



**THE IMPLEMENTATION OF INFORMATION TECHNOLOGY PRODUCT  
SECURITY CERTIFICATION POLICY ON THE EFFECTIVENESS OF  
INFORMATION SECURITY ASSURANCE IN INDONESIA**

Oleh

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**Abstract**

The information technology product security certification policy in Indonesia is implemented based on BSSN Regulation 15 of 2019 concerning the Indonesian Common Criteria Scheme (SCCI). The products used in data processing should be certified for its security to guarantee information security. However, almost three years since the regulation was implemented, effect on information security has not been achieved. The focus of this study is to analyse the influence of the implementation of information technology product security certification policy on the effectiveness of information security assurance in Indonesia. Policy implementation was analysed using the theory of Edward III. Edward III's policy implementation model consists of 4 variables: communication, resources, disposition, and bureaucratic structure. Effectiveness consists of 3 variables: goal achievement, adaptation, and integration. This study used the mixed-method approach. The findings showed that simultaneously communication, resources, disposition, and bureaucratic structure have a significant effect and very strong correlation on effectiveness. From these results, it can be recommended to develop a policy communication strategy that is more effective in providing information to the public, make a timeframe and concrete target for resources variable, establish communication, coordination, and consensus with the public and private sectors to achieve a willingness and commitment to implement an IT product security certification policy, and set a timeframe and concrete targets regarding the formation of an organization that has the duties, functions and authority of IT product security certification, business processes and organizational implementation procedures.

**Keywords: BSSN, Effectiveness, It Product Security Certification Policy, Policy Implementation**

**PENDAHULUAN**

Sustainable Development Goals (SDGs) is a global action plan agreed by world leaders, including Indonesia, to end poverty, reduce inequality and protect the environment. In the implementation of the 2030 SDGs Agenda, information, and communication technology (ICT) acts as an enabler of sustainable development (K. Michael, S. Kobran, 2019). With ICT, Indonesia is also carrying out a digital transformation where cybersecurity is one of the requirements in achieving increased efficiency and productivity, creating

technology, encouraging inclusiveness in the scope of digital government, digital economy, and digital society.

The International Telecommunication Union (ITU) defines cybersecurity as a collection of tools, policies, security concepts, security safeguards, guidelines, management approaches, risks, actions, training, best practices, assurances, and technologies that can be used to protect the cyber environment and organizations and users' assets (ITU, 2008). Meanwhile, according to Bayuk, et al, cybersecurity refers to the ability to control



access to network systems and information. Effective cybersecurity control is a major requirement in supporting a reliable, robust, and trustworthy digital infrastructure. Cyber security has at least three main elements, each of which has a pillar in it: (1) preventing, detecting, responding; (2) people, processes and technology; (3) confidentiality, integrity and availability (Bayuk et al., 2012).

Cybersecurity is an important issue and has an impact, not only on government but also on the private sector and society. Based on the 2021 cybersecurity monitoring annual report, traffic anomalies that occurred throughout 2021 were 1,637,973,022. This anomaly increased from 2020 which was reported at 495,337,202. This condition raises the need for information security products.

With the massive need of information technology product, it is necessary to ensure product quality. According to Law Number 20 of 2014 concerning Standardization and Conformity Assessment, the application of standardization and conformity assessment relates to improving the quality of the products produced and conformity with standard requirements in producing goods/services. Regarding the conformity assessment through certification, The National Cyber and Crypto Agency (BSSN) has established a policy.

BSSN Regulation Number 15 of 2019 concerning the Implementation of the SCCI is a regulation established to build trust through the provision of information security guarantees based on common criteria for information technology products. SCCI is a scheme that contains descriptions and rules related to information technology product security certification guidelines carried out by Indonesian common criteria product certification body, testing laboratories, sponsors or developers, and consumers based on ISO/IEC 15408 and ISO/IEC 18045. This regulation is still the only regulation related to the implementation of information security product certification in Indonesia.

The implementation of BSSN Regulation Number 15 of 2019 has been going on for almost three years. However, until the end of 2022, there are only two products owned by one sponsor that are in the information technology product security certification process. The information technology product security certification ecosystem has not been established in the three years of this policy implementation, which requires in-depth analysis. Therefore, research is needed to determine the supporting and inhibiting factors in the policy implementation of the BSSN Regulation No. 15 of 2019 and how the policy implementation influence the effectiveness of providing information security assurance.

