Supply Chain Performance Measurement with Method SCOR Model in Service Company

Haryadi Sarjono, Adi Teguh Suprapto, Adinda Hanna Setyorini, Dyah Rosita Nurjannah and Fara Fisabilla
Binus Business School Undergraduate Program
Binus University
Jakarta, 11480, Indonesia
haryadi_s@binus.edu, adi.suprapto@binus.edu

Abstract

Supply chains, often called supply chains, are pegs used to supply suppliers, producers, warehouses and stores effectively so that supply can be supplied and distributed at the right amount, to the right location, and at the right time so that it can be adjusted minimized while trying to meet the needs and service. Supply chain management is one of the key determinants of competitive advantage for companies. Effective supply chain management can provide a quick response to the market and reduce costs. As we know, PT Gramedia Asri media is one of the leading publishing companies in Indonesia. In this era, companies are faced with business competition. Where companies compete with each other to deliver superior products to increase customer satisfaction. Therefore, a study was conducted to measure the performance of a company's supply chain using the Supply Chain Operation References (SCOR) approach. To find out how effective a supply chain is, an evaluation or measurement must be made of it. Moreover, the measurement of supply chain performance in companies becomes very fundamental as a foundation to determine the direction of company improvement.

Keywords
Supply chain, Performances, and Supply Chain Operation Reference Model (SCOR).

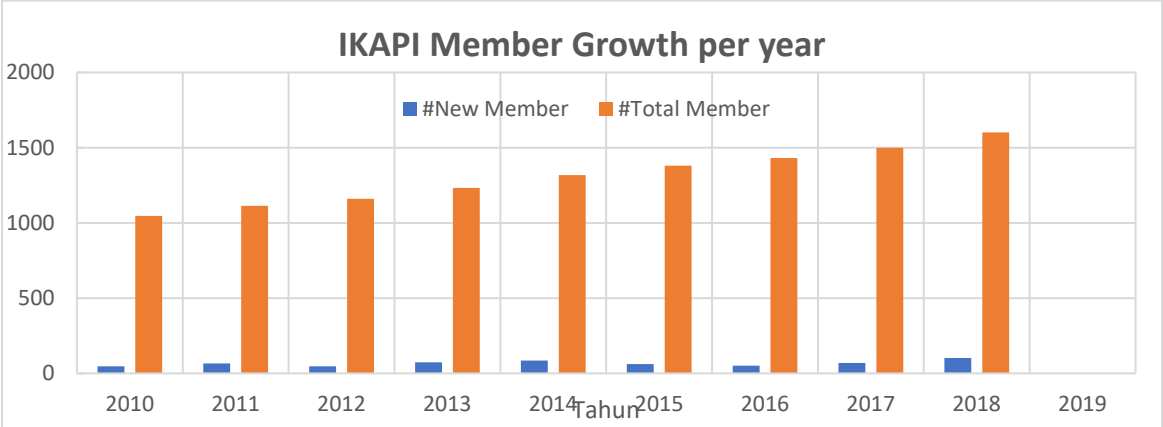
1. Introduction

The creative economy places creativity and knowledge as the main assets in driving the economy. Minister of Industry Saleh Husin in an interview after attending the opening of the 2015 National Creative Meeting in BSD City, South Tangerang, Banten, Tuesday (4/8/2015) said that: "The creative economy can be a catalyst for new industries, as well as an accelerator or accelerator of existing economic activities. This means that it is very clear that actors, workers and consumers will also encourage economic growth" (Kominfo, 2015).

The development of the book publishing industry has encouraged the establishment of the Indonesian Publishers Association (IKAPI). IKAPI is the only professional publishing association in Indonesia that brings together book publishers from all over Indonesia. Ikapi was founded on May 17, 1950 in Jakarta (IKAPI, 2018). Ikapi aims to improve the function and role of literacy in public life and develop the book publishing industry, as an effort to actively contribute to education and the improvement of the nation's civilization. IKAPI membership recorded as of January 2018 is 1488 publisher members from all over Indonesia (IKAPI, 2019). Book publishing companies outside the IKAPI members generally consist of small-scale companies. The main problem that occurs is how this industry can

grow to be big. The book publishing industry in Indonesia is an industry that continues to develop. This is evidenced by the data from IKAPI below:

Figure 1. Total growth of IKAPI members per-year



Source: https://www.ikapi.org/language/en/member-statistic/,2018

In the current digital era, the publishing industry does not only contain printed content such as books, but many digital media such as ebooks, social media, and blogs have emerged. The publishing industry in Indonesia itself is still proven to be able to survive in the current digital era (Fatmawati, 2019). The advantages in the publishing sector are:

a. The publishing industry is one of the creative economy businesses that contributes quite a lot to GDP, namely 6.32% and as many as 83,496 Total Businesses Engaged in the 2016 Publishing Sub-Sector (rank 4) in Indonesia. The data is obtained based on the Opus 2019 book in (Sabdarini, in Fatmawati, 2019).
b. Not to mention 464,579 people The number of workers in the Publishing Sub-Sector 2016 (rank 4) with 83.36% Percentage of Entrepreneurs in the Publishing Sub-Sector who are not Business Entities (5,434,047 businesses). The data is obtained based on the Opus 2019 book in (Sabdarini, in Fatmawati, 2019).
c. Publishing plays an active role in building the nation's intellectual strength (BEKRAF, 2020).
d. Slamet Aji Pamungkas said publishing and publications are factors that support the creative economy. With publications and publications, more people will read and know about the creative economy (Kabarkota, 2016).

