



SUMMARY

TAUFIQ IMMAWAN. The Model of Business Process Reengineering in Batik Industry Toward Sustainable Supply Chain. Supervised by MARIMIN, YANDRA ARKEMAN, and AGUS MAULANA.

Batik industry experiences major improvement right after UNESCO have acknowledged Indonesian batik as Masterpieces of the Oral and Intangible Heritage of Humanity on October 2nd, 2009. Cities that produce Batik as Solo, Yogyakarta and Pekalongan have come up with increasing sales volume. In Solo, the sales volume has raised for 30%-50% in 2010 and 200% in 2011 (Disperindag Solo), so as Yogyakarta and Pekalongan with similar raise. Batik market has become more expanding since the government announced October 2 as Batik day.

Huge market segmentation in Indonesia attracts other countries, especially China and Malaysia. Referred on definition of batik, hence batik that produces without using *canthing*, by printing or combination of both is considered as Batik imitation. For instance, batik from China that produces by using machine, later called as mechanic Batik. Mechanic batik is printing batik that performed by machine. Due to its cheap price and attractive motive, batik imitation from China has dominated the market share around 25% up to 30% in Indonesia. This will be the threat for Batik producer from Pekalongan, Cirebon or Solo. For the first three months in 2013 (January to March), there are 159 ton of imported Batik imitation from China that equal with US\$ 4.6 million or equal with Rp, 43.7 billion (BPS 2013). It is considered as a critical situation, since it could possibly threaten national Batik market.

Beside economic problem above, batik industry also encounters environment issues. Many accusations stated that the industry has polluted the environment by its liquid waste that directly flows to river, has less responded by the actors of this industry. If this liquid waste issue is out of consideration, the protest from society nearby the river could be fiercer and force the government in closing the company eventually.

Accusation for human resource exploitation by paying wage under minimum standard also has become other problem in this industry. It is observed from low payment especially in area of regency. If this payment problem could not be managed properly, the experienced resource in batik will leave Batik industry for other promising field. Whereas, it is difficult to find batik worker due to low interest from young generation to work in this field.

This study aimed to analyze the company of clusters have been formed, designed a model of integration of SCOR (Supply Chain Operations Reference) with dynamic system as the basis for building a model, incorporating methods of SCOR (Supply Chain Operations reference), analysis of wastewater and analysis of employee benefits to achieve chain continuous supply with weighting AHP (Analytical Hierarchy process), designing the integration model SCOR (Supply chain Operations reference), wastewater and welfare of employees with simulated dynamic system that can predict the value of the sustainability of the entire supply chain business process reengineering results.

Data are collected from 124 companies scattered in Surakarta. From clustering using k-means, it derived 5 clusters, 13 companies of MTS (Make To

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Stock) production type, 24 companies of MTO (Make To Order), 40 companies with combination of MTS-MTO, 15 companies with combination of MTO-ETO (Make To Order and Engineer To Order) and 32 companies with combination of MTS-MTO-ETO.

Calculation of sustainable level for each cluster is represented by 1 company with random sample method. If a designated company has objection for the data or a company has incomplete data, hence the sample must be retaken since the research requires many data as well as good cooperation from company.

The results of calculation on the level of Batik industry sustainability for each cluster are MTS 67.98%, MTO 66.77 %, combination of MTS-MTO 66.27%, combination of MTO-ETO 66% and combination of MTS-MTO-ETO 68.35%.

Process of engineering on batik industry business in this research is only focused on 1 company from MTS-MTO combination cluster as a sample, since it has the most cluster members. Process of business engineering uses *Lean* manufacturing and CODP (*Customers Order Decoupling Point*) that integrated with simulation of dynamic system.

Final result of simulation without IPAL or waste water treatment, shows the increasing of sustainability value from 66,27% to 68,60%. By that enhancement, it considered that an improvement happens but only on the fair category. While, by simulation using IPAL, company's value improves to 82,22% and categorized it in the level of good sustainability (75.01% - 100 %).

Keyword: batik industry, sustainable supply chain, employee's welfare, clustering, liquid waste, lean manufacturing, SCOR, dynamic system.

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