### George Edward III Model

Policy implementation in principle is a way for a policy to achieve its goals. Anderson (1978) argues that: "policy implementation in the application of policies by government administrative apparatus to problems". Policy implementation according to Grindle (1980) is "a general process of administrative action that can be investigated at a specific program level". Then according to Edward III (1980), "policy implementation is the stage of policy making between the determination of a policy and the consequences of the policy for the people it influences" (Tachjan, 2006). Policy implementation is tricky because, in the field, sometimes problems are encountered beyond the concept. In addition, the main challenge is the consistency of policy implementation. The policy implementation model continues to evolve from time to time.

The main problem of public administration is the lack of attention to implementation. In reviewing policy implementation, Edward III begins by asking two questions: what preconditions are needed for successful policy implementation? And what are the main obstacles that cause a policy implementation to fail? Edward uses four



crucial variables in the implementation of public policy to answer these two questions.

Policy implementation is a dynamic process that includes many interactions of many variables. Therefore, there is no single variable in the implementation process, so the relationship between variables and how each variable is interrelated needs to be explained further. The variables in the George Edward III Model are communication, resources, disposition, and bureaucratic structure (Edward, 1980). According to Edward III, the four variables work simultaneously and interact with each other in policy implementation.

Communication relates to how policies are communicated to organizations and the public and the attitudes and responses of the parties involved (Riant, 2018). Communication in policy implementation consists of the dimensions of transmission, consistency, and clarity (Situmorang, 2016). Implementation orders may be passed carefully, clearly, and consistently, but if implementers lack the necessary resources to implement policies, then implementation is likely to be ineffective (Situmorang, 2016). Resource relates to the availability of supporting resources, especially human resources, which relates to the skills of public policy implementers to implement policies effectively (Riant, 2018). Disposition relates to the willingness of policy actors to implement policies. Skill alone is not sufficient without the willingness and commitment to implement policies (Riant, 2018). The bureaucratic structure relates to the suitability of the bureaucratic organization that is the organizer of the implementation of public policy. The challenge is how to avoid bureaucratic fragmentation because this will cause policy implementation to be ineffective (Riant, 2018).

**Effectiveness**

Sedarmayanti defined the concept of effectiveness as a measure that gives an idea of how far the target is achieved (Sedarmayanti, 2009). Meanwhile, Gibson stated that

effectiveness is the achievement of the goals of a joint effort (Pasolong, 2014). Thus, it can be concluded that effectiveness defined as the ability to work by a person or organization to achieve predetermined goals.

The theory of effectiveness measurement is also put forward by Duncan (Streers, 1985). This research use a measure of effectiveness according to Duncan to analyze the effectiveness of information security assurance. The variables in effectiveness theory by Duncan are goal achievement, adaptation dan integration.

Goal achievement is the overall effort to achieve goals that must be seen as a process. Therefore, to ensure the attainment of the goal, phases are needed, both in terms of the stages in achieving the parts and in the sense of periodization. The achievement of the goals consists of a timeframe and concrete targets. Adaptation is the ability of organization to adapt to their environment. Policy implementation will be considered effective if it can adapt agilely to changes in science and technology. Integration is a measurement of the level of an organization's ability to carry out socialization, consensus development and communication with various organizations. Integration concerns in procedure and socialization process. Policy implementation will be considered effective if they are carried out based on existing procedures. The policy socialization process is also said to be effective if there is good feedback from the public.

**BSSN Regulation Number 15 of 2019**

Following Law Number 20 of 2014 and PP 71 of 2019, BSSN issued BSSN Regulation Number 15 of 2019 concerning the Indonesian Common Criteria Scheme to fulfil the need for conformity assessment. The Indonesia Common Criteria Scheme, abbreviated SCCI rules information technology product security certification guidelines carried out by product certification bodies CC Indonesia, testing laboratories, sponsors or developers, and



consumers according to ISO/IEC 15408 and ISO/IEC 18045.

In this Regulation, there are several entities related to conformity assessment, namely:

- a. The Indonesian Common Criteria Product Certification Body, referred to as LSPro SCCI, is a work unit in the BSSN that organizes a product certification scheme to provide written guarantees that the security of Information Technology Products has complied with ISO/IEC 15408 and ISO/IEC 18045.
- b. Testing Laboratory is a laboratory that evaluates the safety of Information Technology Products based on ISO/IEC 15408 and ISO/IEC 18045.
- c. Sponsor is a company or individual that sponsors a TOE or PP for certification.
- d. A developer is a company or individual that develops a TOE or PP.

BSSN carries out SCCI implementation. Services that can be performed include:

- a. Indonesian CC certification services.
- b. Maintenance of security guarantees.
- c. Post-certification supervision.
- d. Service complaint resolution.