Based on the description above, with the continued development of the publishing industry, it will increase the competitiveness of all publishing companies and individuals who need large bookstores throughout Indonesia to market their products. Related to the above, this research was conducted at the Gramedia Mall Taman Anggrek bookstore. To continue to grow and be able to compete with competing companies, they must continue to improve their performance. Performance is one of the important factors in a company. To find out whether the company's performance is good, it can be done by measuring performance. With the performance measurement, the performance improvement will be realized through the improvements made (Purnomo, et.al, 2019). The performance discussed here is the company's supply chain performance. A supply chain is a network between a company and its suppliers to manufacture and distribute a particular product or service. The steps include moving and transforming raw materials into finished products, transporting those products, and distributing them to end users (Investopedia, 2020).

1.1 Objectives

Based on the above background, the formulation of the problem is, 1). implementation of SCOR model version 12.0 in distribution companies, 2). Supply Chain performance measurement at the company, 3). implementation of SCOR model version 12.0 compared to other distributor companies.

2. Literature Review

Wibowo (2012:2) explains that performance is an effort to do work and the results achieved from the work. Performance is about what is done and how to do it. Pangestu Subagyo (in Rusdiana, 2014) defines operational

management as the application of management science to regulate production activities so that they can be carried out efficiently. According to Rainer et al (2011) supply chain refers to the flow of materials, information, money, and services from suppliers of raw materials, through factories and warehouses to final customers. A supply chain also includes the organizations and processes that produce and deliver products, information, and services to end consumers. Supply chain is a network system in a company that is connected, interdependent, and mutually beneficial in organizations that work together. According to Ariska et al (2016) supply chain management (SCM) is a field of study that lies in the efficiency and effectiveness of the simultaneous flow of goods, information, and money flows so as to unify supply chain management with the parties involved. Quoted from The Council of Supply Chain Management Professional (CSCM) page, logistics is part of Supply Chain Management in the form of planning, implementing, and controlling the flow of goods, storage, services, and information in an effective and efficient manner related to the point of origin and point of consumption in meeting customer needs.
The concept of a supply chain that counts from basic materials to finished goods that are used by the final consumer. According to Ariska et al (2016) there are major players in companies that have the same interests, including: Suppliers, Manufacturing, Distribution, Retail Outlets and Customers. In general, the application of the concept of supply chain management in the company will provide benefits, namely customer satisfaction, increasing revenue, decreasing costs, increasing asset utilization, increasing profits, and getting bigger companies (Sari, et al, 2015).
Table 1. Supply Chain Strategy

Tactical Decisions	Efficiency	Response
Facility Location	Factory location in an area where the wages of labor are cheap	Look for a location near the market, have access to skilled workers and adequate technology
Production System	High utility level of production system	The production system must be high and there must be extra capacity
Stock	Need to minimize inventory levels	Sufficient supplies are required for security
Transportation	Delivery is sub contacted to a third party	Fast transportation required
supply	Choose a supplier with price and quality as the main criteria	Choose a supplier based on speed, flexibility and quality
Product Development	Focus on minimization	Use modular design and delay product differentiation as much as possible

Source: Alfeno, et al (2015)

The Supply Chain Operations Reference (SCOR) is a process reference model developed by the Supply Chain Council (SCC). SCOR is an approach method for measuring the performance of a supply chain. SCOR is a reference model of the supply chain that can map the parts of the supply chain. In general, SCOR is used to identify, measure, reorganize, and improve supply chain processes.

Table 2. Comparison of SCOR model versions Version 10.0, 11.0, and 12.0

SCOR Model Version 10.0	SCOR Model Version 11.0	SCOR Model Version 12.0
Best practice only	New types of practices (emerging practices, standard practices, and declining practices)	The cost attribute of the total cost of service is replaced by the total cost of supply chain management and updates the definition of make, deliver and enable elements
Determining the age of practice requires review	New practice	Supply chain performance priorities are considered by each supply chain member and external parties
Limited definitions for many best practices.	Added definitions and relationships with metrics for all practices	Updates to some matrices contained in previous versions of SCOR

There is no information on which metrics can be used to see improvements for most practices.	Classification according to functional area.	Evaluates based on several attributes, including reliability, responsiveness, agility, assets, and cost

Source: Paul (in Thaha, 2016); Chotimah, et al (2018).

