

# Realization of the Benefits and Determinants of Information Systems Strategic Planning for Higher Educations in Indonesia using Systematic Literature Review

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**Abstract**-Research related to information systems strategic planning (ISSP) continues to this day. Likewise ISSP research at Higher Educations in Indonesia. ISSP is an information system planning concept that is very important in the information system development life cycle. ISSP provides the realization of benefits, which are obtained from the determining factors. ISSP research results currently have a lot to discuss the realization of benefits and its determinants, but not much explored the accumulation of benefits and their determinants in a certain period. This exploration activity is important to obtain the reality and phenomenon of the actual use of ISSP to support the right determination for the organization, especially related to determining the realization of benefits and their determining factors. The purpose of this study is to explore the realization of the benefits of ISSP and its determinants in Indonesian Higher Educations in the period 2009 to 2019 using the method of systematic literature review (SLR). The results of this study are in the form of a synthesis of ISSP benefit realization and its determinants.

**Keywords**-Information System Strategic Planning, Realization Benefit, Determinant factors

## Introduction

Organizations currently view information systems as having internal and external benefits [1-4]. Regarding external benefits, information systems are no longer seen as mere infrastructure but are seen as weapons of competition in winning the competition. Internal benefits felt by the organization are efficiency, effectiveness, alignment, improving the performance and capability of the organization and its flexibility . All types of benefits of this information system are of strategic value. Organizations want these benefits from the use of information systems. Therefore, the procurement of information systems for organizations needs planning. This form of information system planning is ISSP. As part of the information system procurement effort, ISSP has realized its benefits [5]. The realization of ISSP benefits in the form of competitive advantage, alignment, effective, efficient, increased performance, capability, and flexibility. In determining ISSP that has realized benefits, it is necessary to explore the determinants that cause the realization of benefits that can be felt by the organization. These determinants can be either process or non-process. The determinants of this benefit realization are planning, culture, facilitator, product quality and use .

Higher Educations in Indonesia as an organization wants the use of information systems that will be owned, also provide benefits both from the internal and external [6, 7]. Therefore Higher Educations need to plan information systems from the start. ISSP ownership for Higher Educations is very important to get the realization of the benefits it generates. Realization of the benefits of ISSP [8] for Higher Educations is useful in achieving the goals and objectives of the organization with the optimal utilization of information systems [9]. The realization of ISSP benefits for Higher Educations including wanting to win in competition with other Higher Educations. Realization of other benefits is the desire to be efficient in utilizing resources, effectiveness in decision making, aligning information needs with business needs, improving internal performance, developing capabilities and extending university flexibility. For this reason, Higher Educations need to make efforts to determine the determinants of the realization of ISSP benefits for their information system procurement activities. Currently, there has been a lot of discussion in ISSP research related to the realization of benefits and their determinants, but there is still not much literature exploring this that provides data to be accumulated as a whole in a certain period. Data accumulation related to the realization of ISSP benefits and its determinants as a whole is useful in providing important information for Higher Edu-

cations in determining the realization of benefits and determinants that are suitable for the goals and objectives set.

The purpose of this study is to explore the realization of the benefits of ISSP and its determinants in Indonesian Higher Educations from 2009 to 2019 using the SLR method.

## Research

In this study, the method used is the SLR method [10] which is a method that accumulates, selects the literature related to the realization of the benefits of ISSP and its determinants for review. Figure 1 shows the SLR method. The SLR method has 3 stages namely stage 1 determining LR (Literature Review) Questions. The determination of LR Questions is aided by population approaches, interventions, comparisons, outcomes, and contexts (PICOC). Phase 2 is selecting researches, where a search of journals, proceedings, and theses of S2 is available at Google Scholar, Elsevier, Emerald, Proquest, and IEEE Xplore. Stage 3 is evaluating the researches selected, where this activity evaluates all researches found in stage 2, to be determined as the final result of this SLR method.