## METHODS

### Research Design

This research is a descriptive study with a mixed quantitative and qualitative methods approach. Irawan explained that what is meant by descriptive analysis is research that aims to describe or explain something as it is (Irawan, 2003). Analysis using descriptive methods allows researchers to choose one research object to study in-depth; in this case, the object examined in this study is the implementation of BSSN Regulation Number 15 of 2019 on the effectiveness of information security assurance.

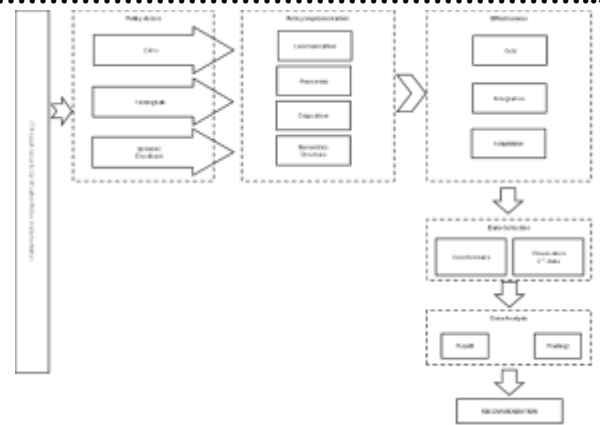
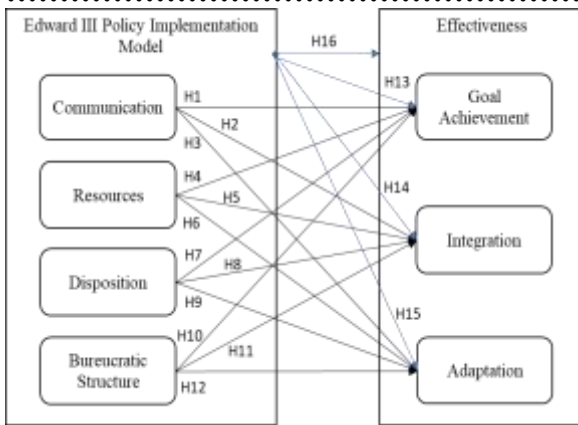


Figure 1. Research Design

Policy actor in this research consist of Product Certification Body (Lembaga Sertifikasi Produk/LSPro), Testing Laboratory (Laboratorium Pengujian), and Sponsor/Developer. The LSPro Management consist of nine persons that in-charge, The Testing Lab consist of six persons that in-charge, Sponsors or developers who have become LSPro BSSN customers because they are certifying IT security devices based on the SCCI scheme are PT.Sucofindo and Pusat Pengkajian dan Pengembangan Teknologi Keamanan Siber dan Sandi (Puskajibangtekamsisan) BSSN. The research object is the implementation of BSSN Regulation Number 15 of 2019 on the effectiveness of information security assurance.

### Conceptual Framework

The hypothesis is a temporary answer to the research problem formulation. Based on the background and literature review, the hypothesis in this study there are as many as 16 hypotheses consisting of regression analysis and correlation analysis between policy implementation (X) and effectiveness (Y) as stated in the conceptual framework below



**Operational Definition**

This study uses 4 independent variables (communication (X1), resources (X2), disposition (X3) and bureaucratic structure(X4)) and 3 dependent variables (goal achievement (Y1), adaption (Y2), and integration (Y3)). Operationalization of policy implementation variables based on the Edward III model is in accordance with table 1. Operationalization of effectiveness variables based on the Duncan's Theory is in accordance with table 2.

**Table 1. Policy Implementation operationalization table**

No	Implementation Area	Dimension
1	Communication	1. Transmission 2. Clarity 3. Consistency 4. Understanding of the stages of certification
2	Resources	5. Expertise of the LSPro's staff 6. Expertise of the Testing Lab's staff 7. Number of the LSPro's staff 8. Number of the Testing Lab's staff 9. Relevant and sufficient information to implement policies and fulfill related resources in program implementation 10. There is an authority that ensures that the program can be directed as expected 11. The existence of supporting facilities that can be used to carry out program activities such as funds and infrastructure
3	Disposition	12. The response of the implementer to the policy 13. Implementer awareness, implementing

No	Implementation Area	Dimension
		instructions/directions to respond to the program towards acceptance or rejection 14. Response intensity 15. Commitment in supporting the policy implementation process
4	Bureaucratic Structure	16. Conformity of characteristics in executive bodies that have a real or potential relationship with what they have in carrying out policies 17. Conformity with norms in executive bodies that have both potential and real relationships with what they have in carrying out policies 18. Appropriateness of patterns of relationships that occur repeatedly in executive bodies that have both potential and real relationships with what they have in carrying out policies

**Table 2. Effectiveness operationalization table**

No	Effectiveness Area	Dimension
1	Goal Achievement (Y1)	19. Achievement of goals is the overall effort
2	Adaptation (Y2)	20. Adaption is the ability of organization to adapt to their environment
3	Integration (Y3)	21. Measurement of the level of an organization's ability to carry out socialization, consensus development and communication with various other organizations. Integration concerns in procedure and socialization process.

