An Application of Soft System Methodology in Batik Industrial Cluster Solo by using Service System Science Perspective

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Abstract

This paper reports on the application of a methodological approach called soft systems methodology (SSM) in Batik Industrial Cluster Solo. Stages in the application of SSM are illustrated including the development of a rich picture and conceptual models which conducted in Batik Industrial Cluster Solo. We will only summarizing the preliminary results in this paper since it needs further investigation from each stakeholder point of view in Batik Industrial Cluster Solo. By using service system science perspective, we apply soft system methodology for each stage in Batik industrial cluster and explore how to social value for each stakeholders and customers’ value as well through value co-creation.

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1. Introduction

The creative industry in Indonesia is emerged and contributed to the gross domestic product. It shows creative industry was important and one of the creative industries is Batik industry, possible continuously to develops. This

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research focuses on Batik cluster industries in Solo by using service system science perspective.

As a new scientific discipline, service science will be embedded into service domain of Batik cluster industry in solo. Service science is emerging as an integrative discipline of technological, engineering and social system to achieve value co-creation (Irene, 2010).

Batik cluster in solo was become the biggest contribution to the Solonese government, i.e, Kauman batik village and laweyan batik village. Kauman batik village was a batik supplier for palace (Keraton) and Solo municipality. Meanwhile Laweyan batik village is the biggest cluster in Solo which supported by local government.

In this research, it suitable to study service science perspective in batik industrial cluster since it composed of interaction between entities, i.e., individual companies, customers, government and other supporting agencies.

By using service system science perspective, this paper focuses on application of soft system methodology (SSM) in Batik Industrial Cluster Solo. Selection of cluster Solo-Central Java Batik is very interesting to investigate because of its unique characteristics. Meanwhile, soft system methodology is suitable to use since it illustrates a rich picture and conceptual model.

We use soft system methodology (Checkland, 1980) which is described as seven stages process. As a preliminary research, we draw rich picture only based on researcher’s point of view, therefore it needs further investigation from each point of view of stakeholders in batik industrial cluster.

2. Theoretical Framework

This part mainly reviewed the theories in cluster, value co-creation under service dominant logic and soft system methodology.

2.1. Batik Clusters

In this part will discuss about cluster theories and batik cluster industrial in Solo, i.e., Kauman batik village and Laweyan batik village. Based on the definition from Oregon business plan, industry clusters are groups which are related and similar among the other firms in a defined geographic area which share worker skill needs, technology or common market.

According to Solvev (2009), stakeholders on cluster include as follows:
1. Upstream and downstream firms involving both large firms and SMEs.
2. Financial institutions, involving traditional banks, commercial banks and other capital.
3. Public actors including:
   a. national ministries and agencies involved;
   b. regional agencies and units of national bodies;
   c. local communities
4. Academic stakeholders including universities and college.
5. Private and public organizations for collaboration (NGOs).

2.1.1. Laweyan Batik Village

Laweyan batik village is one of the biggest batik clusters in Solo and it is known as ‘Juragan Batik’ village. Laweyan batik village have a long history how it emerge and develop as one of batik industrial cluster in Solo. Laweyan batik village was located close to Dr. Rajiman street, which is the shaft of of Keraton Palace of Solo.

Laweyan village architecture is influenced by Javanese traditional, Europe, China and Islam. Laweyan is a cultural heritage area which close to Laweyan Mosque, former Laweyan market, tomb of Laweyan, and the house of H. Samanhoedi (founder of Islamic trade unions). Laweyan batik village is one of heritage in Solo, since it has history and influenced to the development of Solo city until nowadays.

The existence of batik laweyan is well known for the society in the early era. Batik Laweyan village was exist in 1500 at the era of Pajang kingdom. In 2004, September 25, there is decree from local government of Solo to establish batik cluster in Laweyan.

In this village, there are many batik showrooms to attract many customers, not only local but also foreign customers for shopping. The typical motif of this batik is modern pattern compared to Kauman village.
Based on data in 2006, Laweyan batik village have 31 stamped batik, 3 printed batik industries, 11 hand drawn batik industries and 122 household-managed batik industries. In Laweyan batik village, batik motifs are free expressions. The story of Batik industrial cluster Solo in Kampung Batik Laweyan is portrayed by table 1.

