Benefit Realization Model of Information System Strategic Planning Success: A Proposed Model

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Abstract: Information System Strategic Planning (ISSP) is an effort to build an organization or institution in achieving and realizing success such as aligning information system (IS) with business strategy, competitive advantage, effectiveness, capability, flexibility, improving performance, increasing competitive advantage by planning multiple systems information that has a value of success in a certain time either short or long term. In this study, we have tried to propose a model that adopts the successful of DeLone and McLean information system model (DMSISM) to be adopted into a proposed model, namely the ISSP benefit realization success model (ISSPBRM). The success of ISSP which is the goal of ISSPBRM contains the key to PSSI's success, which includes formal methods and implementation so that it is very suitable to adopt DMSISM which also includes conceptualization and operationalization of information system success.

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1 INTRODUCTION

Information System Strategic Planning is a part of information systems science that is very instrumental (Maria Kamariotou 2016)for the success of an organization (N.F. Dohertya 1999). The role of ISSP for the organization is seen in benefits (Earl, 1993) produced when the realization of ISSP has been carried out (Arvidsson et al., 2014). The benefit of this ISSP arises as a result of the success of the ISSP realization itself. A lot of literature related to ISSP benefits(Earl, 1993), (N.F. Dohertya 1999).

Research on Information System Strategic Planning is still ongoing. The success of the ISSP is also being investigated because the variables and indicators of ISSP's success continue to grow along with the continued use of ISSP for the organization. There was several success factors that are still not much researched related to ISSP benefit realization, namely the integration of the ISSP Product role, Planning System, ISSP Service Delivery, ISSP usage which will result in the satisfaction of ISSP usage, and ultimately will result in ISSP benefits which are the impact of successful realization ISSP. The role of ISSP facilitators for the realization of benefits has not been widely discussed and studied. The role of cultural factors that have an impact on ISSP benefits realization has also not been much investigated related to the cultural influence on the integration of Planning Systems, ISSP Products, Services and Submission of ISSP Products and Use of ISSP.

In this literature, authors try to resolve the problem of the lack of research related to the realization of ISSP benefits and determine two questions related to our research, namely (1) What the success factors and indicators that are needed from the realization of ISSP benefits. (2) How to assume this success factor is associated with the ISSP benefit realization model.

In this study, a theoretical model is proposed, namely the ISSP benefit realization model. This model adopts the success DMSISM(DeLone and McLean, 2002), by replacing and adding existing variables to DMSISM and determining indicators related to these variables. The steps taken in this study were first explaining the literature review, the second explaining the research methodology used, and the third explaining the results and discussion, and the fourth step was the overall conclusion of the study.

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2 LITERATURE REVIEW

Research on ISSP has been carried out more than 30 years ago (Maria Kamariotou 2016)(Alamri et al., 2016)(Osman et al., 2013, Harun and Hashim, 2017). ISSP plays a role in shaping information system planning that has a competitive advantage value (Segars, 1998) in the future. ISSP also has a role in shaping a portfolio of computer-based applications that are important in helping to run business planning and also realize business goals(N.F. Dohertya 1999). Business objectives are related to the success of ISSP(N.F. Dohertya 1999) which is felt in terms of benefits realization (Niemi and Pekkola, 2009)(Chou, 2015), (Love et al., 2014). Benefit realization that is successfully realized in terms of aligning business strategies with IS / IT strategy (Tallon and Kraemer, 1999)(Chan et al., 2006), planning effectiveness (Premkumar, 1991)(Segars, 1998)(Newkirk and Lederer, 2006), flexibility towards external environment (N.F. Dohertya 1999), and capability for new opportunities (RHYNE, 1987), (Zubovic et al., 2014) strengthens competitive advantage (Segars, 1998)(Sakas, 2014) and increases organizational performance due to IS usage (Premkumar, 1991)(Maria Kamariotou 2016)(Saravi and Dabirian, 2016).