**Data Collection**

This research collects data from primary and secondary data sources through questionnaire, observation, and documentation. In this study, researcher collected data by making direct observations at the LSPro and the IT Security Product Testing Laboratory. The Questionnaire were used which were compiled based on the Edward III Model on policy implementation and the theory of effectiveness measurement by Duncan. From the documentation, researchers studied research



data obtained from laws and regulations and reports. These data include:

1. Government Regulation Number 71 of 2019 concerning Implementation of Electronic Systems and Transactions (PP PSTE).
2. Presidential Regulation Number 95 of 2018 concerning the Electronic-Based Government System (Perpres SPBE).
3. Presidential Regulation Number 82 of 2022 concerning The protection of vital information infrastructure (Perpres IIV).
4. The 2021 BSSN Annual Report.
5. The 2021 Testing laboratory customer satisfaction survey report.

### Data Analysis

To test the question items from each variable, the following analysis requirements test is used validity test and reliability test. The research hypothesis was tested by means of regression analysis, correlation analysis, and determination analysis.

Regression analysis needs to be done to determine how much the Y variable changes if the X variable also changes in one unit. With regression analysis obtained, simple regression equations, and multiple regression. The correlation coefficient is used to find out how much the relationship exists between the independent variable X and the dependent variable Y; in this case, as stated by Arikunto that the correlation coefficient is a statistical tool that can be used to compare the measurement results of two variables that are different to determine the level of relationship between these variables (Arikunto, 2002). Guidelines for interpreting the correlation coefficient as follow on table 3. Analysis of the coefficient of determination is carried out to determine the magnitude of the influence of variable X on variable Y, or in other words to find out how much the Y variable is determined by the X variable. The magnitude of the coefficient of determination can be obtained by squaring the correlation number.

**Table 3. Guidelines for interpreting the correlation coefficient**

Coefficient Intervals	Relationship Level
0,00 - 0,199	Very weak
0,20 - 0,399	Weak
0,40 - 0,599	Moderate
0,60 - 0,799	Strong
0,80 - 1,000	Very strong

Resource: Sugiyono (2002)

The data analysis technique used in this research is interactive model data analysis using Miles, Huberman and Saldana (2014) data analysis. The data analysis technique used is descriptive, which describes all the facts that have been collected in the field as they are without the intention of making conclusions that apply to the public or generalizations. To obtain the research objectives, in this study the researchers used interpretation analysis techniques by comparing one opinion with another, associated with the objectives and research questions and then the results of the data from the question (interview). the "Interactive Model" of qualitative data analysis as follows on figure 3.



**Figure 1. Interactive Model Huberman and Saldana (2014)**

## FINDINGS AND DISCUSSION

### Policy Quality Value

The Value of Policy Quality is a value that describes the quality of the policy, starting from the policy agenda process to evaluating the usefulness of the policy. Based on the BSSN



Annual Report, the Policy Quality Value of Information Technology Security Product Certification Policy (BSSN Regulation Number 15 of 2019) is 75.04. Things that support the achievement of policy quality values are:

1. BSSN Regulation Number 15 of 2019 has a clear purpose and each option in BSSN Regulation Number 15 of 2019 has been studied for its benefits
2. The content/substance of BSSN Regulation Number 15 of 2019 has considered the handling of risks that may arise
3. The formulation of BSSN Regulation Number 15 of 2019 is intended to meet the needs of stakeholders and consider the external policy environment
4. BSSN Regulation Number 15 of 2019 offers/provides new alternative solutions to problems and provides added value/new benefits for stakeholders.

**Information Technology Security Product Certification Service Satisfaction Level**

Based on the measurement of the quality of 9 elements of service, the result is that it reaches an interval value of 4, the value of the conversion interval of the customer satisfaction index is 100.00, then the performance of this service unit is in the service quality with a very good category. The quality of service for each element of the assessment is in the Very Good category.

**The Obstacles encountered in policy implementation**

Data were collected through open-ended questions to all respondents using questionnaire to find out the difficulties faced in the implementation of the policy. Therefore, the challenges faced by Policy Actors, as follows:

**1. Communication**

LSPro has carried out information sharing regarding the IT security product certification policy through literacy and audiency meetings based on sponsor/developer requests. Until 2022, LSPro has held audiency meetings with PT. Sucofindo, PT.Nyra, PT.