Table 1. History of Batik Industrial Cluster Solo (Laweyan Batik Clusters)

<table>
<thead>
<tr>
<th>Years</th>
<th>History</th>
</tr>
</thead>
<tbody>
<tr>
<td>1500</td>
<td>Laweyan Batik village was emerging as one of batik cluster in Solo.</td>
</tr>
<tr>
<td>1745</td>
<td>The popularity of Laweyan Batik village was decreasing since the existence of Palace Solo (Keraton).</td>
</tr>
<tr>
<td>1900</td>
<td>Batik industrial cluster in Solo was increase and it has been a glory of batik industrial.</td>
</tr>
<tr>
<td>1970 – 1990</td>
<td>Many entrepreneurs of batik industrial in Solo were bankrupts.</td>
</tr>
<tr>
<td>2000 – now</td>
<td>Laweyan batik village was reborn and Laweyan was officially become batik cluster in 2004.</td>
</tr>
</tbody>
</table>

2.2. Service Science as Value Co-creation

The emerging view regards value is co-created with customers (Edvardsson et al. 2005; Gronroos 2008; Vargo & Lusch 2008; Ramirez 1999). Customer value includes not only economic value but also value linked to values (ideals). The service dominant logic regards customers as a creator of value. It always co-created and created by customers (Gronroos 2008).

2.3. Soft System Methodology

In this research, we use soft system methodology as a soft system approach. Soft system methodology is used to structure thinking in a complex problem. It consists of human activity since it involves a lot of stakeholders and each of them has different point of view, interest and belief.

Soft system methodology consists of seven stages process (Wilson, 1984) as follows:

- Stage one - the problem situation unstructured
- Stage two - problem situation is expressed
- Stage three - building root definitions of relevant systems.
- Stage four – building conceptual models
- Stage five and six - Back in the real world and define the changes to be implemented
- Stage seven – action to solve or to improve the problem situation.

2.4. Theoretical Framework and Methodology

To build up an analyze tool box for case study in Batik industrial cluster, the linkage between theories should be grounded for integrated analysis.
3. Value Co-Creation Model of Batik Industrial Cluster Solo using SSM

In this section, we describe value co-creation in batik industrial cluster by using service system science perspective. Two case studies are selected i.e. Laweyan batik village and Kauman batik village, both located in Solo Municipality as a centers of batik production. Laweyan batik village placed at west part of Solo and the biggest centers of batik production Solo which introduced in 2004. The position is very strategic and the best assets for trading and industry.

Batik Solo is riches with design and motives in heritage of Keraton (royal palace) cultures. In Solo, there is a village which is the making of batik production centers. The study was undertaken in 2012 and utilizing qualitative approach.

Both cases feature traditional batik cluster based on SMIs and each located in the old kampung (urban village settlement) with long-standing historical values and traditions.

Fig. 2. Value co-creation in Batik Industrial Cluster
Based on Figure three, service component of batik industrial cluster is consists of interaction among entities, i.e., entrepreneur, customers, local government, training and R&D institution, bank/financial institution, supplier of input and university.

Interaction layer in value co-creation among entities can be described in Figure 4.

![Layer Interaction in Value co-creation of Batik Industrial Cluster](image)

**Fig. 3. Layer Interaction in Value co-creation of Batik Industrial Cluster**

### 3.1. SSM in Batik Industrial Cluster Solo

In this part, soft system methodology will be applied to batik industrial cluster by using service system science perspective.

In this part, we apply soft system methodology in batik industrial cluster Solo by using seven stages from SSM.

**Stage one - Situation Considered Problematic (Unstructured Situation)**

In order to develop a rich picture of the situation under study, a number of sources of information were utilized to capture views from all the perspectives. We collect data from Kauman batik village and Laweyan by interviewing the entrepreneurs.

The differences between these two are so obvious even though they are separated less than 3 kms. Laweyan batik village carries out free-style batik traditions, while Kauman batik village is identical to the traditional Kraton style. The batik industry needs serious attention and a strategic development plan.

Some issues like pricing of raw materials such as plain white cloth, colors and chemicals, marketing and environment problems would be given up most attention. Batik manufacturers would go the extra mile to step up the quality of their products and designs in order to gain a foothold overseas.

In recent years, China has been flooding the market with cheap printed batik even as prices of raw materials such as silk and dye stuff have gone up by about 80 to 100%.

This is enough to kill the traditional batik industry in Indonesia. It needs creativity development in batik industry, with the advance of technology. Synergy between technology and innovation will get a result a qualified
Stage two - Problem Situation Expressed

There are several internal factors which influence the creativity of Batik industrial cluster. The basis for intellectual development needed by entrepreneurs in business to be successful is education and training.

