

# Framework for Designing The Assessment Models of Readiness SMEs to Adopt Indonesian National Standard (SNI), Case Study: SMEs Batik in Surakarta

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**Abstract.** Since the ASEAN Economic Community (AEC) is released, the opportunity to expand market share has become very open, but the level of competition is also very high. Standardization is believed to be an important factor in seizing opportunities in the AEC's era and other free trade agreements in the future. Standardization activities in industry can be proven by obtaining certification of SNI (Indonesian National Standard). This is a challenge for SMEs, considering that currently only 20% of SMEs had SNI certification both product and process. This research will be designed a model of readiness assessment to obtain SNI certification for SMEs. The stages of model development used an innovative approach by Roger (2003). Variables that affect the readiness of SMEs are obtained from product certification requirements established by BSN (National Standardization Agency) and LSPro (Certification body). This model will be used for mapping the readiness for SNI certification of SMEs' product. The level of readiness of SMEs is determined by the percentage of compliance with those requirements. Based on the result of this study, the five variables are determined as main aspects to assess SME readiness. For model validation, trials were conducted on Batik SMEs in Laweyan Surakarta.

## 1. Introduction

Indonesia is one of the countries that has high potential in entrepreneurship. According to data from the Asian Development Bank (ADB) Institute in 2015, Indonesia is a country that has the largest Small and Medium Enterprises (SMEs). SMEs has contributed more than 50% to Gross Domestic Product (GDP), and 97% of the employment [3,6]. The contribution of SMEs is vital to Indonesia's economic growth. This is shown by many SMEs that have could survive in the monetary crisis in 1997 and increasing in number each year. So the existence of SMEs is expected to increase Indonesian economic growth [3,6,12].

Since the ASEAN Economic Community (AEC) established on 1st January 2016, Indonesian SMEs have a great opportunity to expand their market share. SMEs's products can expand into the ASEAN market without any barriers either tariff or non-tariff as long as it can be competitive. Products that have a good competitiveness will be able to adapt to the market. The competitiveness indicators are related to the quality assurance of the products. Therefore, the fulfillment of products to standard is an important factor in the expansion of the product market in ASEAN. So only SME products that have a quality assurance certificate will be absorbed into the ASEAN market quickly.



Batik SMEs is chosen as a case study because batik is a superior product in Surakarta. According to data from the Department of Industry and Commerce Surakarta, export volume in 2016 was 579,073.49 kg rose from 488,038.49 kg (in 2015) while the value rose from US \$ 9.45 million to US \$ 10.88 million. It's made batik as one of the three largest export commodities of Surakarta along with textile products and plastic [17]. Nationally, weaving and batik industries are able to contribute significantly to the national economy with an export value of 151.7 million US dollars in 2016 [8].

Standardization is believed to be an important factor for seizing opportunities in the AEC era and other free trade agreements in the future. Implementation of standardization in the industry is proven by SNI (Indonesian National Standard) certification. This is a challenge for SMEs, because currently there are many SMEs that do not have SNI certification either product or process. The total number of SMEs products in Indonesia is 55 million, but not more than 20% that have SNI certificate [4,6]. This reality is very worrying for the existence of SMEs. The positive impact of AEC about market expansion becomes difficult to realize.

This research will design a model of readiness assessment to obtain SNI certification for SMEs. The model can be used to map how the readiness level of SMEs to obtain SNI certification. It also can be identified stages of the process that the requirements are difficult to be met by SMEs. So that the government can make good program/policy in coaching and empowering SMEs. The model design uses an innovative approach that developed by [11]. This approach provides a framework for applying innovations better. The advantages of this approach are integrated systems ranging from the introduction of needs/problems, required research, model development, the process of commercialization (a publication for the user), diffusion and adoption (through the pilot project) to the final implementation to the wider user. So hopefully this model is easy to apply for assessment in SMEs. This approach model had been used by ref. [9] in the implementation and development of the International Software Process Lifecycle standard in SMEs.