Mastercard, PT. Trilogy Persada, PT. Indonesian Telecommunications Industry (INTI), PT. IdPro, and PT. Softorb Technology Indonesia.

The obstacle faced in communication implementation is that information about this policy is not yet available to the public. The public has not been able to access the IT security product certification procedures and policies on the BSSN website.

**2. Resource**

Resources are vital in implementing an IT security product certification policy. Currently, the total number of LSPro personnel and the BSSN Testing Laboratory is 20 people. This was stated as a constraint by almost all research respondents. The number of LSPro and Testing Lab personnel is still less than the number of incoming product certification applications.

The competence of LSPro personnel and the Testing Laboratory is still limited to the Evaluation Assurance Level (EAL)2. Even though in 2021, a test application was entered for products with EAL3. Therefore, apart from the number, the competence of personnel also needs to be improved. If this is not done immediately, LSPro and the Testing Laboratory are threatened with being unable to implement the IT security product certification policy.

Facilities also play an essential role in certification/testing. The available equipment cannot support it, potentially hampering the testing and certification process. Several respondents stated that testing facilities must be upgraded to support testing and certification. This needs to be done immediately, one of which is because of the demands for testing an e-KTP reader that has an EAL5 security level.

Authority is an issue that greatly impacts policy implementation. BSSN Regulation Number 15 of 2019 concerning the Indonesian Common Criteria Scheme does not have an article stating the certification obligation. So until now, IT security product certification is still done voluntarily. This obstacle affects



policy implementation because the policy process cannot run if there are no sponsors and developers who apply for certification.

Sources of information in the form of policies and procedures have been prepared at the LSPRO and the Testing Laboratory. However, respondents from sponsors and developers found several things that became obstacles. The constraint on the information dimension is the unavailability of guidelines for preparing evidence as a certification requirement. The hope of the two respondents is the availability of information in the media that is easily accessible to the public.

### 3. Disposition

Disposition can be understood as an attitude towards policy. The obstacle encountered in the disposition is the lack of top management understanding of the importance of IT security product certification policies. LSPRO and Testing Laboratory personnel require the commitment of the BSSN's top management in supporting the operations of the LSPRO and the BSSN Testing Laboratory both in approval and direction on mechanisms, business processes, and regulations, and standards/procedures as well as support in terms of fulfilling human resources and budget allocation in the implementation of certification of information technology equipment based on BSSN Regulation Number 15/2019.

### 4. Bureaucratic Structure

Currently, LSPRO and the Testing Laboratory are still under the authority and responsibility of the Directorate of Technology Policy. Both organizations are carried out ad hoc by all personnel of the Directorate of Technology Policy. The impact that arises from this condition is the risk of partiality, where it is possible that what has been tested by the Testing Laboratory will be passed by LSPRO. In addition, the Directorate of Technology Policy personnel divides their time with the main tasks that are indeed mandated in the BSSN Regulation Number 6 of 2021 concerning the organization and work procedures of the BSSN.

The separation of the organizational structure of the Testing Laboratory and LSPRO and the Directorate of Technology Policy are fundamental. With the separation, the risks described above can be overcome, and the two organizations can operate professionally. This separation process is ongoing, and is at the stage of submitting academic studies to the Ministry of PAN and RB.

### Validity Test Result

Measuring the validity of the research questionnaire items was carried out by looking at the Pearson product moment correlation coefficient of 20 respondents. With 20 respondents,  $r$ -table the product moment correlation table is 0.444. Validity testing was carried out for each statement item from the variables.

The validity of the questionnaire was tested using Data Analysis contained in Microsoft Office Excel 365. The technique used was product moment correlation. From the test results, all questionnaire items are valid because  $r$ -count  $>$   $r$ -table ( $N=20$ ,  $\alpha=5\%$ ,  $r$ -table=0.444).

### Reliability Test Result

The reliability of the questionnaire was tested using Data Analysis contained in Microsoft Office Excel 365. The technique used was Cronbach Alpha. From the test results, all items of the questionnaire are reliable with a reliability value of 0.919 (very high).

### Analysis of the research hypothesis

By using the Data Analysis contained in Microsoft Office Excel 365, analysis can be carried out and summarized as follows at table 4.





