Pretest Study 68
4.3 Results and Discussion of the Pilot Study 69
4.4 Final Research Results and Discussion 72
4.4.1 Number of Participants and Response Rates 73
4.4.2 Demographic of Respondents 74
4.4.3 Evaluation and Discussion of Measurement Model of Final Research 76
4.4.4 Evaluation of Structural Model of Final Research 83

4.4.5 Addressing the Research Questions and Discussion 106
4.4.6 IPMA Test Results from the Factors in the ISSPBRM 136
4.4.7 IPMA Evaluation from ISSPBRM 139
4.5 Chapter Summary 146

CHAPTER 5 CONCLUSION AND RECOMMENDATIONS 150

5.1 Conclusions 150
5.2 Limitations of Study 152
5.3 Implications of Study 153
5.3.1 Theory Implications 153
5.3.2 Practical Implications 154
5.4 Future Recommendations 154
5.5 Chapter Summary 155
REFERENCES 157
APPENDICES 189
Appendix A 189

LIST OF TABLES

Table		Page
2.1	Definition of ISSP	13
2.2	ISSP Era	15
2.3	Variables of IS Success Model Delone & McLean Updated (2003)	19
3.1	List of Variables and Its Definitions	53
3.2	List of Indicators of ISSP Product Quality Variable	54
3.3	List of Indicators of Planning System Quality Variable	55
3.4	List of Indicators of ISSP Service Delivery Quality Variable	56
3.5	List of Indicators of ISSP Facilitators Variable	57
3.6	List of Indicators of ISSP Culture Variable	57
3.7	List of Indicators of Use Variable	58
3.8	List of Indicators of Satisfaction Variable	58
3.9	List of Indicator of Benefit (Net benefit) Variable	59
3.10	Code and Questionnaire	62
4.1	Reliability of Pilot Study	70
4.2	Cross-Loading Factor of Pilot Study	71
4.3	Demographic of Respondents of Final Research	75
4.4	Reliability and Validity of Final Research	78
4.5	Discriminant Validity of Final Research	80
4.6	Significance Test of Second Order	82
4.7	VIF Test Result	84
4.8	R^2 Test Result	85
4.9	Q^2 Test Result	89
4.10	Path Coefficient of Final Research	90
4.11	Recapitulation of Hypothesis Test Results	91

4.12	Relationship between Delone & McLean (ISSP) and ISSP Success	108
4.13	Effect Size (f^2) of Relationship between Delone & McLean (ISSP) and ISSP Success	108
4.14	VAF of Relationship between Delone & McLean (ISSP) and ISSP Success	108
4.15	Mediating effect of the Delone & McLean (ISSP) factors to the success of the ISSP	114
4.16	Relationship between facilitators factor and ISSP Success	126
4.17	Effect Size (f^2) of Relationship between Facilitators Factor and ISSP Success	126
4.18	VAF of Relationship between Facilitators Factor and ISSP Success	126
4.19	Mediating Effect of the Facilitators Factor with the Success of the ISSP	128
4.20	Mediating Effect of a Combination of Factor Facilitators and the Delone & McLean (ISSP) Factors to the Success of the ISSP	130
4.21	Effect of Relationship ISSP Culture Factor and ISSP Success	135
4.22	Effect Size (f^2) of Relationship ISSP Culture Factor and ISSP Success	135
4.23	VAF of Relationship ISSP Culture Factor and ISSP Success	135
4.24	ISSPBRM Construct IPMA Result	138
4.25	ISSPBRM Indicators IPMA Result	138

LIST OF FIGURES

Figure		Page
2.1	IS Success Delone & McLean Model (1992)	18
2.2	IS Success Delone & McLean Model Updated (2003)	19
2.3	ISSPBRM	22
2.4	ISSPBRM Mapping: Delone & McLean (ISSP) and Additional Factors	24
2.5	ISSP Mapping in Delone & McLean Model	38
3.1	Research Stage	48
3.2	Conceptual Framework of ISSPBRM	50
4.1	ISSPBRM with Indicators and Hypotheses	73
4.2	ISSPBRM IPMA Result	138