Previous research about assessing the readiness of SNI certification had been done by [1] and [10]. That researchs used a different approach from this study. The framework for assessing the readiness (that done before) consist four critical factors, i.e. perceived national readiness (macro level), perceived industry readiness (meso level), organizational readiness (micro level), and perceived environmental pressure. The variables in the critical factors are derived from the development of 10 CSFs (Critical Success Factors) for quality initiative implementation by Yusof and Aspinwall (1999). But in this study the variables derived from the stages of the certification process that has been determined by BSN.

## **2. Research Methodology**

This research has six stages. Early stage of this research is started from collecting data, i.e. identification certification requirement, identification proses SNI certification, and observe the condition of SMEs in SNI application. The next stage is developing assessment models of readiness SMEs to adopt SNI. In developing the model, there are four steps such as system characterization, develop an influence diagram, determine variables and attribute, and design framework of readiness model. The fourth stage is commercialization. At this stage, all attributes are translated into questions to assess the readiness of SMEs in the questionnaire. The fifth stage is diffusion and adoption. At this stage SMEs were selected as pilot projects to be assessed using a questionnaire. The level of readiness of SNI certification is measured by calculating the number of attributes that SMEs can be met relative to the total number of attributes. Its value is expressed as a percentage. The final step is consequences. This stage contains recommendations that need to be made based on the assessment results on SMEs. The fifth and sixth stage cannot be done because it is still in the research stage. Briefly, the methodology is presented in the Figure 1.

## **3. Result And Discussion**

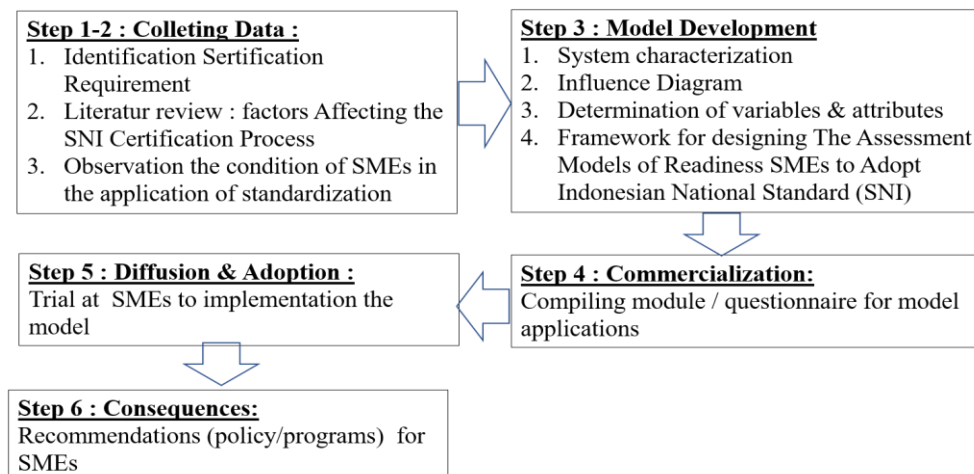
### **3.1. SNI Certification Requirement**

Product certification is a conformity assessment activity to provide confidence that the product meets the established requirements, including performance, security, interoperability, and sustainable

products for consumers, regulators, industry and other stakeholder. Certification approval is conducted by a third party called certification body (LSpro) [5,13]. The Batik LSpro is a Center for Crafts and Batik Yogyakarta (known as TOEGOE LSpro). The requirement of batik refers to SNI batik, that is [14,15, 16].

BSN establishes certification requirements that consisting of administrative requirements (i.e. company deed, business legality, brand permit, etc.) and technical requirements (everything related to the implementation of the quality management system, including the document) [1,5,13]. Quality management system covers all processes within the organization, and that organization will operate according to procedures established by organization [7,18 ].