**Table 4. Summary of Analysis Results**

Hypothesis	X	Y	Significance	Correlation	Note
H11	X1 Policy Implementation	Y3 Integration	0	Significant	0,822 Very Strong
H18	X1 Policy Implementation	Y2 Effectiveness	0	Significant	0,860 Very Strong
H8	X2 Resources	Y3 Integration	0	Significant	0,810 Very Strong
H12	X4 Bureaucracy Structure	Y3 Integration	0	Significant	0,751 Strong
H13	X1 Policy Implementation	Y1 Goal Achievement	0,034	Significant	0,639 Strong
H4	X2 Resources	Y1 Goal Achievement	0,001	Significant	0,633 Strong
H9	X3 Disposition	Y3 Integration	0,003	Significant	0,613 Strong
H10	X4 Bureaucracy Structure	Y1 Goal Achievement	0,009	Significant	0,562 Moderate
H3	X3 Communication	Y3 Integration	0,019	Significant	0,512 Moderate
H11	X4 Bureaucracy Structure	Y2 Adaptation	0,020	Significant	0,485 Moderate
H5	X3 Disposition	Y2 Adaptation	0,045	Significant	0,447 Moderate
H6	X3 Communication	Y1 Goal Achievement	0,045	Significant	0,446 Moderate
H14	X1 Policy Implementation	Y2 Adaptation	0,081	Not Significant	0,854 Strong
H2	X3 Communication	Y2 Adaptation	0,109	Not Significant	0,549 Weak
H7	X3 Disposition	Y1 Goal Achievement	0,106	Not Significant	0,826 Weak
H1	X2 Resources	Y2 Adaptation	0,191	Not Significant	0,300 Weak

**Policy Implication**

The implication is a consequence or direct result of the findings in scientific research. The policy implications discussed in this section are limited only to the results of the analysis of variables that have a significant relationship and a very strong and strong level of relationship strength. The significant influence between variables with a moderate level of relationship and insignificant influence will be ignored.

**1. Policy implementation has a significant effect with a very strong correlation to the effectiveness**

Based on the results of the analysis, policy implementation has a significant effect with a very strong correlation to the effectiveness. Thus, BSSN should increase all of the policy implementation variables that can influence all effectiveness variables.

The communication variable consists of the dimensions of transmission, clarity, consistency, and understanding of the stages of certification. Information transmission on IT product security certification policies has been carried out since 2020 through policy dissemination/literacy media and audience meetings based on requests from sponsors/developers. However, from the analysis results, communication has a negative value. This can be caused by the lack of clarity and inconsistency in implementing policy

transmission so that public understanding of IT product security certification policies is still not optimal. Therefore, the BSSN should synchronize the information provided to the public regarding its derivative policies and procedures. In addition, BSSN should also develop a policy communication strategy that is more effective in providing information to the public.

Resource variables consist of the dimensions of the number of personnel, personnel skills, relevant and sufficient information, and authority in implementing policies and supporting facilities. From the analysis results, resources have a positive value in achieving the effectiveness. Thus, BSSN should increase the number of personnel by recruiting personnel with the skills required in the certification process, improving the skills of existing personnel that can be done through training or apprenticeship processes, and improving facilities to certified products with more than EALs 3. In addition, to strengthen authority, it is suggested that BSSN, in the method of communicating policies to the public, echo several regulations which expressly state the obligation to certify products. So that even though until now the cyber security law has not been ratified by the DPR, BSSN can still communicate that there is authority to carry out IT product security certification.

Disposition relates to the willingness and comitment of policy implementers to carry out the IT Product Security Certification Policy. To increase willingness and commitment, BSSN needs to consider imposing administrative sanctions on sponsors/developers who do not yet have IT product security certificates but have already marketed their products in Indonesia. These administrative sanctions can be included in proposed policy revisions during policy evaluation. With these sanctions, it is hoped that the willingness and commitment of policy actors will increase so that the effectiveness of information security assurance can be achieved.



The bureaucratic structure relates to the suitability of the bureaucratic organization that is the organizer of the implementation of public policy. Therefore, to increase the effectiveness of information security assurance, BSSN should accelerate efforts to establish an organization that is specifically tasked with carrying out the IT product security certification process by BSSN Regulation Number 15 of 2019.

## **2. Policy implementation has a significant effect with a very strong correlation to the integration**

Based on the results of the analysis, policy implementation has a significant effect with a very strong correlation to the integration. Thus, BSSN should increase all of the policy implementation variables that can influence integration.

The communication variable consists of the dimensions of transmission, clarity, consistency, and understanding of the stages of certification. Meanwhile, integration is the measurement of the level of an organization's ability to carry out socialization, consensus development and communication with various other organizations. However, from the analysis results, communication has a negative value. Therefore, BSSN must change the current communication strategy. For example, what was previously carried out in policy dissemination and audience meeting needs to be changed to webinars and public information on the BSSN website. In addition, the BSSN must coordinate and communicate with other relevant ministries, such as the Ministry of Trade, the Ministry of Finance, the Ministry of Home Affairs, and so on, so that a consensus is reached for the integration of this policy into other policies contained in other ministries.