LIST OF ABBREVIATION

IS	Information System
ISSP	Information System Strategic Planning
ISSPBRM	ISSP Benefit Realization Model
PSQ	Planning System Quality
IPQ	ISSP Product Quality
SDQ	System Delivery Quality
IFC	ISSP Facilitators variable
CUL	ISSP Culture
SAT	Satisfaction variable
USE	Use variable
BEN	ISSP Net Benefit variable
AeU	Asia e University
Delone & McLean (ISSP)	Delone & McLean Updated in 2003 which has been adapted to the context of the ISSP
IPMA	Importance and Performance Matrix Analysis

CHAPTER 1

INTRODUCTION

Structurally, this Introduction is arranged in several parts, starting with the Background of the study, Problem Statement, Objectives, Research Questions, Research Hypotheses, Justifications and Significance of the Study, Theoretical Contributions, Practical Contributions and Chapter Summary.

1.1 Background of the Study

Information System Strategic Planning (ISSP) is an important part of the information system in the form of activities from the use of strategic information systems by an organization (Supriyadi, 2022; Yang et al., 2015). ISSP studies have been conducted for more than 3 decades (Wagner et al., 2021) and are still ongoing today (Hughes & McDonagh, 2021; Yaokumah et al., 2022), so that it is still relevant to continue the current study. ISSP model development studies to date have focused on factors that influence ISSP success, including the ISSP success model influenced by the ISSP process (Kim, 2022), ISSP implementation (Kamariotou, 2022), ISSP practice (Kim, 2022), environmental factors (Li et al., 2022) , management factors (Renault et al., 2020) , and organizational factors (Harguem, 2021). Empirical studies related to the ISSP success model have been carried out, both in manufacturing organizations (Musau, 2021), health organizations (none Emmanuel, 2019) and educational organizations (Paraggua et al., 2022). ISSP studies in Indonesia have been carried out to date. ISSP in Indonesia has been implemented in the retail sector (Saputra & Tanaamah, 2022), hotels (Yogaswara et al., 2022), mining (Tavares et al., 2021), government (Yasin et al., 2022), small and medium enterprises (Hamdani & Fatah, 2018), religion (Wibowo & Wijaya, 2018), health (Karmawan, 2018) and education

(Zakiy et al., 2022). ISSP studies on educational organizations, especially at Higher Education in Indonesia, are still being carried out today (Edi, 2022).

ISSP studies at Higher Education in Indonesia focus more on ISSP success, which is influenced by certain success factors (Lawu & Ali, 2022). Studies related to the factors that influence the success of the ISSP in Higher Education in Indonesia can be linked to the model used to represent it (Edi, 2022). According to a review conducted (Sudarsono, Lestari, et al., 2020), the ISSP success model in Higher Education that currently exists in Indonesia is still very small and partial, namely only one or two success factors for the ISSP success model, so that the perceived benefits are still small. This also shows that ISSP ownership in Higher Education in Indonesia still has not determined the success factors for the complete realization of ISSP benefits, which involve many success factors. It is assumed that Higher Education does not fully understand the realization of ISSP benefits and the success factors. Even though the more success factors used in a model, the greater the possibility of getting benefits (Hicks, 2020; Poolton et al., 2000). According to Bruque and Moyano (2007) and Shukla and Kumar (2022) it is stated that it is important to use a model that has been proven in previous studies for success. Besides that, Bruque and Moyano (2007) and Upadhyay et al. (2022) added that many researchers also agree that the clarity of the ISSP is positively related to the successful adoption of the IS model. The successful adoption of the IS model can be seen in the successful utilization of the IS model used (Subiyakto et al., 2019). The IS model that is widely used today for successful IS is the Delone & McLean model which was revised in 2002 (Subiyakto et al., 2019). The development of the use of the Delone & McLean model is still being discussed and developed. For example, its use in the field of education (Çelik & Ayaz, 2022), the development of Enterprise Resource Planning

(ERP) (Akrong et al., 2022), and there are many uses in others. The Delone & McLean model has been said to have validity and reliability by several researchers (Mukhtar & Mishleen, 2018; Subiyakto et al., 2019). The Delone & McLean model also has a large number of success factors, namely six success factors that can provide a greater likelihood of success, so that it is worthy of being adopted as the basic model in this study. However, the adoption of the Delone & McLean model is still very limited in its application in the ISPP context, so further research is needed in this study.

