

Evaluation of the SCOR Model Research

Yiting Ouyang^{1,*}, Yi Huang¹

¹ School of Economics and management, Southwest Petroleum University, Chengdu Sichuan, 610500, China

* Corresponding author: Ouyang Yiting (Email: Ouooyang@163.com)

Abstract: With the rapid development of logistics in China, the supply chain process operation of enterprises is more and more valued by enterprises, how to improve efficiency and maximize the benefits of enterprises at the same time of cost reduction is the core concern of enterprises. In supply chain operation and management, the supply chain operation reference model, or SCOR model, is a very important tool. This paper provides a brief description of the current status and model introduction of the SCOR model, as well as the SCOR-DS model, which is proposed to be improved based on the SCOR model at the end of 2022, for the reference of model users.

Keywords: The SCOR model; The SCOR-DS model; Supply chain process optimization.

1. Introduction

SCOR model is a standard model for supply chain process diagnosis and optimization proposed by the International Supply Chain Association. In recent years, more and more enterprises have been diagnosing problems through the model performance indicators, constructing supply chain optimization models in line with the enterprises and proposing optimization solutions, so as to improve the level of enterprise supply chain performance and competitiveness. The level of supply chain process, whether the supply chain operation process is scientific and perfect, can directly affect the direct interests of all enterprises upstream and downstream^[1]. Therefore, optimizing the supply chain operation process of core enterprises and further improving their supply chain performance evaluation system are effective ways to improve the performance of the whole industry. The SCOR-DS model is an improved digital version of the SCOR model, which pays more attention to environmental friendliness and emphasizes environmental friendliness and sustainable development. This model pays more attention to environmental protection factors, which is more in line with the essential needs of green supply chain development and research, and can provide theoretical support and methodological guidance for enterprises to build green supply chains and promote sustainable business development.

2. Research Status

Scholars at home and abroad often research and discuss SCOR model, and the related literature is also very rich. There is also some discussion on the optimization effect of SCOR and the simulation operation of SCOR model, but most of the research results are more focused on the theoretical aspects, and the research on the practical application is relatively less. In recent years, the use of SCOR model in foreign countries is mainly applied to supply chain performance evaluation, research on supply chain sustainability, supply chain management optimization and supply chain risk evaluation, and there are not too many researches on the application of supply chain process, and only a small number of enterprises have achieved the management of their processes based on the theory of SCOR model, such as a few enterprises such as

SAP, DELL, and so on, and there are few studies on the practical application of SCOR model in the enterprise supply chain process. The research on the actual use of SCOR model in the enterprise supply chain process is still in the exploration and development stage. The same is true in China, but in recent years there are some scholars who have used SCOR model combined with simulation software to carry out optimization analysis of supply chain processes.

In today's society, the competition has shifted from individual competition to supply chain and supply chain competition, and it is more important to make full and comprehensive use of SCOR as a supply chain diagnostic tool to improve the supply chain process and enhance the competitiveness of enterprises. The future trend of the domestic research status quo should be to pay more attention to low-carbon, green and environmental protection on the basis of considering more practical situations, and to carry out targeted research and solutions according to different industries and their characteristics, so as to make it more practical; secondly, for the optimization of supply chain processes, more consideration should be given to various uncertainties, so as to establish a model and further improve the efficiency and reliability of the model, so as to achieve the efficient operation of supply chain process optimization. Make the model more practical value.

3. Modelling Principles

3.1. SCOR model

The SCOR model (Supply-Chain Operations Reference-model) was proposed by the International Supply Chain Association in 1996 to solve supply chain problems and implement supply chain effectively. It is a multifunctional supply chain process diagnostic tool that combines business process re-engineering, best industry analysis and other methods.^[2] It is a multifunctional supply chain process diagnostic tool that combines business process re-engineering, best industry analysis and other methods. Enterprises can use the model to analyze the current situation of their supply chain, accurately identify existing problems, and through the diagnosis and analysis of the SCOR model, they can define the goals of optimizing and improving the enterprise processes, improve the shortcomings of the supply chain processes, and enhance the operational efficiency.^[3] In the

SCOR model, supply chain management is defined as an integrated process that includes planning (P), purchasing (S), production (M), distribution (D), and return (R) processes.^[4] The SCOR model is illustrated in Figure 1 and covers all interrelated supply chain activities from supplier to supplier and customer to customer:

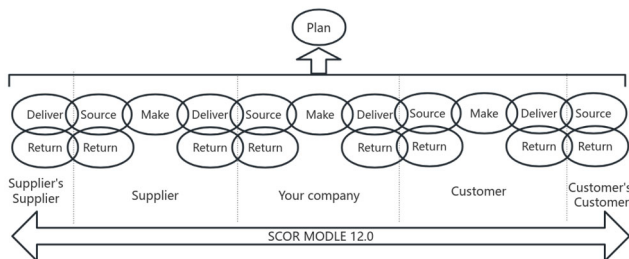


Figure 1. SCOR model

SCOR model is divided into three levels: top level, configuration level and process element level. The optimization of supply chain processes can achieve the optimization design from the strategy layer to the implementation layer, improve the overall layout and detailed adjustment of enterprise process optimization, and achieve the comprehensive construction of supply chain.^[5] SCOR model