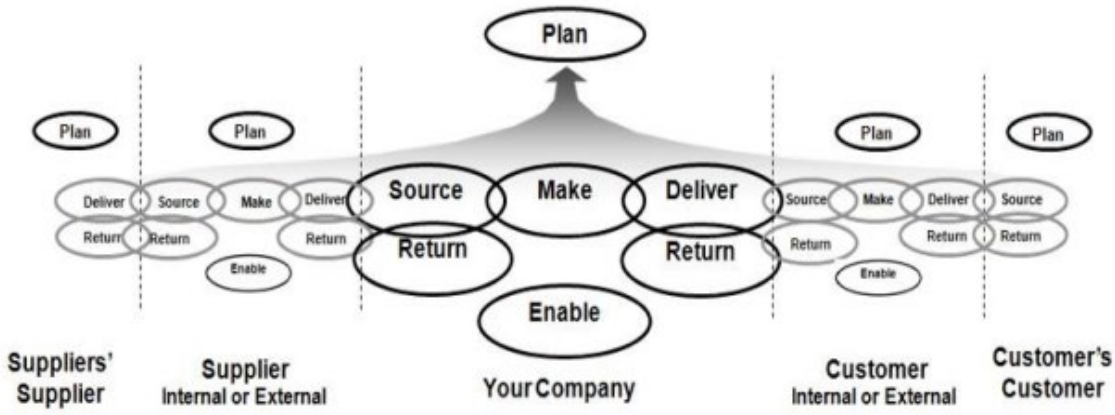


Figure 2. SCOR Process Model Version 12.0
Source: Kusrini, et. al (2019)

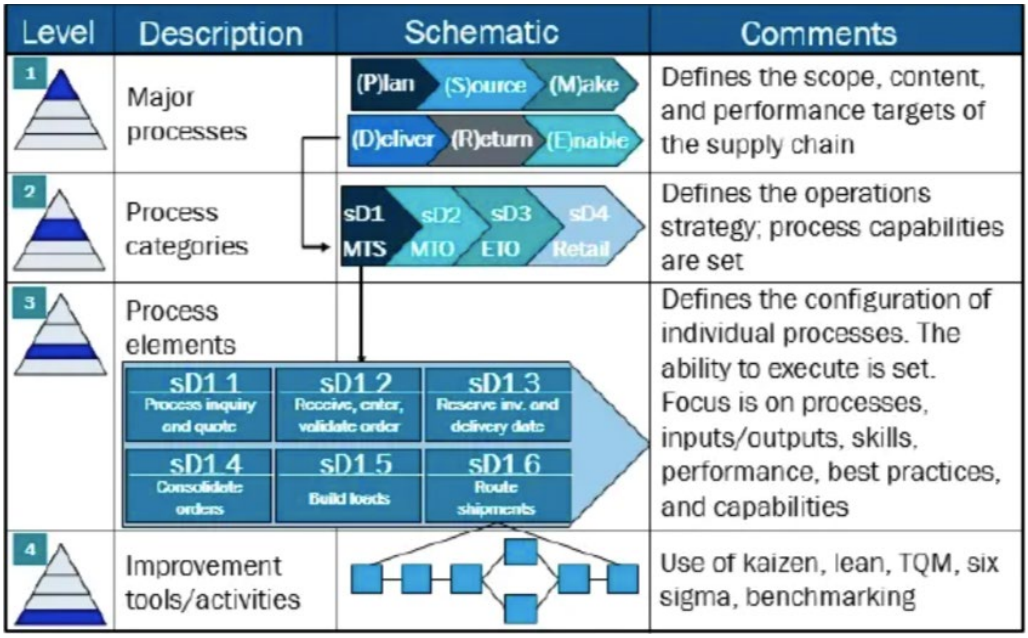


Figure 3. SCOR Process Hierarchy
Source: www.apics.org

According to Pujawan and Mahendrawati (in Ariani, 2013) the SCOR framework provides a variety of performance measures to evaluate supply chains arranged in several levels of metrics associated with one of the performance attributes, namely: Reliability, Responsiveness, Flexibility, Cost and Asset (Supply Chain Council, 2012).

Table 3. Table of Reliability, Responsiveness, Flexibility, Cost, and Assets

No.	Attribute	Definition
1	*Reability*	Supply chain performance in delivering the right product, at the right place, in the right quantity, and well documented.
2	*Responsiveness*	Supply chain speed in providing products to consumers.
3	*Flexibility*	Supply chain capabilities in an effort to win market competition.
4	*Cost*	Costs associated with supply chain operations.
5	*Assets*	The value of the effectiveness of an organization to manage its assets to support the satisfaction of this demand including fixed capital and working capital.

In the SCOR level 1 model, Setiawan (in Padillah, et al, 2016) states that the processes in the supply chain are categorized into five main processes in management. The following table describes the five main level 1 processes in the supply chain.