Many studies related to the ISSP have been carried out since the 1970s (Mueller & Urbach, 2021). According to Mangalaraj (2014) each decade experiences the evolution of the ISPP's success era based on the factors that influenced its success. ISSP's success model, especially in the 1990s, has focused on ISSP as part of the process in terms of aligning business strategy and IS strategy. From the late 2000s to the present, ISSP entered an era of uncertainty where the focus of the ISSP success model was influenced by the completeness factor of ISSP in an uncertain and dynamic environment (Kamariotou et al., 2021; Mangalaraj, 2014). According to de Rezende Guedes and da Veiga Jardim Filho (2020), he stated that starting at the end of 2000 was an era of uncertainty which required a comprehensive ISSP in an uncertain environment. This statement is reinforced by Newkirk et al. (2003) and Yoshikuni and Lucas (2022) stating that the ISSP success model is influenced by one or many factors to achieve the goals of an organization in an uncertain and dynamic environment, so it requires a completeness factor and will be predicted to be a more successful ISSP. According to Bharadwaj and Agrawal (2018) , completeness can be defined as the extent that all of its parts are present and each part is fully developed.

Therefore, adequate factor completeness is needed (Zowghi & Gervasi, 2003) and adapted to today's uncertain and dynamic environment.

In addition, ISSP is in an uncertain and dynamic environment (Kamariotou et al., 2021), its success has also been affected by political, economic, social and technological pressures (Al-Faidi Al-Juhani, 2019; Kim, 2022). Therefore, the ISSP success model requires a completeness factor in an era of uncertainty to be able to respond to this pressure (Kim, 2022; Newkirk et al., 2003). This completeness factor can be in the form of facilitating and cultural factors (Masi et al., 2019; Tesfaye et al., 2020). These two factors have also been studied separately and proven to contribute to ISSP success (Yang et al., 2020; Yaokumah et al., 2022). However, studies of the critical success factors of ISSP in Higher Education in Indonesia show that there is no involvement of the Facilitator factor and there is still little application of cultural factors (Sudarsono et al., 2021). The Delone & McLean model is an IS success model in which the influencing factors can be added to other factors and are proven to have provided greater IS success (Alotaibi & Alshahrani, 2022; Millenia et al., 2022). The author assumes that facilitating and cultural factors are important to be added to the Delone & McLean model because they will provide greater ISSP success. The addition of these two factors to the Delone & McLean model is considered important because if they are not added there will be a lack of benefit realization (Coursey, 2018) and difficulties in dealing with political, economic, social and technological pressures in uncertain and dynamic times (Al-Faidi Al-Juhani, 2019). So this study is still relevant for further exploration. However, currently there are still very limited studies related to the development of the Delone & McLean model with the addition of facilitator and cultural factors (Yang et al., 2020; Yaokumah et al., 2022) for the success of ISSP, especially at Higher Educations in Indonesia.

In short, there are two gaps underlying this research. The first gap is the limited research on the use of the Delone & McLean model in the ISSP context on Higher Education objects in Indonesia. In the second gap, there is still limited research on facilitating and cultural factors to be added to the Delone & McLean model to influences the success of the ISSP in Higher Education in Indonesia. In broadening the findings and conclusions in a study, it is also necessary to strengthen the findings regarding the level of importance and performance of the factors that influence the success of ISSP in terms of realizing ISSP benefits.

