

# Data Governance Practice for Outbound Supply Chain Management (SCM): A Case Study of Malaysian Textile Industry

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**Abstract**— The purpose of this paper is to implement a supply chain management (SCM) data governance of outbound logistics for Malaysian textile company. According to this paper, an apparel or textile company was once the top three export earners for manufactured goods of Malaysia. Hence, this research is looking forward to enhancing better performance and business value of Malaysian textile industry which is corresponding with the new application of technology known as “Industry 4.0”. Without having any standards or guidelines, a company might incur failure due to the absence of express semantics and substance of data and information towards integrating and exchanging information among various associates including in the supply chain of the organization. Indeed, changes in policy might also give the impression of instability which impacts the stock prices of a textile company. Hence, this paper focuses on the SCM data governance, whereby the main goal is to identify data governance that exists and must be implemented in compliance with the Malaysian outbound logistic. Throughout this paper, the term data governance is used to refer to the practice of managing all the information to identify and improve the business value of an organization.

**Keywords**— Data Governance, Data Entitlement, Data Ownership, Outbound Logistic, Supply Chain Management (SCM)

## 1. Introduction

This paper outlines the definition of the data governance, followed by identifying the policies, standards and guidelines which integrates along with the SCM data governance of a textile company which referred as “Textile A”. From data governance, the data entitlement will be introduced, and ownership of the company will be identified. Hence, the key roles such as application and data stewards will be identified. Data stewardship is known to enable effective management of data stewards. With a specific end goal to keep all partners drew in and guarantee consistent interests in SCM data governance activities, it is imperative to express the esteem produced by data governance activities through the right metrics. Specifically, data governance best practices can be a simple tool to evaluate the impact of data governance activities. There is a multi-tiered combination and technology roles involved in a data governance organization. Mainly they are the business

sponsor, data governance council, data owners, stewards, custodians and architects [1].

These combination of business and technology roles integrate together to enhance efficiency and effectiveness of the performance of the company. The business sponsor provides the overall leadership and sponsorship to all data governance efforts, whereas data governance councils plays the role in providing consistency and coordination for cross functional initiatives while maintaining an enterprise perspective and strategic approach on data governance. Practically, the data owners, stewards and also custodians provide all the required standards, policies and also procedures [2].

Recent evidence suggests that DG is defined as the overall management of accessibility, usability, integrity and also security of an organization governing body, which defined set of standards, policies and guidelines and then follow by the next which execute the implemented policies [3]. Basically, there is several principles which exists in the DG which mainly covers the data quality and metadata management [3]. The paper discovers the DG which involves with policy, standards and guidelines of the textile company. The project has been assigned to study all the policies that must available in that organization, and hence develop a model of DG for the efficiency and flexibility of the supply chain and delivering needs of that company. Generally, DG is defined as the best practice of managing all the data and information of the company and hence specifying all the business value to meet the needs of the company [4].

By having a proper set of DG, it helps the company to maximize income generation potential data. Indeed, it helps to increase consistency and confidence in making decision. By having this situation will then help to optimize staff effectiveness. By complying to the policy, standards and guidelines of DG can result in the improvement of data security and data quality of the company [5]. Following to the aspect of the management of DG, there are several focus areas that exist within the DG, mainly they are the governance management, business glossary and metadata management.

## 2. Data Governance

In DG, a maturity model is used to measure the degree of convention and optimization of processes and procedures, from ad-hoc practices to formally defined steps in order to managed

results measurements for the optimization of the processes [6]. Basically, in a DG maturity model, there will be five (5) phases in identifying the effectiveness and efficiency of data and information in a company [7].