Research related to the realization of the benefits of a success has been done such as the realization of ISSP benefits (Earl, 1993) and realization of Enterprise Architecture (EA) benefits (Lange et al., 2012)(Niemi and Pekkola, 2009). Generally, research related to the realization of benefits is done by making a model first. The benefits realization model that has been carried out is adopting the success model of DMSISM (DeLone and McLean, 2002) such as the EA benefit realization model (Lange et al., 2012). DMSISM is a model that is widely used by researchers, for example, it is also widely adopted for the success of information systems projects (Subiyakto et al., 2015, Subiyakto et al., 2016, Subiyakto, 2017, Putra et al., 2016) and The success of Hospital Information System (Mukhtar and Mishleen, 2018). ISSP is closely related to Information Systems. The success of the information system can also be directed to the success of ISSP. Many kinds of research that use of DMSISM has been successful for the success of the Information System, so it is also suitable for ISSP related to the success of ISSP especially in terms of benefits realization. In this research, a new model is proposed, namely ISSPBRM which adopts DMSISM. The success of ISSP which is the goal of ISSPBRM contains the key to ISSP success because it contains formal methods and implementation (Earl, 1993) is very suitable for adopting DMSISM which also contains conceptualization and operationalization of information system success (DeLone and McLean, 2002).

ISSPBRM is a model proposed for the success of ISSP because it consists of variables that lead to the key to the success of ISSP according to (Earl, 1993) must apply the formal method and implementation. ISSPBRM adopts DMSISM, where the variables owned are almost the same as DMSISM with a little variable name change and the addition of two variables. Variables owned by ISSPBRM are ISSP Product Quality variables, Quality Planning Systems, ISSP Delivery Quality, ISSP Facilitators, ISSP Culture, Use, Satisfaction, and ISSP Net Benefit. Variables that are clearly replaced by names are ISSP Product Quality (ISSPBRM) variable replacing Information Quality (DMSISM) because the ISSP output is an ISSP product in the form of plan, an application portfolio, roadmap, and other ISSP products, not the information contained in DMSISM which is the output of IS. Another variable is the Planning System Quality (ISSPBRM) replacing the System Quality (DMSISM) because Planning System Quality in ISSP is one of the success factors of ISSP which contains the functionality of ISSP which is applying the formal method in the form of planning process quality and planning method (Earl, 1993). Planning Quality Systems contain activities that are involved in planning (Lederer and Sethi, 1996). ISSP Service Delivery Quality variable (ISSPBRM) replaces Service Quality (DMSISM) because the ISSP Product is a plan, not an application. variable Use, Satisfaction, and Net Benefit (ISSPBRM) variables have the same naming meaning as the Intention to Use, User Satisfaction and Net Benefit (DMSISM). Variables added when adopting DMSISM are ISSP Culture variables which are external factors of ISSP success that affect ISSP. The ISSP Culture variable is used to accommodate People and Soft-Aspects of ISSP (Lange et al., 2012). Other variables added are Facilitators variables that have an impact on ISSP increases. (Yang and Pita, 2014, Yang et al., 2015).

3 RESEARCH METHODS

The following in Figure 1 is the stage of the research method carried out, consisting of 8 phases of research activities ranging from P1 to P8.