Table 4. Five Main Processes of SCOR Level 1

SCOR Process	Definition
Plan	Processes that balance aggregate demand and supply with the aim of developing a number of actions that can optimally meet the needs of delivery, production, and sourcing in an optimal manner.
Source	The processes of purchasing goods and services aimed at meeting the planned or actual demand.
Make	Processes that transform a product into a final state to meet planned or actual demand.
Deliver	Processes that provide finished products/services to meet planned or actual demand, particularly including order management, as well as transportation and distribution management.
Return	Processes associated with the return of receipt of returned products. This process is extended to the delivery part of consumer support.
Enable	Processes to make supply chains more efficient, including the use of information and technology as well as supply chain performance measurement activities.

Level 2 mapping according to Setiawan (in Padillah, et al, 2016) is the configuration stage of supply chain processes that are in three main categories, namely:

a) Planning, the processes carried out in planning include Balancing aggregate supply and demand, considering a consistent planning time horizon and contributing to the response time of the supply chain.
b) Execution is a process that is triggered by a planned request or an actual request in the form of a material transformation process.

According to Setiawan (in Padillah, et al, 2016) level 3 mapping is a company supply chain system defined as the company's ability to compete in the selected market. At this level, it shows that this process is divided into input, output and through put information which consists of Definition of process elements, Information on outputs and inputs of process elements, process metrics for measuring work, best practices, system capabilities needed to implement best practices, systems, and tools for fine tuning at the operational strategy level.

At the level 4 mapping process, Setiawan (in Padillah, et al, 2016) states that the description method for the element process follows the conventional hierarchy. The element process is broken down into task activities for each element, so that each task can be described in detail.

3. Methods

The Supply-Chain Operations Reference (SCOR) model is a model developed by the Supply Chain Council (SCC). The SCOR model is used to measure and improve the company's total supply chain performance. This model includes an assessment of delivery and demand fulfillment performance, inventory and asset management, production

flexibility, guarantees, process costs, and other factors that affect the overall performance assessment in a supply chain (Chotimah, et al, 2018).

The SCOR model describes business activities related to fulfilling customer demands, including plan, source, make, deliver, return and enable processes. The use of the SCOR model includes analyzing the current state of the company's processes, as well as measuring operational performance using a standard set of metrics. Currently version 12.0 is available under APICS membership affiliation.

The model also provides performance attributes and supply chain measurement metrics. Performance attributes are supply chain criteria that make it possible to analyze and evaluate supply chains against other supply chains with competitive strategies (Chotimah, et al, 2018), Indicators include:

1) Perfect Order Fulfillment (POF)
   POF is the company's supply chain performance in fulfilling buyer orders with the right product, quantity, time, packaging, conditions, and documentation, so as to be able to give confidence to buyers that their orders can be fulfilled properly.
2) Order Fulfillment Cycle Time (OFCT)
   OFCT is the time speed of a company's supply chain in fulfilling customer orders. Cycle time starts from receiving the order and ends when the customer receives the order.
3) Upside Supply Chain Flexibility (USCF)
4) USCF is the number of days required to achieve an unplanned continuous increase of 20% of the number of products shipped.
5) Upside Supply Chain Adaptability (USCA)
6) USCA is the maximum percentage increase in the number of products shipped continuously that can be achieved in 30 days.
7) Downside Supply Chain Adaptability (DSCA)
   DSCA is a continuous reduction of order quantity 30 days prior to delivery without incurring inventory or cost penalties.
8) Cost of Goods Sold (COGS)
   COGS or cost of goods sold is the cost associated with implementing the supply chain process. costs associated with purchasing raw materials and producing finished goods.
9) Cash-to-cash Cycle Time (CTCCT)
   CTCCT is the time it takes for an investment to flow back to the company after it has been spent on raw materials.
10) Return on Supply Chain Fixed Assets (ROF)
11) ROF is the amount of investment relative to the company's working capital position versus the income generated by a supply chain.
12) Return on Working Capital (ROW)
    ROW is the amount of investment relative to a firm's working capital position versus the income generated by a supply chain.

Table 5. Mapping Metric Unit Level 1

Performance Attributes	Metric	Actual data	*Benchmark Data*		
			Superior	***Advantage***	***Parity***
Supply Chain Reliability	POF	%	%	%	%
Supply Chain Responsiveness	OFCT	Day	Day	Day	Day
Supply Chain Flexibility	USCF	Day	Day	Day	Day
	USCA	%	%	%	%
	DSCA	%	%	%	%
Supply Chain Cost	COGS	%	%	%	%
	TCTS	%	%	%	%
Supply Chain Asset Management	CTCCT	Day	Day	Day	Day
	ROF	%	%	%	%
	ROW	%	%	%	%

Source: researcher (2021)

Mapping in the SCOR Model Level 2 has three types of processes, namely:
a) Planning: The process of aligning company resources to meet demand requirements.
b) Execution: The actual request in the form of a material transformation or a process triggered by a planned request.
c) Enable: The process of preparing, maintaining, and controlling information networks so that the planning and execution processes are interrelated.

Level 3 mapping is the company's supply chain system defined as the company's ability to compete in the chosen market. At this level, it shows that this process is divided into input, output and throughput information.