1.2 Problem Statements

Below are the Problem Statements of this study:

(a) ISSP success studies use many models to represent ISSP success. The ISSP success model at Higher Education in Indonesia currently still does not involve many factors for ISSP success, so that the success obtained is still felt to be small and incomplete (Sudarsono, et al., 2020). Even though the more success factors are used, the greater the possibility of benefits obtained (Hicks, 2020). The Delone & McLean model, besides having validity and reliability (Subiyakto et al., 2019), also has many factors that influence success, so it is worthy of being used as a basis for this research. However, many current studies adopting the Delone & McLean model are still very limited in their application in the ISSP context, so further research is needed in this study. Therefore, it is very important to assess the factors in the Delone & McLean model in the ISSP context.

(b) The ISSP era is currently entering an era of uncertainty and dynamics (Kamariotou et al., 2021; Mangalaraj, 2014), where the ISSP's success is influenced by political, economic, social and technological pressures (Al-Faidi Al-Juhani, 2019; Kim, 2022). Therefore, the ISSP success model requires a

completeness factor to respond to this pressure and is predicted to be a more successful ISSP (Kim, 2022; Newkirk et al., 2003). This completeness factor can be in the form of facilitating and cultural factors (Masi et al., 2019; Tesfaye et al., 2020). These two factors have also been studied separately and proven to contribute to ISSP success (Yang et al., 2020; Yaokumah et al., 2022). The Delone & McLean model is an IS success model in which the influencing factors can be added to other factors and are proven to have provided better IS success (Alotaibi & Alshahrani, 2022; Millenia et al., 2022). However, currently there are still very limited studies on the development of the Delone & McLean model which are added by facilitator and cultural factors for ISSP success, especially at Higher Education in Indonesia. So this study is still relevant for further exploration.

1.3 Research Questions

Below were the research questions of this study:

i Why do factors in the Delone & McLean model have a significant impact on the success Information System Strategic Planning (ISSP) initiatives in higher educational institutions?

ii How do the factors of culture and facilitator impact the success of Information System Strategic Planning (ISSP) in higher educational institutions?

1.4 Research Objectives

The research objective of this study consists of two main objectives. The following are the general objectives of sub-chapter 1.2.

i To investigate factors in the Delone & McLean model that have a significant impact on the success Information System IS Strategic Planning (ISSP) initiatives in higher educational institutions.

ii To assess the relationship between the culture and facilitator factors that can contribute and influence the success of Information System IS Strategic Planning (ISSP) in higher educational institutions.

1.5 Research Hypotheses

Below were the hypotheses of this study:

H1: ISSP Product Quality influences Use
H2: ISSP Product Quality influences Satisfaction
H3: ISSP Product Quality influences ISSP Net Benefit
H4: Planning System Quality influences Use
H5: Planning System Quality influences Satisfaction
H6: Planning System Quality influences ISSP Net Benefit
H7: ISSP Service Delivery Quality influences Use
H8: ISSP Service Delivery Quality influences Satisfaction
H9: ISSP Service Delivery Quality influences ISSP Net Benefit
H10: Use influences Satisfaction
H11: Use influences ISSP Net Benefit
H12: Satisfaction influences ISSP Net Benefit
H13: ISSP Culture influences ISSP Facilitators
H14: ISSP Culture influences ISSP Service Delivery Quality
H15: ISSP Culture influences Planning System Quality
H16: ISSP Culture influences ISSP Product Quality
H17: ISSP Culture influences Use
H18: ISSP Culture influences Satisfaction
H19: ISSP Culture influences ISSP Net Benefit
H20: ISSP Facilitators influences Planning System Quality
H21: ISSP Facilitators influences Use
H22: ISSP Facilitators influences Satisfaction
H23: ISSP Facilitators influences ISSP Net Benefit

1.6 Justifications and Significance of the Study

This study is related to the success of ISSP on Higher Education in Indonesia. This study was conducted because currently the success of ISSP in Higher Education in Indonesia is still influenced by a small number of factors that influence success

(Sudarsono, et al., 2020). Therefore, many factors are needed in order to provide greater benefits to face the current era of uncertainty and dynamics (Hicks, 2020; Poolton et al., 2000). The impact of the small number of factors will result in a lack of benefit realization (Coursey, 2018), resulting in difficulties in dealing with political, economic, social and technological pressures during uncertain and dynamic times (Al-Faidi Al-Juhani, 2019).

