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](image)

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

**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](image)

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

Table 1. Questionnaire Design
☐ Production Process Flow Document
☐ Quality Goal document
☐ Quality Procedure Document
☐ Specification of main and supporting raw materials Document
☐ list of main and supporting production equipment Document
☐ product quality inspection / testing Activities Document

### Economy
Checklist financial capability of SMEs/Company to fulfill the payment [v]
☐ Notarial Deed Fee
☐ Space utilization permit (KRK/IPR) Fee
☐ Building permit (IMB) Fee
☐ Business permit (HO) Fee
☐ Brand permits Fee
☐ 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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