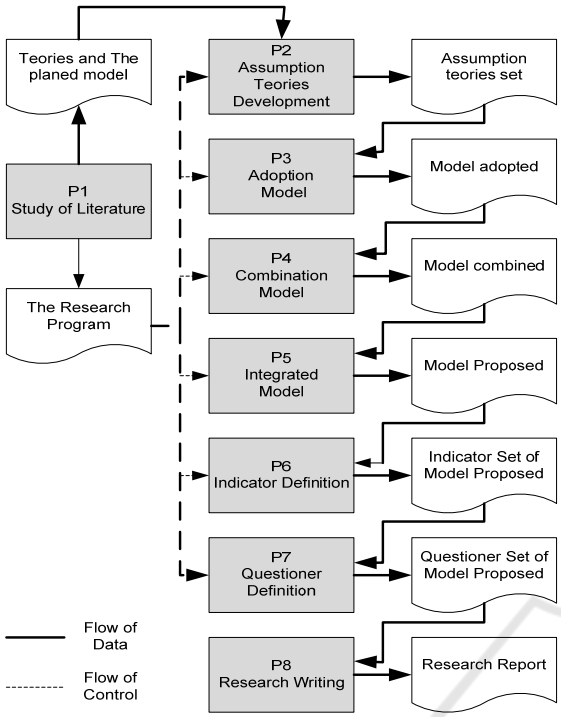

Figure 1.Research procedures

The activities carried out in research are denoted by the letter P, namely Phase or phase of research activity. In P1 of the study of literature produced documents theories and The Plan model and The research program. Each of these documents is linked to two types of lines, namely the data flow line and the control flow line. This data flow line will send data in documents to P2, P3, P4, P5, P6, P7 and P8, where each phase sequence produces documents. The control line functions in controlling the Research Program from P2 to P7.Efforts in the Proposed Development Model are seen in P2 to P5. The initial effort in developing the model can be seen in P2, namely the activity in finding related theories by assuming the model to be used and analyzing the theory so that it produces a set of assumptions theories that are very useful for P3.P3 is an activity to adopt DMSISM. This DMSISM is then combined with the renaming of the selected variables in the adopted model and the addition of a new variable that is variable Culture (P4).P5 is an activity in integrating all selected variables whose names are replaced with new variables, namely the variable Culture and Facilitators into the proposed model. Efforts to provide indicators into the development of the proposed model are seen in P6 and P7. The final activity is Research Writing (P8) is an effort to write research and will produce a Research Report document. Table 1 shows the basic theories and models and their references related to the research methodology in constructing ISSPBRM.

Table 1.The Theories and Basic Model

The Theories and basic models	References
IS Success Model and that realization.	(DeLone and McLean, 2002, Petter et al., 2008, Lange et al., 2012)
Adopting, Combining, and Integrating Model	(Subiyakto, 2017, Subiyakto and Ahlan, 2014, Subiyakto et al., 2016, Subiyakto et al., 2015)

4 RESULT AND DISCUSSION

The following in Figure 2 is the proposed model, namely the ISSP benefit realization model.

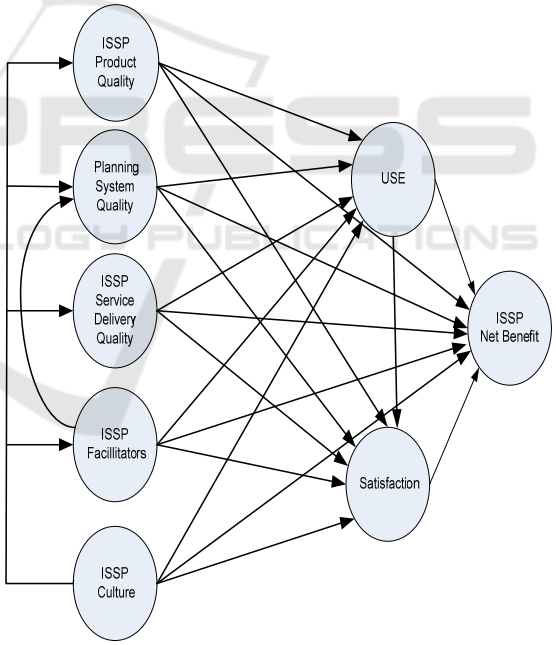

Figure 2.The proposed Model

ISSPBRM is a model that can be made by an IPO system (Input, Process, Output) using the IPO model (Subiyakto and Ahlan, 2017, Subiyakto and Ahlan, 2014, Subiyakto et al., 2015, Subiyakto et al., 2014), where the Input from ISSPBRM is the ISSP Product Quality variable, Quality Planning System, ISSP Product Delivery Quality, and ISSP Culture. The process part of the IPO model for ISSPBRM is the

ISSP Use and ISSP Satisfaction variable. The Output part of the IPO model for ISSPBRM is the Net Benefit variable. An explanation of the variables and their definitions in the ISSPBRM is shown in table 2. Each variable has several indicators. Explanation of these indicators is explained in table 3. In table 4 is a list of definition statements from the questionnaire on each indicator.