The certification requirements also depend on the product certification scheme. Product certification scheme are the rules, procedures and management of product requirements. Product certification schemes have seven types, that is 1a, 1b, 2, 3, 4, 5, and 6. The type of certification scheme is differentiated by the type of surveillance activity done [13]. The determination of the batik certification scheme and requirements are determined through FGD with LSpro. The batik certification scheme is type 3. This scheme includes selection, determination (product testing), field evaluation related to production line, review and decision of the certification. Type 3 scheme is followed by surveillance to test and evaluate production line.



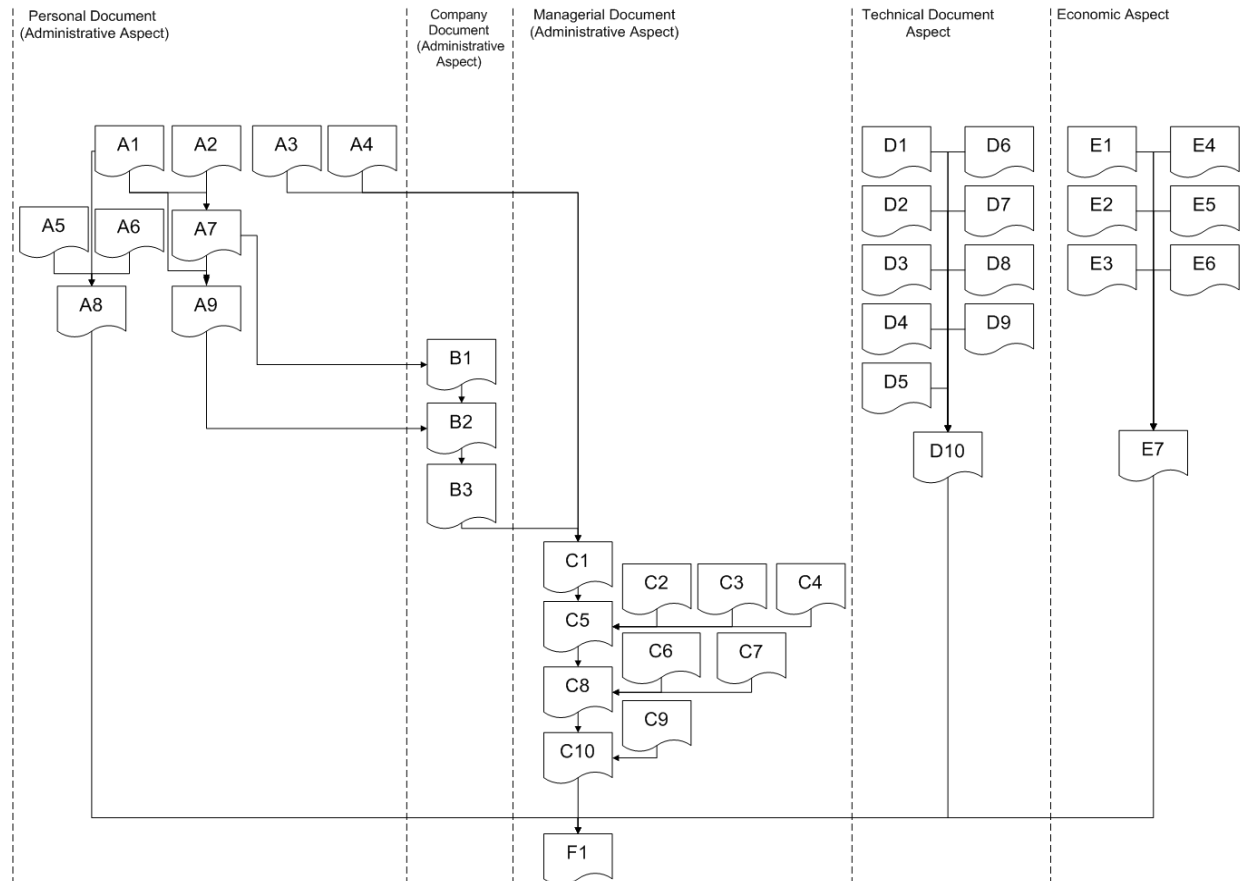
**Figure 1.** Research methodology

### 3.2. Model Development

Characterization of the system is done by describing the phases of the certification process in detail. All requirements, both administrative and technical are breakdown until the basic requirements are obtained. These requirements are re-identified whether there is a derivative requirement. The process ends when the final requirement can not be broken down again. For example: The business permit, this requirement has requirements such as ID cards, land deed, letter of property tax paid off, notarial deeds, and building permit (IMB). ID cards and letter of property tax paid off are basic requirement, but the notarial deed and IMB aren't. They have derivative requirements so that the breakdown needs to be done. All the stages of the process are presented in the workflow diagram in Figure 2.

All the basic requirements of breakdown results in the final stages are grouped by their character. The results are obtained 25 major attributes, and grouped into five variables (personal, corporate, managerial, technical and economic). Personal variables are attributes that are personal inherent with the personal owners of SMEs. Company variables are attributes that are attached to the company. This means that every company has the right to get this document if they fulfill the requirements (especially the cost). Managerial variables contain attributes that a company can have with a heavier effort because it has to prepare many supporting documents. The technical variables contain the attributes associated with the implementation of the quality management system. The economic variables contain attributes

associated with the costs that must be incurred to meet the requirements. The framework of SNI certification readiness assessment model in SME is presented in Figure 3 below all the variables and their attributes.