Resource variables consist of the dimensions of the number of personnel, personnel skills, relevant and sufficient information, and authority in implementing policies and supporting facilities. From the analysis results, resources have a positive value

in achieving the integration. Thus, BSSN should increase relevant and sufficient information to implement policies and fulfill related resources in program implementation.

Disposition relates to the willingness and commitment of policy implementers to implement the IT Product Security Certification Policy. The analysis results show that the disposition has a positive value in achieving integration. Therefore, BSSN needs to establish communication, coordination, and consensus with the public and private sectors to achieve a willingness and commitment to implement an IT product security certification policy. All users of IT products should know that although the BSSN is responsible for ensuring national information security and cybersecurity, it cannot do it alone.

The bureaucratic structure relates to the suitability of the bureaucratic organization that is the organizer of the implementation of public policy. The analysis results show that the bureaucratic structure has a positive value in achieving integration. Therefore, to increase the integration of information security assurance, BSSN should provide, socialize and comply with all established IT Product Security certification procedures.

## **3. The resources variable has a significant effect with a very strong correlation to the integration variable**

Based on the results of the analysis, the resources variable has a significant effect with a very strong correlation to the integration variable. Thus, BSSN should increase the resource variables that can influence integration.

From the analysis results, resources have a positive value in achieving the integration. The results of this analysis strengthen the results of the policy implications in point 2, that apart from all variables in policy implementation having a significant influence and a very strong correlation to integration, the resource variable alone also has a significant and very strong correlation to integration. Therefore, BSSN must optimize and improve all resource



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dimensions to effectively integrate IT product security certification policy.

**4. The bureaucracy structure variable has a significant effect with a strong correlation to the integration**

Based on the results of the analysis, the bureaucracy structure variable has a significant effect with a strong correlation to the integration. Thus, BSSN should increase the bureaucracy structure variables that can influence integration.

From the analysis results, bureaucracy structure a positive value in achieving the integration. The results of this analysis strengthen the results of the policy implications in point 2, that apart from all variables in policy implementation having a significant influence and a very strong correlation to integration, the bureaucracy structure variable alone also has a significant and strong correlation to integration. Therefore, BSSN should provide, socialize and comply with all established IT Product Security certification procedures.

**5. The disposition variable has a significant effect with a strong correlation to the integration variables**

Based on the results of the analysis, the disposition variable has a significant effect with a strong correlation to the integration variables. Thus, BSSN should increase the disposition variable that can influence integration.

From the analysis results, disposition a positive value in achieving the integration. The results of this analysis strengthen the results of the policy implications in point 2, that apart from all variables in policy implementation having a significant influence and a very strong correlation to integration, the disposition variable alone also has a significant and strong correlation to integration. Therefore, BSSN needs to establish communication, coordination, and consensus with the public and private sectors to achieve a willingness and commitment to implement an IT product security certification policy.

**6. Policy implementation variable has a significant effect with a strong correlation to the goal achievement variables**

Based on the results of the analysis, all of the policy implementation variable has a significant effect with a strong correlation to the goal achievement variables. Thus, BSSN should increase all of the policy implementation variables that can influence goal achievement.

The communication variable consists of the dimensions of transmission, clarity, consistency, and understanding of the stages of certification. Meanwhile, goal achievement is the overall effort to achieve goals that must be seen as a process, consists of a timeframe and concrete targets. Therefore, BSSN should establish concrete policy communication timeframes and targets to achieve policy objectives. So far, the communication has not been based on a timeframe and target audience, which will significantly impact the implementation of the IT product security certification policy.

Resource variables consist of the dimensions of the number of personnel, personnel skills, relevant and sufficient information, and authority in implementing policies and supporting facilities. From the analysis results, resources have a positive value on goal achievement. Thus, BSSN should make a timeframe and concrete target for resources variable. For example: compiling personnel competency development analysis, preparing plans for the development needs of certification facilities, providing up-to-date information for certification personnel and the public, and strengthening authority, in this case, establishing cyber security laws.

Disposition relates to the willingness and commitment of policy implementers to implement the IT Product Security Certification Policy. The analysis results show that the disposition negatively impacts goal achievement. This may be because not many public and private sectors know the duties,



functions and authorities of the BSSN, particularly in establishing and coordinating IT product security certification policy. The disposition to create willingness and commitment cannot be achieved by BSSN alone. Therefore, the BSSN should set a timeframe and concrete targets, especially for collaborating with other relevant ministries and institutions to implement IT product security certification policies jointly.

The bureaucratic structure relates to the suitability of the bureaucratic organization that is the organizer of the implementation of public policy. The analysis results show that the bureaucratic structure has a positive value on goal achievement. Therefore, to optimize the goal achievement of information security assurance, BSSN should set a timeframe and concrete targets regarding the formation of an organization that has the duties, functions and authority of IT product security certification, business processes and organizational implementation procedures.