Table 2.List of Variables and Its Definitions

Variable Name	Definition	Reference
ISSP Product Quality (IPQ)	The Degree of quality from ISSP output related to Plans, IS/IT Strategies, IS Demand Statement, Application Portfolio availability, Roadmap.	(Jacobson and Aaker, 1987)(Lederer and Sethi, 1992)(Lin et al., 2010)(Lange et al., 2012, Ward et al., 2002)
Planning System Quality (PSQ)	The Degree of Functionality of ISSP that will produce strategic ISSP products related to flow, formality, comprehensiveness, Focus, Intensity, Participation and Horizon, and BP-ISP Integration	(RHYNE, 1987)(Papke-Shields et al., 2002)(Craig et al., 2013)(Premkumar, 1991)(G. Premkumar, 1992)(Premkumar 1994)(Wang, 2001)(Wolf and Floyd, 2013) (Maharaj and Brown, 2015, Osman et al., 2013)
ISSP Service Delivery Quality (SDQ)	The degree of quality from the submission of ISSP products perceived by users	(Culnan, 1985)(Pather and Usabuwera, 2010)(Alamri et al., 2016)(Parasuraman et al., 1988)
ISSP Facilitators (IFC)	The degree of involvement of Facilitators in ISSP	(Yang and Pita, 2014, Yang et al., 2015)
ISSP Culture (CUL)	The Degree of adoption of People and Soft-aspect ISSP in influencing the success of ISSP related to Leadership, Strategy, Adaptability, Coordination, and Relationships	(Madon, 1992) ((Dellemijn, 2011)(Smit et al., 2012, Craig et al., 2013)
USE (USE)	The degree of actual use of ISSP by the user associated with the Amount of use, Frequency of use, appropriateness of use, nature of use, the extent of use and purpose of use	(FLYNN and GOLENIEWSKA, 1993)(Amami et al., Rogerson and Fidler, 1994)(Teo and Ang, 2000, DeLone and McLean, 2002)(Petter et al., 2008, Arvidsson et al., 2014)(Popovič et al., 2014, Subiyakto, 2018)
Satisfaction (SAT)	The Degree of user satisfaction with ISSP products, use of ISSP and submission of ISSP products related to support provided to ISSP user and Fulfillment of ISSP user needs	(DeLone and McLean, 2002)(Petter et al., 2008)(Lin et al., 2010, Subiyakto, 2018, Subiyakto et al., 2017)
ISSP Net Benefit (BEN)	Benefit ISSP which contributes to ISSP success, for example, Alignment IS with Strategy Business, Effective of planning, gain competitive advantage, and improve the performance of the organization	(Silvius and Stoop, 2013)(N.F. Dohertya 1999)(OConnor, 1993)(Petter et al., 2008)(Bechor et al., 2010, Lange et al., 2012)