At the level 3 mapping process, the description method for the element process follows the conventional hierarchy. The element process is broken down into task activities for each element, so that each task can be described in detail. For the next level, each task activity is reduced to a unit operating procedure for carrying out that activity.

Gap analysis is used when conducting level 1 analysis, which is to calculate the amount of increase in income (value of improvement or opportunity) if the targets set for each metric can be achieved. The amount of opportunity is calculated by one of three methods, namely: The Lost Opportunity Measure (LOM), The Canceled Order Measure (COM) and The Market Share Measure (MSM)Add methods here (10 font)

4. Results and Discussion

At level 1, it explains in detail the activities carried out in the company's supply chain starting from suppliers to consumers. The process consists of plan, source, distribution, deliver, return, enable. In measuring supply chain performance with SCOR model version 12 using performance attributes, namely, reliability, responsiveness, flexibility, cost, and asset management efficiency. In carrying out the distribution process, the company applies several supply chains stages:

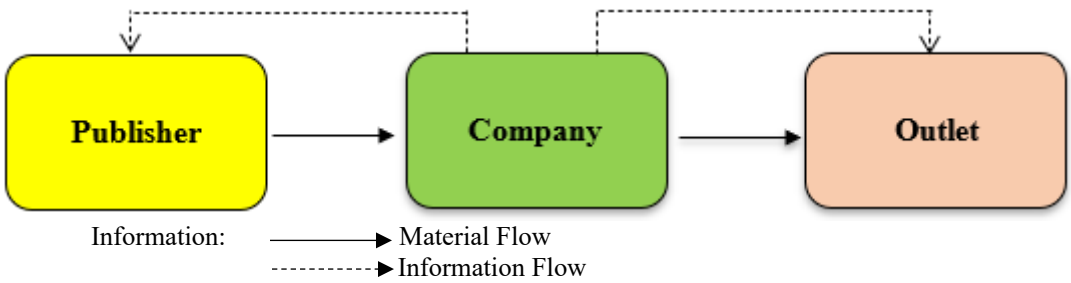


Figure 4. Supply Chain of Book Products
Source: Interview with the company's Store Manager

Table 5. Mapping level 1 SCOR Model

Element Process	**Supplier**	**Company**	**Outlet**
Plan	Book publishing process planning	Planning the process of ordering books and monitoring the amount of available stock	Procurement process planning and display arrangement
Source	Obtaining raw materials for the book-making process from paper manufacturers.	Selecting products that can enter, conducting the PO process and preparing books to be sent to outlets.	Preparation of book receipts that have been coordinated with the Company and submitted to SOA for display
Make	Carry out the book-making process	There is no Make process because it is not a production company	There is no make process because it provides ready-made goods

Deliver	Sending books to the Company	Sending the checked book back to the store	Outlets provide products to consumers after a transaction or send products to consumers if purchasing online.
Return	Receive back excess book stock if there is no purchase for 6 months.	Confirming the process of returning the excess stock of books and defective products, but defective products are rarely found	Returning excess book stock to supplier if there are no sales within 6 months and returning defective books however this is rare.

Source: Interview with the company's Buyer Staff (2021)

Table. 6. Generic SCOR Card

Level 1 Performance Metrics	**Attribute Performance**				
	External			**Internal**	
	Reliability	**Responsiveness**	**Agility**	**Cost**	**Asset Management Efficiency**
Perfect Order Fulfillment (POF	√	-	-	-	-
Order Fulfillment Cycle Time (OFCT)	-	√	-	-	-
Upside Supply Chain Flexibility (USCF)	-	-	√	-	-
Upside Supply Chain Adaptability (USCA)	-	-	√	-	-
Downside Supply Chain Adaptability (DSCA)	-	-	√	-	-
Supply Chain Value at Risk (VAR)	-	-	√	-	-
Total Cost to Serve (TCTS)	-	-	-	√	√
Cash to Cash Cycle Time (CTCCT)	-	-	-	-	√
Return on Fixed Assets (ROF)	-	-	-	-	√
Return on Working Capital (ROW)	-	-	-	-	√

In general, companies have a goal to meet customer satisfaction with good performance and to increase company profits. The SCOR model is used to see the performance of the company's supply chain. To realize the company's goals in meeting customer satisfaction by analyzing the indicators of Supply Chain Reliability, Supply Chain Responsiveness, Supply Chain Flexibility, where each indicator has its own metric level.

Table 7. Metric Level 1 Perusahaan Distributor

Work Attributes	**Metric**	**Actual Data**	***Benchmark data***
Supply Chain Reliability	*Perfect Order Fulfillment* (POF)	98,72%	%
Supply Chain Flexibility	*Upside Supply chain Flexibility* (USCF)	N/A	N/A
	Upside Supply Chain Adaptability (USCA)	N/A	N/A
	Downside Supply Chain Adaptability (DSCA)	N/A	N/A

Supply Chain Responsiveness	*Order Fulfillment Cycle Time (*OFCT)	8 day	day
Supply Chain Cost	*Cost of Goods Sold (*COGS)	75%	%
Supply Chain Asst Management	*Cash-to-Cash Cycle Time (*CTCCT)	N/A	day
	Return on Supply Chain Fixed Assets (ROF)	N/A	N/A
	Return on Working Capital (ROW)	N/A	N/A

There are three types of processes in the level 2 SCOR model mapping, namely planning, execution, and enable. In the planning process there are 5 plans, namely Plan Supply Chain (sP1), Plan Source (sP2), Plan Make (sP3), Plan Deliver (sP4), Plan Return (sP5).