#### **7. The resources variable has a significant effect with a strong correlation to the goal achievement variables**

Based on the results of the analysis, the resources variable has a significant effect with a strong correlation to the goal achievement variables. Thus, BSSN should increase the resource variable that can influence goal achievement.

From the analysis results, resources have a positive value on goal achievement. The results of this analysis strengthen the results of the policy implications in point 6, that apart from all variables in policy implementation having a significant influence and a strong correlation to goal achievement, the resources variable alone also has a significant and strong correlation to goal achievement. Therefore, make a timeframe and concrete target for resources variable.

#### **Laws and Regulations**

The following are several laws and regulations that the BSSN can use as a resource

of authority in implementing IT product security certification policies.

1. Government Regulation Number 71 of 2019 concerning Implementation of Electronic Systems and Transactions (PP PSTE) Article 7, clause verse (1) and (2).
2. Presidential Regulation Number 95 of 2018 concerning the Electronic-Based Government System (Perpres SPBE) Article 40 verse (1) paragraph (1).
3. Presidential Regulation Number 82 of 2022 concerning The protection of vital information infrastructure (Perpres IIV).

#### **CONCLUSION**

1. The implementation of the IT product security certification policies has been carried out well by BSSN. This can be seen from the results of the value of the policy quality for Information Technology Security Product Certification Policy (BSSN Regulation Number 15 of 2019) and the value of IT product security testing service satisfaction. However, there are still some obstacles to implementing the policy on each independent variable:
  - a. In the communication variable, information about this policy is not yet available to the public.
  - b. In the resource variable, there are still deficiencies in the aspects of the number and skills of personnel, facilities, available information and the authority possessed by BSSN in implementing policies.
  - c. The disposition variable is top management's lack of understanding of the importance of IT security product certification policies.
  - d. The variable of bureaucratic structure is that no organization structure stands alone to carry out IT product security certification, so it risks the impartiality of the certification results.
2. All variables in policy implementation consisting of communication, resources,



disposition and bureaucratic structure simultaneously have a significant effect with a very strong correlation to all effectiveness variables. Based on this analysis, the factors that influence policy implementation on effectiveness can be sorted as follows:

- a. The policy implementation variables has a significant effect with a very strong correlation to the integration variable.
- b. The resources variable has a significant effect with a very strong correlation to the integration variable.
- c. The bureaucracy structure variable has a significant effect with a strong correlation to the integration variable.
- d. The disposition variable has a significant effect with a strong correlation to the integration variable.
- e. The policy implementation variables has a significant effect with a strong correlation to the goal achievement variable.
- f. The resources variable has a significant effect with a strong correlation to the goal achievement variable.

### Policy Recommendations

Based on the conclusions of the research above, the researcher can provide policy recommendations as follows:

1. The communication variable, BSSN should
  - a. Synchronize the information provided to the public regarding its derivative policies and procedures.
  - b. Develop a policy communication strategy that is more effective in providing information to the public.
  - c. Coordinate and communicate to gain consensus with other relevant ministries, such as the Ministry of Trade, the Ministry of Finance, the Ministry of Home Affairs.

- d. Establish concrete policy communication timeframes and targets to achieve policy objectives.
2. The resources variable, BSSN should
  - a. Increase the number of personnel by recruiting personnel with the skills required in the certification process.
  - b. Improving the skills of existing personnel that can be done through training or apprenticeship processes.
  - c. Improving facilities to certified products with more than EALs 3.
  - d. Strengthen the authority by echoing several regulations which expressly state the obligation to certify products.
  - e. Increase relevant and sufficient information to implement policies and fulfil related resources in program implementation.
  - f. Make a timeframe and concrete target for resources variable.
3. The disposition variable, BSSN should:
  - a. Consider imposing administrative sanctions on sponsors/developers who do not yet have IT product security certificates but have already marketed their products in Indonesia.
  - b. Establish communication, coordination, and consensus with the public and private sectors to achieve a willingness and commitment to implement an IT product security certification policy.
  - c. Set a timeframe and concrete targets, especially for collaborating with other relevant ministries and institutions to implement IT product security certification policies jointly
4. The bureaucratic structure variable, BSSN should:
  - a. Accelerate the establishment of the organizational structure of the Testing Laboratory and LSPro, to eliminate the risk of partiality.



- b. Provide, socialize, and comply with all established IT Product Security certification procedures.
- c. Set a timeframe and concrete targets regarding the formation of an organization that has the duties, functions and authority of IT product security certification, business processes and organizational implementation procedures.

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