Table 3.List of Indicators and Its Definitions

Variable	Indicators	Definition of Indicator	Reference
IPQ	Plans (IPQ1)	The output of the ISSP is in the form of a plan	(Ward et al., 2002)
	IS/IT Strategies (IPQ2)	The output from ISSP in the form of IS or IT	(Ward et al., 2002)

		strategy	
	IS Demand Statement (IPQ3)	The output from ISSP is in the form of a statement of IS needs	(Ward et al., 2002)
	Application Portfolio Availability (IPQ4)	The degree of the availability of application portfolio as an ISSP product	(Ward et al., 2002)
	Roadmap (IPQ5)	The degree of the availability of roadmap	(Ward et al., 2002, Lange et al., 2012)
PSQ	flow (PSQ1)	The degree on Locus of authority for strategic planning	(Osman et al., 2013, Papke-Shields et al., 2002, Maharaj and Brown, 2015)
	Formality (PSQ2)	The degree to which the planning process was structured.	(Osman et al., 2013, Papke-Shields et al., 2002, Maharaj and Brown, 2015)
	Comprehensiveness (PSQ3)	The degree of the extent to which all possible strategic alternatives are identified and considered	(Osman et al., 2013, Papke-Shields et al., 2002, Maharaj and Brown, 2015)
	Focus (PSQ4)	The degree of the extent to which control or efficiency, usually seen as a tight link with budgets, rather than creativity is emphasized	(Osman et al., 2013, Papke-Shields et al., 2002, Maharaj and Brown, 2015)
	Intensity (PSQ5)	The degree of magnitude of resources committed to planning as evidenced by frequency and richness of meetings	(Osman et al., 2013, Papke-Shields et al., 2002, Maharaj and Brown, 2015)
	Participation (PSQ6)	The degree of variety of individuals involved in strategic planning	(Osman et al., 2013, Papke-Shields et al., 2002, Maharaj and Brown, 2015)
	Horizon (PSQ7)	The degree of length of time considered in strategic planning	(Osman et al., 2013, Papke-Shields et al., 2002, Maharaj and Brown, 2015)
	BP-ISP Integration (PSQ8)	The Degree of Integration of Business Planning with Information strategic planning	(Maharaj and Brown, 2015)
	Rational-Adaption (PSQ9)	The degree of strategic planning with the use of rationality	(Maharaj and Brown, 2015)
SDQ	Reliability (SDQ1)	The degree of strategic planning reliability	(Parasuraman et al., 1988)
	Responsiveness (SDQ2)	The degree of strategic planning responsiveness	(Parasuraman et al., 1988)
	Assurance (SDQ3)	The degree of strategic planning Assurance	(Parasuraman et al., 1988)
	Empathy (SDQ4)	The degree of strategic planning empathy	(Parasuraman et al., 1988)
	Service Recovery (SDQ5)	The degree of strategic planning service recovery	(Parasuraman et al., 1988)
	Systematization of Service Delivery (SDQ6)	The degree of strategic planning systematization of service delivery	(Parasuraman et al., 1988)
IFC	Top management participation and support	The level of Top management participation and support in ISSP	(Yang and Pita, 2014, Yang et