Then in execution, there are four types of execution at level 2 mapping, namely Source Stock Product (Process ID: sS1), Make-to-Stock (Process ID: sM1), Deliver Stock Product (Process ID: sD1), Return of Defective Products (Process ID: sSR1 and sDR1). Meanwhile, in the process of enabling the process of managing information or relationships that rely on the planning and execution processes.

At this level, it shows that this process is divided into input, output, and throughput information. level 3 mapping provides diagnostics for level 2 metrics, the process at level 3 describes the steps taken to implement the level 2 mapping process.

Table 8. Comparison of the Implementation of the SCOR Model with Other Distributor Companies

Comparison	**SCOR Model Distributor**	**SCOR Model Other Distributors**	**Model Score Production**
Proses SCOR Model	*Plan, Source, Distribution, Deliver, Return*	*Plan, Source, Distribution, Deliver, Return*	*Plan, Source, Make, Deliver, Return*
Calculation Components *Cost of Goods Sold* (COGS)	No raw material costs	No raw material costs	Material costs, labor costs and additional costs
Perfect Order Fulfillment (POF)	The number of problematic orders is very small	The number of problematic orders is very small	The number of problematic orders is a lot
Gap analysis	Nothing	Nothing	There is
Opportunity Measurement	Nothing	Nothing	There si
Mapping stage level 2	Nothing	Nothing	There is
Mapping stage level 2	Nothing	Nothing	There is

It can be concluded based on the analysis of the table above that the SCOR Model cannot be used optimally in distributor companies because distributor companies do not produce their own products, while production companies have a wider scope such as from the process still in the form of raw materials to finished goods so that more problems are found. Therefore, the SCOR model method is more appropriate to be applied to manufacturing companies. researchers do not need to continue to the next mapping because the value of the company's metrics has reached the target.

6. Discussion

The SCOR Model metric table is used to calculate how far the company's supply chain performance is compared to its competitors. As a comparison, the SCOR Model level 1 metric table contains actual data and benchmark data

(superior, advantage and parity). Performance assessment based on actual data is POF of 98.72%, OFCT for 8 days, and COGS of 75%. The supply chain performance measurement shows very good results, it is evidenced by the actual data results of Supply Chain performance measurement using the SCOR Model method which shows the Perfect Order Fulfillment (POF) value of 98.72% which has reached a superior position. If one of the metrics has reached the superior category, it means that the company's performance has reached the best and does not need to be continued in the next mapping. To find out the value of supply chain performance measurement with the SCOR Model, which is equally good in a company, the researcher has compared the results of other studies with the case of implementing the SCOR Model in other distributor companies. SCOR Model in another distributor company, in this study, namely HOLIP Corp. as a company that distributes industrial fuel oil services for Indonesia, especially diesel fuel. From the results of this study, it was found that the supply chain performance in HOLIP Corp was very good, as evidenced by the calculation results of level 1 Perfect Order Fulfillment (POF) had reached a superior level of 100% and Time Fulfillment Cycle Time (OFCT) had reached a superior level of 3 day. The value of Cost of Goods Sold (COGS) is 14.53% smaller than the advantage data that is the performance target. The Cash-to-Cash Cycle Time (CTCTT) value is 41 days smaller than the parity data that is the performance target. Metric values from Perfect Order Fulfillment (POF), Order Fulfillment Cycle Time (OFCT), Cost of Goods Sold (COGS) and Cash-to-Cash Cycle Time (CTCCT) have reached the performance target and even the metric has reached superior.

6. Conclusion

- From the calculation of the level 1 metric, the Perfect Order Fulfillment (POF) of 98.72% has reached a superior level, and the Order Fulfillment Cycle Time (OFCT) which is 8 days. The value of the Cost of Goods Sold is 75%. The Cash-to-Cash Cycle Time (CTCTT) value is not available at the Gramedia bookstore because the payment system to suppliers occurs after the product is sold. In conclusion, the calculation of the SCOR Model for enterprise supply chain management is very good.
- Calculation of Order Fulfillment Cycle Time (OFCT) is used to meet consumer satisfaction, where the value of this OFCT is measured by calculating the average number of days required for product delivery to outlets and Perfect Order Fulfillment (POF), whereas if to increase profits (profit) the company can calculate the Cost of Goods Sold (COGS) and Cash to Cash Cycle Time (CTCCT), then the last is to calculate the Gap Analysis which aims to calculate the performance gap between the company and competitors by means of The Lost Opportunity Measure (LOM). The results can be concluded that the implementation of the SCOR model 12.0 is able to describe and provide a basis for improving the company's supply chain.
- The proof of the implementation of the SCOR Model version 12.0 in the company compared to the results of the SCOR Model research on other distributor companies, it can be concluded that the company's performance has reached a very good level so there is no need to proceed to the next mapping. There are similarities between the results of the study and research on other distributor companies where research on other distributor companies does not calculate gap analysis and opportunity measurement because the metric results from the actual data have reached the target performance.