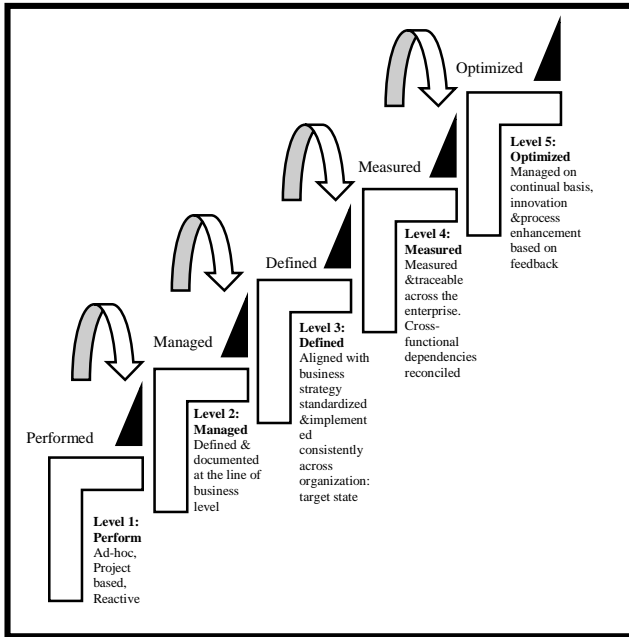


Figure 1: DG Maturity Model (DGMM)

As it can be seen from figure 1, each phase of DG maturity model (DGMM) determines the current effectiveness and efficiency of data and information in a company [7]. The phases involved starts from the perform or ad-hoc phase whereby data is still very immature, follows by the second phase whereby data and information is defined and managed. The third phase will be the alignment and well defined of data and information. The next phase which is the fourth phase is the measurement and traceability of data and the final phase will the optimization of data, whereby the data and information is well-managed and integrated [7].

Basically, all the policy will be reviewed and updated approximately every three (3) years from the approval date [8]. The data policy involved has been used for the three (3) main purposes which are for data access, data usage and also data integrity [9]. Thus, in DG, there will be three (3) important roles which are responsible for the improvement of the company, which is data ownership, data custodian, and data stewards. These three (3) roles are detailed defined in table 1 below [10].

Table 1: DG and Ownership

Roles	Responsibilities
Data Ownership	<ul style="list-style-type: none"> <li>- Responsible for ensuring all data compliance to legal, regulatory and standards of the company</li> <li>- Ensure the procedure for the organization of information is as per the Data Management Life Cycle</li> </ul>

Roles	Responsibilities
Data Custodian	- Involve any individual or organizational unit who provides data and any information derived from the data.
Data Steward	- Responsible for the quality and uprightness, usage and requirement of data management inside its division or offices.

### 3. SCM of Textile Company

Undeniable, information sharing is a vital piece of SCM, and traceability goes about as an indispensable connection for sharing data inside and between accomplices. For example, plan points of interest, segments, description, procedures, bills of materials where it coordinates the supply chain [11]. Essentially, Traceability is characterized as the ability to identify, trace and track a product or goods which integrates along with the supply chain imitated from raw materials until finished products. Accordingly, traceability approaches with the supply chain whereby both of them are interrelated and cooperates with each other. Supply chain is defined as the activities and tasks involved in delivering a product from raw material through to the customer including the information which is necessary to monitor all the activities [12].

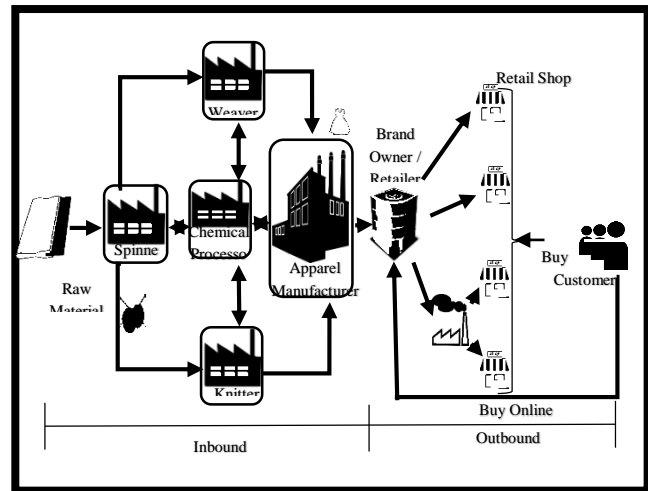
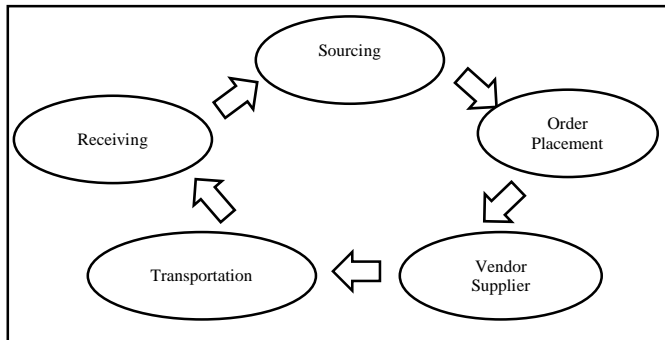