The first top layer mainly elaborates the overall scope of the SCOR model, the five basic processes and the supply chain process evaluation index system from the strategic level, and clarifies the framework structure of the enterprise supply chain. The second configuration layer further subdivided the top layer into 26 core processes, including 21 configuration processes and 5 support processes. The five levels of planning, purchasing, production, distribution and return are subdivided into specific processes and have their own codes. Different enterprises can choose the corresponding processes according to the current situation of the supply chain and build their own supply chain configuration layer.^[6] The third layer of process elements is further subdivided. The third process element layer further subdivided the configuration layer, as the core layer of supply chain process optimization design in the SCOR model, to build the enterprise supply chain through the process element layer optimization design.

The model also provides a complete system of supply chain process evaluation indicators to effectively measure the operational effectiveness of the supply chain system and diagnose problems in the supply chain process from four aspects: supply chain reliability, response and agility, total cost and asset management. Each indicator has a clear definition of the performance type, a measurement indicator and a corresponding calculation formula.

3.2. SCOR-DS model

The most current version is the SCOR-Digital Standard, or SCOR-DS for short, which was introduced in 22 years and has been significantly changed from the previous version. The SCOR-DS model modernizes the OA framework, which includes resilience, affordability and sustainability metrics and benchmarks; process changes to support retail, omni-channel, strategic sourcing, and the overall alignment of supply chain strategies. In addition, the new SCOR-DS model shifts end-to-end supply chain thinking from a linear, trading partner orientated to a dynamic, synchronized supply chain networked mindset, with a greater focus on market drivers,

visibility and collaboration. The SCOR-DS model updates the processes, metrics, skills and practices to ensure coverage across multiple industries, such as services. In addition, performance metrics and practices have been reviewed and revised, providing organizations with new ways to measure and improve their supply chains. The SCOR-DS version model is shown in Figure 2:

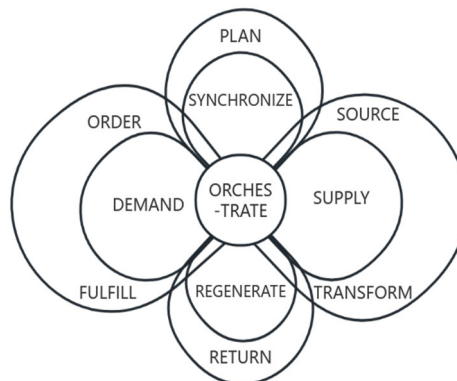


Figure 2. SCOR-DS model

As you can see, the SCOR-DS model is an overlapping of two 8-letter words, and the official statement is "The infinite loop diagram illustrates that the supply chain is a series of constantly moving activities that move from process to process, with no artificial starts or stops." Compared with the SCOR model, the SCOR-DS model pays more attention to environmental friendliness, and significantly increases the green supply chain content in the return link, and incorporates carbon emissions, water resources, and energy consumption as metrics.

The SCOR-DS model emphasizes "regeneration" in returns. Similar to waste utilization and resource recycling, the traditional SCOR returns model, which focuses on the reverse supply chain's handling of customer returns for repair, now emphasizes the reuse of waste materials and energy in addition to commodities. In recent years, supply disruptions have occurred in the global market, so more and more companies are beginning to pay attention to the resilience and sustainability of the supply chain, in the field of returns gradually born more new supply chain operation model, such as the new sales of stagnant inventory means, the finished product inventory reconfiguration, dismantling back to the raw material process of standardization of the process, which is worth focusing on.

Emphasis on "synchronization" in supply chain planning. Synchronized planning has been an increasingly hot topic in recent years, also known as integrated planning or integrated planning, and over the past three years many companies have invested in exploring this practice, including global supply and demand balancing and calculating decisions for multiple plans packaged at once. What is certain is that this is not a future trend, but a practice that many leading companies are putting into practice.

4. Conclusion

In general, the research on SCOR model is more theoretical than practical, which mainly focuses on testing the reasonableness of the model, and the research on data comparison for the optimization object needs to be strengthened. With the development of low carbon economy and the craze of green supply chain, the research, discussion

and application of SCOR-DS model will be a hot spot, but at present, due to the short release time of SCOR-DS model, the research and discussion of SCOR-DS model is also very little. Therefore, in future research, green supply chain optimization research needs to be explored more deeply to provide more efficient, fast and reliable decision-making reliance for green supply chain process optimization and performance rating.

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