References

Adhabi & Anozie. (2017). Literature Review for the Type of Interview in Qualitative Research. *International Journal of Education*. Vol.9. No.3, 86-97.

Alfeno, dkk. (2015). Pengembangan Prototype Supply Chain Management dengan Menggunakan Pendekatan External Value Chain. *Jurnal Sisfotek*. Vol.5. No.2, 25-35.

Andika Wijaya. (2016). *Aspek Hukum Bisnis Transportasi Jalan Online*. Jakarta: Sinar Grafika.

Ariani, Andi Neno. (2013). *Pengaruh Jumlah Usaha, Nilai Investasi, dan Upah Minimum terhadap Penyerapan Tenaga Kerja pada Industri Kecil dan Menengah di Kabupaten Pinrang Tahun 2001-2011.* Skripsi. Jurusan Ilmu Ekonomi Fakultas Ekonomi Dan Bisnis Universitas Hasanuddin Makassar.

Atmaja & Ratnawati. (2018). Pentingnya Manajemen Sumber Daya Manusia untuk Meningkatkan Usaha Kecil Menengah. *Jurnal Untidar*. Hal. 21-35.

Berg & Lune. (2012). *Quantitative Research Methods for Social Sciences*. Pearson; 8th edition.

Chotimah, dkk. (2018). Pengukuran Kinerja Rantai Pasok Menggunakan Metode SCOR dan AHP Pada Unit Pengantongan Pupuk Urea PT. Dwimatama Multikarsa Semarang. Fakultas Teknik - Universitas Diponegoro. https://ejournal3.undip.ac.id/index.php/ieoj/article/view/18706.

Duwila. (2015). Pengaruh Produksi Padi terhadap Tingkat Kesejahteraan Masyarakat Kecamatan Waeapo Kabupaten Buru. *Jurnal Ekonomi*. Vol. 9. No. 2, 149-158.

Emnawer. (2017). Just-In-Time System and Its Impact on Operational Excellence: An Empirical Study on Jordanian Industrial Companies. *International Journal of Business and Management.* Vol. 12. No. 12, 158-167.

Fadia & Sulyman. (2016). Updating Balanced Scorecard Model for The Evaluation of The Strategic Performance in Greater Amman Municipality. *European Scientific Journal.* Vol. 12. No. 31, 307-329.

Fatmawati. (2019). Publishing Industry sebagai Pendukung Ekonomi Kreatif (Ekraf) bagi Pustakawan di Era Digital. *Jurnal Kajian Perpustakaan dan Informasi.* Vol. 3. No. 1, 74-80.

Febrina, M. (2002). *Pengukuran Performansi Supply Chain di PT. Indofood Sukses Makmur, Bogasari Flour Mills,* Surabaya. Tugas Akhir. Jurusan Teknik Indsutri, Fakultas Teknik Universitas Kristen Petra Surabaya. (on-line) http://dewey.petra.ac.id/jiunkpe_dg_3124.html.

Ganji, dkk. (2015). Assessing Supply Chain Performance through Applying the SCOR Model. *Jurnal pada Int. J Sup. Chain. Mgt.* Vol. 4, No. 1.

Irmawati. (2007). *Pengaruh Manajemen Rantai Pasokan Terhadap Kinerja di PTPN VIII Gunung Mas Bogor*. Skripsi. Institut Pertanian Bogor.

Karundeng, dkk. (2018). Analisis Saluran Distribusi Kayu (Studi Kasus di CV. Karya Abadi, Manado). *Jurnal EMBA*. Vol. 6. No. 3, 1748-1757.

Kleab. (2017). Important of Supply Chain Management. *International Journal of Scientific and Research Publications*. Vol. 7. No. 9, 397-400.

Kusrini, et. al. (2019). Supply Chain Performance Measurement Using Supply Chain Operation Reference (SCOR) 12.0 Model: A Case Study in a Leather SME in Indonesia. *IOP Conf. Series: Materials Science and Engineering.* doi:10.1088/1757-899X/697/1/012023.

Leonardo, dkk. (2015). Analisis Supply Chain pada PT Zangrandi Prima di Surabaya. *Jurnal Agora*. Vol.3. No.1, 485-492.

Lubis. (2016). Pengaruh Budaya Kerja dan Gaya Kepemimpinan terhadap Kepuasan Kerja Pegawai Administrasi IAIN Padang Sidimpuan. *Jurnal IAIN Padang Sidimpuan*. Vol.2. No.2.

Manfaat. (2018). Analisis Data Kuantitatif. https://www.researchgate.net/publication/329589047_Analisis_Data_Kuantitatif.