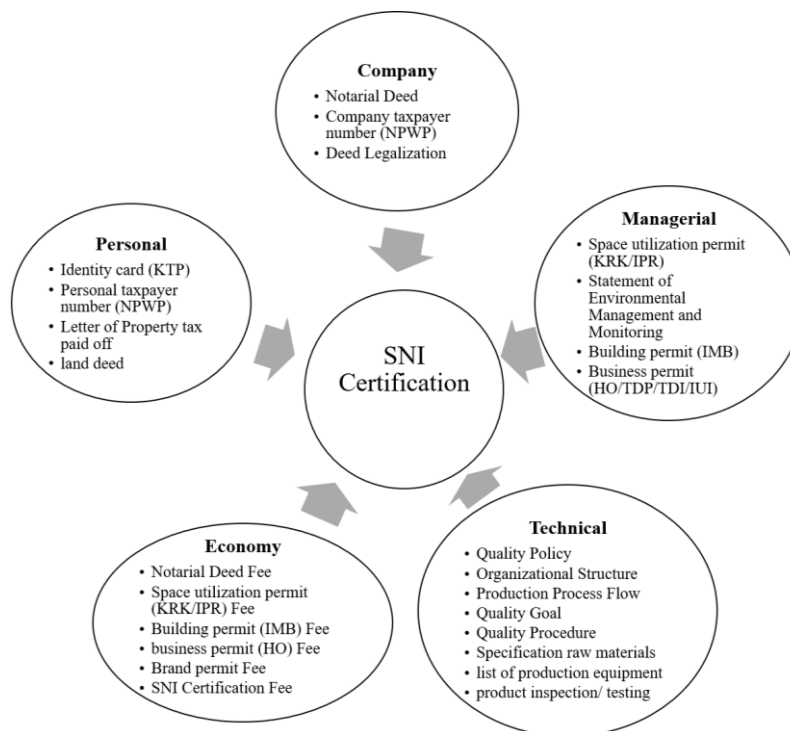
**Where:**

A1 : Identity Card	C2 : Application letter of SPPL	D6 : Task Allocation
A2 : Covering Letter from RT/RW	C3 : Willingness letter of SPPL	D7 : Specification of Production Equipement
A3 : Letter of Property tax paid off	C4 : Drawing of Business Activity	D8 : Specification of Production Materials
A4 : Land Deed	C5 : SPPL / UKL-UPL / AMDAL	D9 : Inspection of Product Quality
A5 : Brand Ettiquette	C6 : Figure and Calculation of Concrete Construction and Steel Structure	D10 : Approved Quality Document
A6 : Brand Submission Letter	C7 : Architectural Drawings	E1 : Cost of Notary Deed Establishment
A7 : Business Domicile Certificate	C8 : Building Permit Certificate for Business Place	E2 : Replacement Cost for Printing a Map
A8 : Brand Certificate	C9 : Signature and Permission from Neighbor	E3 : Building Permit Certificate Cost
A9 : Personal Taxpayer ID Number	C10 : Business Permit (HO), SIUP, TDP, TDI / IUI	E4 : Disturbance Permit Cost
B1 : Notary Deed	D1 : Policy of Quality	E5 : Brand Registration Cost
B2 : Corporate Taxpayer ID Number	D2 : Structure of Organization	E6 : Certification and Surveillance Cost
B3 : Deed of Ratification from District Court or Ministry of Law	D3 : Production Process Flowchart	E7 : Total Cost of SNI Certification
C1 : KRK / IPR	D4 : Quality Objectives	F1 : SPPT SNI
C2 : Application letter of SPPL	D5 : Procedure of Quality	

**Figure 2.** Workflow diagram SNI Certification Process

### 3.3. Commercialization

At this stage the questionnaires are made for the implementation of the assessment model. The questionnaires will be a guide in the assessment in SMEs. In this section, variables and attributes are translated into questions, as presented in Table 1. The results of the questionnaires will be processed by descriptive analysis to do mapping about the readiness level of SMEs as input materials in focus group discussion with relevant stakeholders. FGDs are conducted to determine critical attributes that were difficult to meet by SMEs and design appropriate policy programs.



**Figure 3.** A framework for assessing SMEs Batik readiness on SNI Certification

**Table 1.** Questionnaire Design

Variable	Item Question