Figure 2: Textile Supply Chain Network of Inbound and Outbound Logistic

The figure 2 above shows that a developing supply chain company comprises an inbound logistic and outbound logistic. Practically, both streams are important in pursuing better enhancement of logistic management which complies the policy, guidelines and standards of a textile company, and hence integrates with the SCM [12]. Basically, a logistic management is a part of SCM which involves the plan, implement and control the efficient and effective forward flow, reverse flow and storage of goods and services from raw materials to the requested customers in order to meet the customers' requirements [13].

**A. Inbound Logistic**

An inbound logistic is defined as the activities identified with the involvement of sourcing, procuring, storing and conveying the raw materials to the product or service of an organization. Basically, an inbound logistic is also known as the buyer site between the supplier and the company. It is an integral part of the operations especially for an industry which involves in a supply chain[14]. In basic terms, inbound logistic is the key action which centers around purchasing and planning the inflow of materials, instruments and final goods and services from the providers to the production unit, warehouse or retail shops [14].

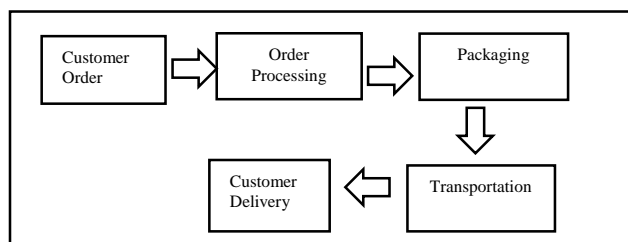


**Figure 3:** SCM Inbound logistic activities

From figure 3, it shows that an inbound logistic incorporates each one of those activities, which are substantial to produce accessible products and goods, especially for a textile company for operational procedures at the needed time [11]. It incorporates materials dealing with, stock control, inspection and transport, and so on to facilitate the production or market distribution.

**B. Outbound Logistic**

An outbound logistics is defined as the collection, storage, and conveyance of the final goods and products which are related to the information flow from the manufacturing plant to the targeted customer. Eventually, it involves each one of those activities. For example, selecting, organizing, transporting, etc. which are engaged with the outflow of stock from a seller to the buyer [1]. An outbound logistic play a vital role in a supplier’s business management especially in the SCM process of a company. The process of outbound logistic is identified with the development and capacity of products from the finish of the generation line to the end client [15].



**Figure 4:** SCM Outbound logistic activities

Figure 4 shows an outbound logistic, on account of a tangible item, can be warehousing, material handling, inspection and

transport, etc. However, for intangible ones like services, it is related with setting for conveying customers to the service location, starting from the order of products from the customers to the delivery orders of the customers. In a supply chain network of a company, there is basically two sites known as an inbound logistic and outbound logistic which interacts and integrates each other in order to fulfill the business needs of a company. Yet, there are differences between both inbound and outbound logistic in terms of its definition, relationship, focusses and its interaction within a company which is detailed explain in the table 2 below.