Mukhtar. (2015). Supply Chain Competitiveness with the Perspective of Service Performance Between Supply Chain Actors: A Theoretical Model. https://www.researchgate.net/publication/317329371.

Mukwakungu, et. al. (2018). The Impact of Employee Empowerment on Organizational Performance in a Flavors and Fragrance Manufacturing Company in South Africa. *The Global Business and Technology Association*. Hal. 437-445.

Nasution. (2017). Pengaruh Perkembangan Teknologi Informasi Komunikasi terhadap Eksistensi Budaya Lokal. *Jurnal Penelitian Komunikasi dan Opini Publik*. Hal.30-42.

Padillah, et al. (2016). Model Supply Chain Operation Reference (SCOR) dan Analytic Hierarchy Process (AHP) untuk Sistem Pengukuran Kinerja Supply Chain Management. *Prosiding SNST*. 31-36.

Pidhurska dan Lehkyy. (2018). Competitors' Analyses in the Digital Business Environment. *МУКАЧІВСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ*. DOI: https://doi.org/10.32782/2524-0072/2018-19-85.

Pitoy, dkk. (2016). Analisis Strategi Bersaing dalam Persaingan Usaha Bisnis *Document Solution* (Studi Kasus pada PT. Astragraphia, Tbk Manado). *Jurnal Berkala Ilmiah Efisiensi*. Vol. 16. No. 3, 302-312.

Purnomo, et. al. (2019). Factors Affecting Entrepreneurial Intentions Among Beef Cattle Farmers in Boyolali Regency, Central Java, Indonesia. *IOP Conference Series: Earth and Environmental Science.* doi:10.1088/1755-1315/250/1/012093. Hal. 1-7.

Puspita & Irwansyah. (2018). Pergeseran Budaya Baca dan Perkembangan Industri Penerbitan Buku di Indonesia: Studi Kasus Pembaca E-Book Melalui Aplikasi iPusnas. *Jurnal Kajian Perpustakaan dan Informasi*. Vol. 2. No. 1, 13-20.

Rainer, dkk. (2011). *Introduction to Information Systems: Supporting and Transforming Business.* (Third Edition). New Jersey: John Wiley & Son, Inc.

Riyana. (2017). Pengukuran Kinerja Perusahaan PT. Indofood dengan Menggunakan Balanced Scorecard. *Jurnal Sekuritas*. Vol 1. No.2, 42-53.

Rusdiana. (2014). *Manajemen Operasi*. Bandung: Pustaka Setia.

Saepudin. (2015). Tingkat Budaya Membaca Masyarakat. *Jurnal Kajian Informasi & Perpustakaan*. Vol. 3. No. 2, 271-282.

Saputra. (2014). *Pembuktian Penerapan Scor Model Versi 10.0 pada Perusahaan Distributor (PT Surya Perdana Lestari) dengan Perusahaan Produksi.* Skripsi. Universitas Bina Nusantara.

Sari, et al. (2015). Analisis Risiko Supply Chain pada PT. Kasin Malang dengan Menggunakan Metode Fuzzy Analytic HierarchyProcess (Fuzzy AHP). *Jurnal Rekayasa dan Manajemen Sistem Industri*. Vol.3. No.2, 280-290.

Sekaran, et al. (2017). *Metode Penelitian untuk Bisnis Pendekatan Pengembangan-Keahlian.* Jakarta: Salemba Empat.

Sinambela, dkk. (2016). *Manajemen Sumber Daya Manusia: Membangun Tim Kerja yang Solid untuk Meningkatkaan Kinerja*. Jakarta: Bumi Aksara.

Sumolang, et al. (2017). Analisis Faktor-Faktor yang Mempengaruhi Produksi Industri Kecil Olahan Ikan di Kota Manado. *Journal UNSRAT*. Vol. 19. No. 3, 1-17.

Supply Chain Council. (2012). *Supply Chain Operations Reference Model*. United State of America.

Sutawijaya, dkk. (2016). Supply Chain Management: Analisis dan Penerapan Menggunakan Reference (SOCR) di PT. Indoturbine. *Jurnal Ilmiah Manajemen*. Vol.6. No.1, 121-138.

Thaha. (2016). *Pengembangan Model Pengukuran Kinerja Rantai Pasok Pada Industri Konstruksi Perumahan*. Thesis. Universitas Andalas.

Wibowo & Sholeh. (2016). Application of Supply Chain Performance Measurement in SCOR Model at Building Project. *The 2nd International Conference on Civil Engineering Research (ICCER).* Hal. 60-64.

Wibowo. (2012). *Manajemen Kinerja*. (Edisi ke-3). Jakarta: Rajawali Pers.

Wulansari, et al. (2016). Evaluasi Kinerja Supply Chain Management (SCM) pada UD. Asri Bakery Semboro. Hal.1-5. http://repository.unej.ac.id/bitstream/handle/123456789/77470/ARISKA%20AYU%20WULANSARI.pdf?sequence=1.