	(IFC1)		al., 2015)
	Active communication and knowledge-sharing between business and IT sectors (IFC2)	The level of active communication and knowledge sharing between business and IT sectors	(Yang and Pita, 2014, Yang et al., 2015)
	Consideration of internal and external environments (IFC3)	The level of consideration of internal and external environments in ISSP	(Yang and Pita, 2014, Yang et al., 2015)
	Appropriate resource allocation for undertaking ISSP exercise (IFC4)	The level of appropriate resource allocation for undertaking ISSP exercise	(Yang and Pita, 2014, Yang et al., 2015)
	Performing organizational learning (IFC5)	The level of performing organizational learning in ISSP	(Yang and Pita, 2014, Yang et al., 2015)
CUL	Leadership (CUL1)	The degree of the ability of leaders to have an influence on the culture of the organization	(Dellemijn, 2011, Smit et al., 2012)
	Strategy (CUL2)	The degree to which the organization has clarity about its strategic direction	(Dellemijn, 2011, Smit et al., 2012)
	Adaptability (CUL3)	The degree of the ability of the organization remain in contact with and respond to change	(Dellemijn, 2011, Smit et al., 2012)
	Coordination (CUL4)	The degree to which the systems within the organization is horizontally and vertically aligned	(Dellemijn, 2011, Smit et al., 2012)
	Relationship (CUL5)	The degree of the ability of people and teams in the organization to work together	(Dellemijn, 2011, Smit et al., 2012)
USE	Amount of use (USE1)	The degree of the amount of use ISSP	(Petter et al., 2008)
	frequency of use (USE2)	The degree of frequency of use ISSP	(Petter et al., 2008)
	appropriateness of use (USE3)	The degree of appropriateness of use ISSP	(Petter et al., 2008)
	nature of use (USE4)	The degree of nature of use ISSP	(Petter et al., 2008)
	extent of use (USE5)	The degree of extent of use ISSP	(Petter et al., 2008)
	The purpose of use. (USE6)	The degree of the purpose of use ISSP	(Petter et al., 2008)
SAT	Support provided to ISSP user (SAT1)	The degree of support provided to ISSP user	(Chen et al., 2000)
	Fulfillment of ISSP user needs (SAT2)	The degree of fulfillment of ISSP user needs	(Chen et al., 2000)
	A Useful Format of ISSP Product (SAT3)	The degree of A Useful Format of ISSP Product	(Chen et al., 2000)
	Preciseness Information (SAT4)	The degree of preciseness information	(Chen et al., 2000)
BEN	Alignment, Effectiveness Flexibility, Competitive-advantage, Improved-performance, and Capability	The degree of net benefit of ISSP	(Bechor et al., 2010, Subiyakto et al., 2014, Subiyakto et al., 2016)

Table 4.The List of Questionnaires Statement Definitions

Indicator	Statement of Questionnaires	Reference
IPQ1	The institution has the Plans	(Ward et al., 2002)
IPQ2	The institution has IS/IT Strategies	(Ward et al., 2002)
IPQ3	Institution have relations with application portfolio	(Ward et al., 2002)

	availability as the product of ISSP	
IPQ4	Institution have the document of IS Demand Statement	(Ward et al., 2002)
IPQ5	Institution have relations with roadmap ISSP availability	(Ward et al., 2002, Lange et al., 2012)
PSQ1	Institutions have factors about the privilege of authority on strategic planning.	(Osman et al., 2013, Papke-Shields et al., 2002, Maharaj and Brown, 2015)
PSQ2	A planner has the element of formality on strategic planning, which planning process was constructed and structured by written procedures, schedules, and other documents, and also make documentation resulting from the planning process	(Osman et al., 2013, Papke-Shields et al., 2002, Maharaj and Brown, 2015)
PSQ3	Planners have the comprehensive of all strategic alternatives.	(Osman et al., 2013, Papke-Shields et al., 2002, Maharaj and Brown, 2015)
PSQ4	Planners have the elements of efficiency and control of the planning process.	(Osman et al., 2013, Papke-Shields et al., 2002, Maharaj and Brown, 2015)
PSQ5	A planner has proof of frequency and richness meeting as the effort of the determinate magnitude of resources committed to planning.	(Osman et al., 2013, Papke-Shields et al., 2002, Maharaj and Brown, 2015)
PSQ6	A planner has a document of variety individual involved in strategic planning	(Osman et al., 2013, Papke-Shields et al., 2002, Maharaj and Brown, 2015)
PSQ7	A planner has a document of the length of time considered in strategic planning	(Osman et al., 2013, Papke-Shields et al., 2002, Maharaj and Brown, 2015)
PSQ8	A planner has a document on BP-ISP Integration	(Osman et al., 2013, Papke-Shields et al., 2002, Maharaj and Brown, 2015)
PSQ9	A planner has a document of Rational-Adaption	(Osman et al., 2013, Papke-Shields et al., 2002, Maharaj and Brown, 2015)
SDQ1	The institution should have a document of ISSP reliability	(Parasuraman et al., 1988)
SDQ2	The institution should have a document of ISSP responsiveness.	(Parasuraman et al., 1988)
SDQ3	The institution should have the elements of assurance.	(Parasuraman et al., 1988)
SDQ4	The institution should have a document of ISSP empathy	(Parasuraman et al., 1988)
SDQ5	The institution should have a document of ISSP service recovery	(Parasuraman et al., 1988)
SDQ6	The institution should have a document of systematization of service delivery	(Parasuraman et al., 1988)
IFC1	The institution should have the document of top management participation and support in ISSP	(Yang and Pita, 2014, Yang et al., 2015)
IFC2	The institution should have a document of active communication and knowledge-sharing between business and IT sectors in ISSP	(Yang and Pita, 2014, Yang et al., 2015)
IFC3	The institution should have a document of consideration of internal and external environments in ISSP	(Yang and Pita, 2014, Yang et al., 2015)
IFC4	The institution should have a document of appropriate resource	(Yang and Pita, 2014, Yang et al.,