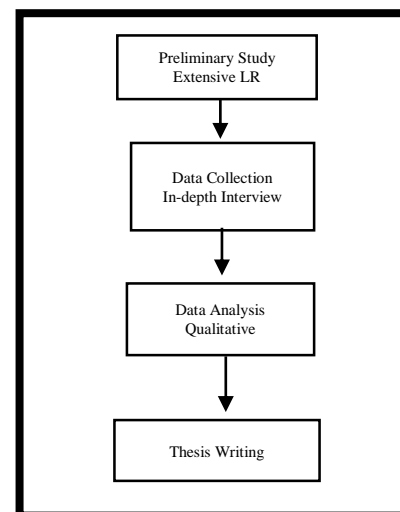
**Table 2:** SCM inbound logistic and outbound logistic

Differences	Inbound Logistic	Outbound Logistic
Process	Physical Supply to plant/operation/branch	Physical distribution to customers
Activities	Supplier to the firm (transportation, material handling, information maintenance, warehousing, Procurement)	From firm to customers (Order processing, warehousing, procurement, packaging, customer delivery)

Thus, this paper is focusing on an outbound logistic of a textile company, which identifies the movement of the finished goods and prod

**4. Methodology**

The paper focusses on Qualitative analysis study. In general, two (2) research activities are conducted, which is the preliminary study: extensive literature review and in-depth interview.



**Figure 8:** Research Flowchart

The paper is initiated by having the extensive literature review which mentioned and explained on the outbound logistic on international and also Malaysian industry comprises of cases

studies and also DG policy best practices to be implemented in Malaysian outbound logistic of a textile company. Based on the research, several outputs are collected which is detailed definition and overview of data ownership and data entitlement, current state of DG policy and level of maturity in that specific company, and also lists of DG policy best practices to be implemented in that textile company. Another research activity is the in-depth interview for the collection of data. The aim of the in-depth interview is to investigate the current DG policy exists in the selected textile company. Moreover, the study aims to develop a DG model for the Malaysian outbound logistic which focusses on a textile company. Eventually, the flow of the research activities is generated as shown in the figure 8 above.

## 5. Data Analysis & Results

The results for this study conclude that DG in “Textile A” still at Level 2: Managed, which currently structuring of data management roles, accountabilities and responsibilities within an organization. Each staff of “Textile A” performs several processes which involves a critical measure of data. This company believed data is a basic segment of a supply chain and

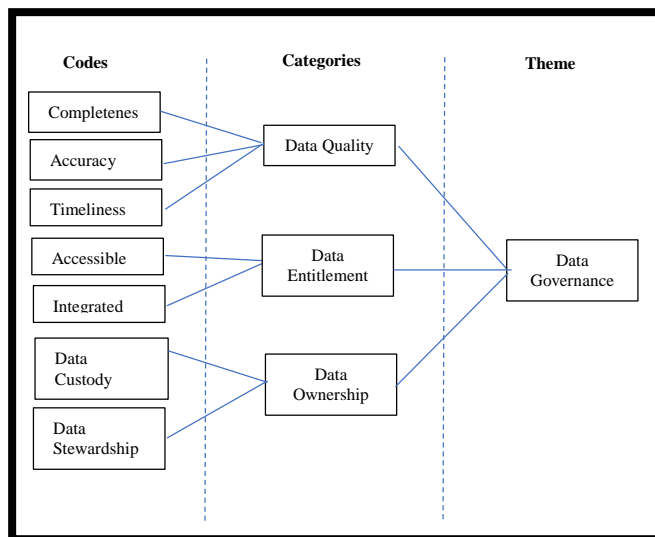
it is critical that each supply chain controls the flow and protect confidential information and data. Basically, there are two layers of data, namely primary data and secondary. Primary data comprises of all the data accessible with a B2B performer, whereas the secondary data is the processed data generated result from the primary data which is shared throughout the supply chain.

Several data have been collected from the interview which mentioned on the data itself of a company, how it is manage, how it is controlled and who owns the data. From the categorized data: data management, data entitlement and data ownership, a theme has been formed which answers the question. Table 3 below shows the result for qualitative content analysis using NVIVO. The identified theme covers ownership and entitlement of data in a textile company as shown in the table 3. Out of the given codes, they are segmented into several categories such as how to manage which falls under data management, how the data is controlled which is categorized as data entitlement and also who owns the data which is known as the data ownership. Once the types of categories have been segmented, the final step in a content analysis is to form and build themes.