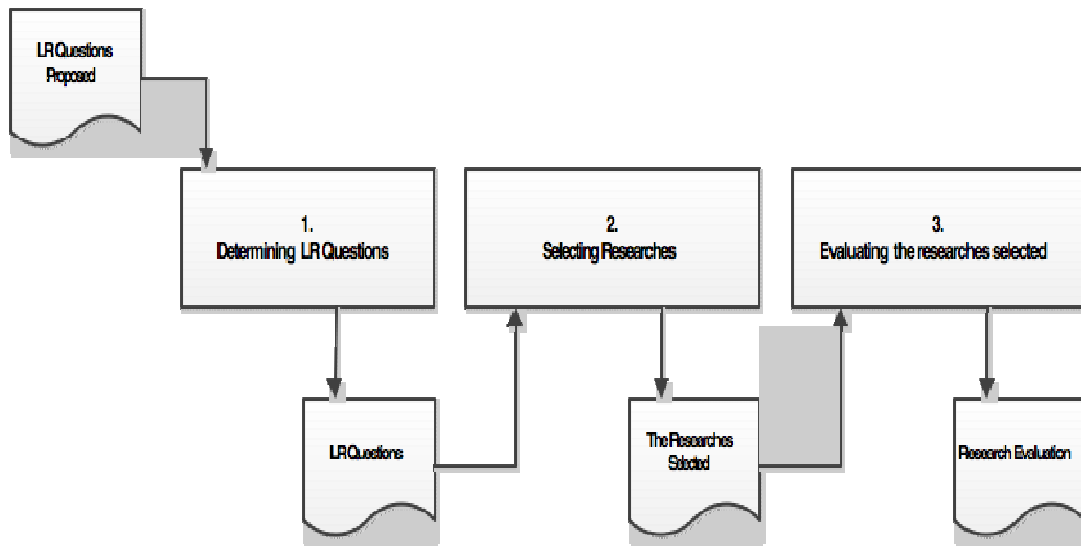


Figure 1. SLR Research Method

The use of the SLR method in this study is aimed at seeing, selecting and evaluating literature related to the realization of the benefits of ISSP and its determinants at Higher Educations in Indonesia and the phenomenon.

Determination of LR questions in stage 1 of the SLR method, using the PICOC approach[10] which is intended to determine the criteria and scope of LR questions. In this study, Table 1 is a table related to the PICOC approach and determined LR questions, namely LRQ1: What is explored from the realization of the benefits of ISSP in Indonesian Higher Educations. LRQ2: What is explored from the determinants of the realization of the benefits of ISSP in Indonesian Higher Educations.

Table 1. Criteria and scope of LR questions

No	Criteria	Scope
1	Population	Many higher educations in Indonesia
2	Intervention	Benefits realization of ISSP, determinant of ISSP benefits realization
3	Comparison	Realization of ISSP benefits among higher educations in Indonesia
4	Outcome	Benefits Realization of ISSP among higher educations The determinant of ISSP benefits realization among higher educations

5	Context	Exploration of the realization of ISP benefits and the determinants of benefits realization in Indonesia
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In phase 2 of the SLR method, the year of article search began in 2009 to 2019. The search keyword used in this study was "Information system strategic planning at Higher Educations in Indonesia". At the beginning of the search and selection found about 100 relevant articles. In stage 3 of the SLR method of evaluation activities, around 72 articles were deemed relevant to ISSP topics at Indonesian Higher Educations. Evaluation results are then grouped according to related criteria so that the evaluation results are synthesized from this study. The criteria for this evaluation include the object of research, the number of provinces, the realization of ISSP benefits, and the determinants of benefits realization.

### Findings and Discussion

The research objects of 72 articles obtained from stage 3 of the SLR method, all objects are in Indonesia. The research objects identified were 2 types of research objects, namely Higher Educations with real objects and Higher Educations in general. Articles from tertiary research objects with real objects mean that articles are obtained from Higher Educations with a clear identity that has a real name and address in Indonesia. An article from a Higher Educations research object in general means an article by taking a university object in general without a clear university identity. The object of research explored was 72 articles identified, it was found that for Higher Educations with real objects amounted to 64 articles with a distribution of 59 Higher Educations in 16 provinces, while Higher Educations, in general, amounted to 8 articles. Table 2 explains the synthesis of this research object.

**Table 2.** ISSP Research Object in Higher Educations in Indonesia

No	Research Object Type	Province	Number of Higher Educations	Number of Articles
1.	Higher Educations in General	-	-	8
2.	Higher Education with real objects	Banten	2	2
		Jakarta	10	10
		West Java	11	12
		Central Java	8	8
		East Java	7	9
		Bali	2	2
		NTB	2	2
		North Maluku	1	1
		West Kalimantan	1	2
		Central Kalimantan	1	1
		East Kalimantan	3	3
		Riau	4	4
		Bengkulu	1	1
		South Sumatera	2	2
		Lampung	3	4

	Jambi	1	1
Total	16	59	72

Table 3 explains the definitions of several ISSP benefit realizations arising from the findings in this study. Table 4 explains the synthesis of ISSP benefit realization mapping in Indonesia. The synthesis in table 4 shows that the realization of the ISSP benefits most generated by ISSP in Indonesia is alignment (40.33%), competitive (22.68%), effective (17.64%) and efficient (15.12%). While the smallest realization of ISSP benefits was successively flexibility (0.84%), capabilities (0.84%) and performance (2.52%). Table 5 shows the definition of the determinant factors of ISSP benefit realization that emerged in this study. Table 6 shows the synthesis of the determinant factors of ISSP realization in Indonesia, starting from the biggest, namely planning (92.30%), use (3.84%), product quality (1.28%), culture (1.28%) and leadership (1.28%).