Personal	Checklist of documents that SMEs owner have [v] : <input type="checkbox"/> Identity card (KTP) <input type="checkbox"/> Personal taxpayer number (NPWP) <input type="checkbox"/> Letter of Property tax paid off <input type="checkbox"/> land Deed
Company	Checklist of documents that SMEs/Companies have [v] : <input type="checkbox"/> Notarial Deed <input type="checkbox"/> Company taxpayer number (NPWP) <input type="checkbox"/> Deed Legalization
Managerial	Checklist of documents that SMEs/Company have [v] <input type="checkbox"/> Space utilization permit (KRR/IPR) <input type="checkbox"/> Statement of Environmental Management and Monitoring <input type="checkbox"/> Building permit (IMB) <input type="checkbox"/> Business permit (HO/TDP/TDI/IUI)
Technical	Checklist of documents that SMEs/Company have [v] <input type="checkbox"/> Quality Policy Document <input type="checkbox"/> Organizational Structure document

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	<input type="checkbox"/> Production Process Flow Document
	<input type="checkbox"/> Quality Goal document
	<input type="checkbox"/> Quality Procedure Document
	<input type="checkbox"/> Specification of main and supporting raw materials Document
	<input type="checkbox"/> list of main and supporting production equipment Document
	<input type="checkbox"/> product quality inspection / testing Activities Document
Economy	Checklist financial capability of SMEs/Company to fulfill the payment [v]
	<input type="checkbox"/> Notarial Deed Fee
	<input type="checkbox"/> Space utilization permit (KRK/IPR) Fee
	<input type="checkbox"/> Building permit (IMB) Fee
	<input type="checkbox"/> Business permit (HO) Fee
	<input type="checkbox"/> Brand permits Fee
	<input type="checkbox"/> SNI Certification Fee

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#### 4. Conclusion

This research has been provided framework for assessing SMEs Batik readiness on SNI certification that can be used to map readiness of SMEs' product. This research has also succeeded in compiling a tool that has been tested for its validity and reliability. Further research can be done by diffusion and adoption stage to implement the assessment models of readiness SMEs complete and comprehensive.

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