	allocation for undertaking ISSP exercise	2015)
IFC5	The institution should have a document of performing organizational learning in ISSP	(Yang and Pita, 2014, Yang et al., 2015)
CUL1	ISSP should have documented the clarity of influence of about its strategic direction on the ability of leaders	(Dellemijn, 2011, Smit et al., 2012)
CUL2	ISSP should have factors that relationship with the organization has clarity about its strategic direction	(Dellemijn, 2011, Smit et al., 2012)
CUL3	ISSP should have factors that relation with the ability of the organization remain in contact with and respond to change	(Dellemijn, 2011, Smit et al., 2012)
CUL4	ISSP should have factors that relation with alignment the systems within the organization is horizontally and vertically	(Dellemijn, 2011, Smit et al., 2012)
CUL5	ISSP should have factors that relate to the ability of people and teams in the organization to work together	(Dellemijn, 2011, Smit et al., 2012)
USE1	ISSP used should have factors that relation with the amount of use ISSP	(Petter et al., 2008)
USE2	ISSP used should have factors that relation with the frequency of use ISSP	(Petter et al., 2008)
USE3	ISSP used should have factors that relation with the appropriateness of use ISSP	(Petter et al., 2008)
USE4	ISSP used should have factors that relation with nature of use ISSP	(Petter et al., 2008)
USE5	ISSP used should have factors that relationship with an extent of use ISSP	(Petter et al., 2008)
USE6	ISSP used should have factors that relation with the purpose of use ISSP	
SAT1	The institution should have the document of ISSP satisfaction that can be valued on the degree of support provided to ISSP user	(Chen et al., 2000)
SAT2	The institution should have the document of ISSP satisfaction that can be valued on the degree of fulfilment of ISSP user needs	(Chen et al., 2000)
SAT3	The institution should have the document of a useful format of ISSP Product	(Chen et al., 2000)
SAT4	The institution should have the document of Preciseness Information	(Chen et al., 2000)
BEN	ISSP has net-benefit that contains success factor, for example, good alignment, Effectiveness, Flexibility, Competitive-advantage, Improved-performance, and Capability	(Bechor et al., 2010)

5 CONCLUSION

This research is carried out to build and propose a new model, namely the realization of the benefits model of ISSP. This new model development method is carried out with the adoption, integration, and combination of the DMSISM model. This proposed model is the ISSPBRM model formed from several variables including ISSP Product Quality variable, Planning System Quality, ISSP Service Delivery Quality, ISSP Facilitators, ISSP Culture, Use, Satisfaction, and ISSP Net Benefit. The variables integrated into the DMSISM model are the ISSP Product Quality, Planning System

Quality, ISSP Service Delivery Quality, while the variable added are ISSP Facilitators and ISSP Culture. The relationship between variables in the ISSPBRM model is conditioned to achieve benefit realization from the ISSP. The success of ISSP which is the goal of ISSPBRM contains the key to PSSI success because it contains formal methods and implementation is very suitable for adopting DMSISM which also contains conceptualization and operationalization of information system success.

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