**Table 3.** Benefit Realization of ISSP Definitions

No	Benefit Realization of ISSP	Definitions	Reference
1	Effectiveness (Eff)	The competence to attain the utilize of information systems to affect established strategies	[11][12][13]
2	Efficiency (Efc)	The competence to time or cost thrift	[14][15][16]
3	Competitive (Cpt)	The competence to amplify the competitive advantage	[17][18]
4	Alignment (Alg)	The competence to aligning business strategies with IS / IT	[19][20]
5	Capabilities (Cab)	The competence to the ability for new opportunities	[21][22]
6	Performance (Pfm)	Increase organizational fulfillment due to IS Utilize	[11][23][24]
7	Flexibility (Flb)	Adaptability towards external conditions	[8][25]

**Table 4.** Mapping the Benefits Realization of ISSP at Higher Educations in Indonesia

No	Research Object Type	Province	Benefits Realization of ISSP							Reference
			Eff	Efc	Cpt	Alg	Cab	Pfm	Flb	
1.	Higher Educations in General	-	1	2	3	5	-	-	-	[26][27][28][29][30][31][32][33]
2.	Higher Educa-	Banten	-	-	1	1	-	-	-	[34][35]

tion with real objects	Jakarta	5	6	4	6	-	1	1	[36][37][38][39][40][41][42][43][44][45]
	West Java	5	3	6	8	-	-	-	[46][47][48][49][50][51][52][53][54][55][56][57]
	Central Java	2	5	3	5	-	-	-	[58][59][60][61][62][63][64][65]
	East Java	2	-	3	7	-	-	-	[66][67][68][69][70][71][72][73][74]
	Bali	1	-	-	1	-	-	-	[75][76]
	NTB	-	-	-	2	-	1	-	[77][78]
	North Maluku	-	-	1	1	-	-	-	[79]
	West Kalimantan	1	-	-	2	-	-	-	[80][81]
	Central Kalimantan	1	-	-	-	-	-	-	[82]
	East Kalimantan	-	-	2	2	-	-	-	[83][84][85]
	Riau	2	1	1	2	-	1	-	[86][87][88][89]
	Bengkulu	1	1	-	-	-	-	-	[90]
	South Sumatera	-	-	2	1	-	-	-	[91][92]
	Lampung	-	-	1	4	1	-	-	[93][94][95][96]
Jambi	-	-	-	1	-	-	-	[97]	
Total		21	18	27	48	1	3	1	

**Table 5.** Determinant Factors of ISSP Benefit Realizations and definitions

No	Determinant Factors of ISSP Benefit Realization	Definitions	Reference
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1	Planning (Pln)	The Role of ISSP that will create strategic ISSP products	[21][98][99]
2	Use (Use)	The actual actuate of ISSP by the user	[100][101]
3	Product Quality (Pdq)	The quality from ISSP output	[102][103]
4	Culture (Cul)	The use of People and Soft-aspect ISSP and impact on the success of ISSP	[104][99]
5	Leadership (Ldr)	The intervention of management in ISSP	[105][25]

**Table 6.** Mapping the Determinant Factors of ISSP for Benefits Realization in Higher Educations in Indonesia

No	Research Object Type	Province	Determinant Factors of ISSP Benefit Realization					Reference
			Pln	Use	Pdq	Cul	Ldr	
1.	Higher Educations in General	-	8	3	1	-	-	[26][27][28][29][30][31][32][33]
2.	Higher Education with real objects	Banten	2	-	-	-	-	[34][35]
		Jakarta	10	1	-	-	-	[36][37][38][39][40][41][42][43][44][45]
		West Java	12	-	-	1	1	[46][47][48][49][50][51][52][53][54][55][56][57]
		Central Java	8	-	-	-	-	[58][59][60][61][62][63][64][65]
		East Java	9	-	-	-	-	[66][67][68][69][70][71][72][73][74]
		Bali	2	-	-	-	-	[75][76]
		NTB	2	-	-	-	-	[77][78]
		North Maluku	1	-	-	-	-	[79]
		West Kalimantan	2	-	-	-	-	[80][81]

	Central Kali- mantan	1	-	-	-	-	[82]
	East Kalimantan	3	-	-	-	-	[83][84][85]
	Riau	4	-	-	-	-	[86][87][88][89]
	Bengkulu	1	-	-	-	-	[90]
	South Sumatera	2	-	-	-	-	[91][92]
	Lampung	4	-	-	-	-	[93][94][95][96]
	Jambi	1	-	-	-	-	[97]
Total		72	3	1	1	1	

## Conclusion

The exploration activity of this study is an attempt to obtain the reality and phenomenon of the actual use of ISSP to support the right determination for Higher Educations in Indonesia, related to the determination of the realization of benefits and their determining factors. The research method used is the SLR method from articles from 2009 to 2019. The results of this study are in the form of synthesis which identifies that the realization of the benefits of ISSP in Higher Educations in Indonesia successively starting from the largest is alignment, competitive, effective, efficient, performance, capabilities and flexibility. The next research result is the synthesis of the most dominant results of the determinants of the realization of the ISSP benefit at Higher Educations in Indonesia is planning.

## Acknowledgments

The authors very proud and thanked Universitas Bung Karno in Indonesia and Asia e University in Malaysia for providing an opportunity to develop this paper.

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