**Table 3:** Suggestion for organization of coded meaning units into categories and themes.

Overarching Theme: SCM DG IN A TEXTILE COMPANY		
<i>Theme: Data Ownership and Data Entitlement</i>		
<u>Meaning Units (Condensations)</u>	<u>Codes</u>	<u>Categories</u>
Let us go to the categorization of data	Completeness of data	Data Quality (Completeness)
Management data will be divided into cash flow data, human resource (HR) data and stock data		
Payment of OT is based on the category's mode		
The company is divided into 2 departments which is management department and operation department		
Stock data will be readily keyed in the system before supplied	Data is accessible	Data Entitlement (Accessible)
Goods received are fixed with its quantity yet depends on the company's capability and consequences if there are excessive stocks		
“Textile A” system is made an open price which is used to record cash in and cash out manually		
All the stocks data will be recorded in the excel and is linked together with the “Textile A” system	Data is integrated	Data Entitlement (Integrated)
All management data is synchronized with the HQ		
Stock Admin is connected to the operation departments which is responsible to check and validate on the stocks		
Stock Admin is connected to the operation departments which is responsible to check and validate on the stocks		
Operation department and management department is connected and integrated with one another for the transferred and shareable of information		
There are 5 admins involved in keeping and holding the data which is Admin Account, Admin HR, Admin Stock, Admin Marketing, Admin Public Affairs and Admin Payroll	Data stewardship (accountable for business control)	Data Ownership (Data stewardship)
Admin HR is responsible for recording attendance and management of staffs	Timeliness of data	Data Quality (Timeliness)
Operation department deals with all the sales and operation whereas the management departments deal with the management and administration		

Overarching Theme: SCM DG IN A TEXTILE COMPANY		
<i>Theme: Data Ownership and Data Entitlement</i>		
<u>Meaning Units (Condensations)</u>	<u>Codes</u>	<u>Categories</u>
Stock Admin handles all the stocks at the operation management, HR admin deals with the staffs, Account and payroll admin handles the salary and payment, marketing admin related to the advertising and promotion and public affairs admin deals with the permits and license of the company		
Admin HR need to make checklist and record the operating hours of the staffs which in turn need to be validated again manually from the system	Accuracy (All the data need to be validated)	Data Quality (Accuracy)
The system is used only as reference for validation		
All the information input by HR admin will be passed to account admin		
Payroll admin involved as the final checklist for validation and is responsible in salary distribution		
Data is kept confidential and only payroll admin and account admin own the data	Data Custodian (Data is kept confidential)	Data Ownership (Data Custodian)
Public Affairs Admin is assigned to deal with all the license and permits of the company and handle all the documentation		
All the documentations permit, and license of the company accomplished by the Public Affairs admin will be reviewed by the chief clerk		



**Figure 5:** SCM DG of a textile company

Thus, from the content analysis, three important categories have been identified which is data quality, data entitlement and data ownership which will be used in the SCM DG of a textile company focusing on the outbound logistic. Eventually, out of the identified categories, a theme has been selected which the ownership and entitlement is focus in DG which answers the question of how the data is managed, how it is controlled and who owns the data in the company. The flow of the content analysis transformed which is initiated from the coded texts into segmentation of categories and is finalized with the formation of a theme and is illustrated in the figure 5 above.

## 6. Conclusion

As articulated and analyzed on the SCM DG, it is concluded that it really plays a vital role in ensuring the success and improvement of an organization which is compliance with the policy, standards, and guidelines focusing on the outbound

logistics of the company. Overall, it shows that the entitlement process and the hierarchy of an organization or in other terms known as the ownership place important roles in developing an SCM DG model of a company.

In a nutshell, an SCM DG model helps to improve the key performances and enhance the business decisions of a company. Indeed, it is beneficial in minimizing the duplication of data in a company, and hence integrates the data between the inbound and the outbound logistic of a supply chain of a textile company. Apart of that, it helps to enhance the quality of the management and operation of the company by having the DG maturity model which helps to identify the integration of data and information which in turns helps to improve the performance measurement of the company.

This paper underscores the importance of an SCM DG focuses in outbound logistic of a textile company which corporates with policies and procedures for managing data effectively. In the new emerging era, a DG model enables collaboration from various levels of the organizations and it also provides the ability to align various data related programs which in turns to achieve the business goals and objectives.

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