1.7 Theoretical Contributions

To explore and bring new theoretical insights to ISSP researchers and stakeholders in terms of understanding the success of ISSP and to find out what factors influence the success of ISSP, especially from the point of view of the realization of its benefits in Indonesia. The following are some of the expected theoretical contributions to this study.

i This study contributes to proving whether the factors in Delone & McLean have an influence on ISSP success.

ii This research contributes to proving whether Delone & McLean factors can mediate between culture factors and facilitators with benefit factors and as mediating factors that have an influence on ISSP success.

iii This study contributes to proving that the facilitator factor, which is the infusion factor in the success of ISSP, has an influence on the success of ISSP.

iv This study contributes to proving that the facilitator factor is a mediator between the culture factor and the benefit factor, as a mediator that has an influence on the success of ISSP.

v This study contributes to proving that the combination of facilitators and Delone & McLean factors has an influence on ISSP success.

vi This research contributes to proving that the culture factor has an influence on the success of ISSP.

vii This research contributes to proving the importance and performance aspects of the proposed model.

1.8 Practical Contributions

ISSP contributes to the practical side to the organization, usually in terms of user needs and financial side (Harun & Hashim, 2017), when organizations adopt ISSP to get the benefits. The following are the expected practical contributions to this study.

i This research contributes to providing input as a new perspective for ISSP designers and Higher Education leaders in utilizing the proposed model for implementing, evaluating and assessing ISSP success.

ii This research contributes to the provision of new views regarding the possibility of using the proposed model on other research objects other than Higher Education objects.

1.9 Chapter Summary

This study discusses the success of ISSPs. ISSP success is influenced by several factors. Currently, the success of ISSP at Higher Education in Indonesia is still influenced by factors that are partial, meaning that the number of influencing factors is still very small and seems to stand alone. This is seen as needing to be improved by referring to the current evolution of ISSP. Based on the evolution of ISSP, organizations are currently facing an uncertain situation, so it requires completeness of factors in dealing with this uncertain situation in achieving ISSP success. Higher education as an organization also requires a complete set of factors, namely cultural factors and facilitators in achieving ISSP success. In addition, it is necessary to

consider the current IS success model that has validity and reliability, namely the Delone & McLean model, in order to be the main factor in the proposed model in determining ISSP success. This raises two gaps that underlie this research. The first gap is the limited research on the use of the Delone & McLean model in the ISSP context on Higher Education objects in Indonesia. The second gap, there is still limited research on facilitating and cultural factors to be added to the Delone & McLean model to influence the success of the ISSP in Higher Education in Indonesia. The proposed model was built by adopting a combination of Delone & McLean which was modified by adjusting the ISSP object with facilitators and culture factors, which are factors in influencing the success of ISSP. Research related to the Delone & McLean model has been widely adopted for IS success but related to the proposed research model with success in the ISSP context involving the Delone & McLean model has never been studied before. The Delone & McLean model is an IS success model in which the influencing factors can be added to other factors and are proven to have provided better IS success (Alotaibi & Alshahrani, 2022; Millenia et al., 2022). In previous research, the facilitating and culture factors in the proposed research model have never been combined into the Delone & McLean model in the ISSP context. In the research proposal model, these two factors were chosen to be combined into the Delone model because in previous studies they had been studied separately and were proven to provide ISSP success (Yang et al., 2020; Yaokumah et al., 2022). The expected contribution to this research is that the combination of facilitating factors and culture into the Delone & McLean model can influence ISSP success. The next investigation after discussing the research questions is an investigation the factors in the proposed model have a good degree of importance and performance.