By using service science systemic perspective, how industrial cluster in Laweyan batik village and Kauman co-create value of service. There are coordination and cooperativeness from stakeholders in batik cluster to promote social value and to give value in use for customers.

This research is only a preliminary result which based on interview with entrepreneur of Batik in Solo. By using service science perspective under value co-creation, how entrepreneur and local government, other supporting agencies and universities collaborate to create value or benefit for each stakeholders and customers.

It needs a study about how to develop creativity in batik cluster industry in Solo which not only fulfill the customer requirement (low cost) but also fulfill the art and culture (originality) of batik (high quality and innovation) to attract tourism. We express the problem situation by using rich picture as portrayed by Figure 5.

Stage Three- Root Definitions of Relevant Systems

In this stage, we develop root definition based on rich picture. The root definition as follows:

| Entrepreneur, local government, supporting institution agency, supplier, and university owned of Batik Industrial Cluster to create value (X), by creating value of service innovation through collaboration and cooperation to fulfil customers requirement and control its suppliers to fulfil the art of batik in Kauman batik village and Laweyan batik village (Y), in order to promote social value for tourism of each stakeholders of batik clusters and customers’ value as well. |

![Fig. 4. Rich Picture of Batik Industrial Cluster Solo](image-url)
Based on the rich picture we develop CATWOE analysis as follows:

<table>
<thead>
<tr>
<th>C</th>
<th>Entrepreneur</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Entrepreneur, local government, supporting institution agency, supplier, university of Batik Industrial Cluster</td>
</tr>
<tr>
<td>T</td>
<td>Low capability of creativity in service process (\rightarrow) high capability of creativity (benefit for entrepreneur as a revenue and customer’s value as customer requirement (low cost) and keep an originality of batik (high quality and innovation))</td>
</tr>
<tr>
<td>W</td>
<td>The belief that promoting social value between Kauman batik village and Laweyan is a good way of demonstrating the qualities of cluster to fulfill its customer’s requirement and fulfill the art and culture to attract tourism.</td>
</tr>
<tr>
<td>O</td>
<td>Entrepreneur of Batik Industrial Cluster and governing body</td>
</tr>
<tr>
<td>E</td>
<td>Batik Industrial Cluster and Solo City</td>
</tr>
</tbody>
</table>

**Stage four – building conceptual model**

In this stage, we develop preliminary conceptual model in general as follows:

![Human Activity Model of Batik Industrial Cluster](image)

Fig. 5. Human Activity Model of Batik Industrial Cluster

We need to expand our preliminary result by collecting another data from all perspective in service component. In our research, we use the perspective from academician. Stage 4 required the construction of a conceptual model which described the activities that must take place in order to achieve the transformation and also how the operation of the system was to be monitored and controlled.

**Stage five and six - Back in the real world and define the changes to be implemented**
In terms of value co-creation in batik industrial cluster Solo, the stages are illustrated here in terms of conceptual models. Suggestion for further work and suitable resources should be made by entrepreneur of batik industrial cluster Solo. Kauman batik village and Laweyan batik village should cooperate to promote the value for customers, for example develop a synergy between technology and innovation or any others development to make a benefit and social value for customers.

**Stage seven – Taking action**

Any change to a system requires that changes be desirable from the systems perspective but also culturally feasible. In this application, local government and other supporting agencies have been required to work closely and cooperate with entrepreneur in the support. On the other hand, entrepreneur and customers have been required to work closely and cooperate to create and promote value with its tourism which all mutually benefit each other.

**4. Conclusion**

By employing a systems based methodology such as SSM we have been able to see the value of trying to capture the perceptions from a researcher point of view.

In order to promote social value, each stakeholder which is not only village of Kauman and Laweyan but also all stakeholders in batik cluster Solo must co-operate each other to create value as well as customers’ value.

All stakeholders in service component of batik cluster industry Solo should develop creativity which is not only fulfilling the customer requirement (low cost) but also fulfill the art and culture (originality) of batik (high quality and innovation).

The entrepreneur should frequently conduct on going training with more complex equipment, always innovating product, optimizing product promotion through exhibitions and the internet, and the need for ongoing training program held in cooperation with government authorities.

Furthermore, we emphasize that the here presented results are preliminary. We need to explore and expand the model and validate it with the reality by collecting the data from each stakeholder of batik industrial cluster Solo.

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