



Scor

*How to quickly increase
your supply chain's
performance*



ASCM - Association
for Supply Chain Management



Today, The Supply Chain Is An Undisputed Source Of Business Value.

In order to be effective and to ensure growth within an increasingly turbulent and challenging market, an organisation's Business Strategy requires an effective **Supply Chain Strategy**. In 2006 APICS, the largest Supply Chain Management association in the world, launched the CSCP (Certified Supply Chain Professional) certification aimed at addressing the need of designing and managing a successful Supply Chain.

The CSCP programme often makes reference to the **SCOR** (Supply Chain Operations Reference) model, a framework that today is commonly used by companies around the world to **reconfigure their Supply Chain** and **boost performance**, a component central to this model.

The SCOR framework has received increasing attention over the years as it lays the groundwork for revisiting an organisation's Supply Chain, after having defined the Business priorities.

What is the Supply Chain?

The underlying concept on which any Supply Chain is based is the presence of at least three distinct entities which decide to work together for their mutual benefit and to generate net asset value for the customer.

The entities typically consist of three companies:

- a supplier
- a manufacturer
- a customer

Normally the manufacturer is the Master Company, which may decide to take on a Supply Chain revision project. The "scope" of this project, as it increasingly happens, can extend "*end-to-end*" to the **supplier and the customer**, in which case it can truly be considered a Supply Chain project that requires a **great deal of cooperation** and trust among the 3 players involved.

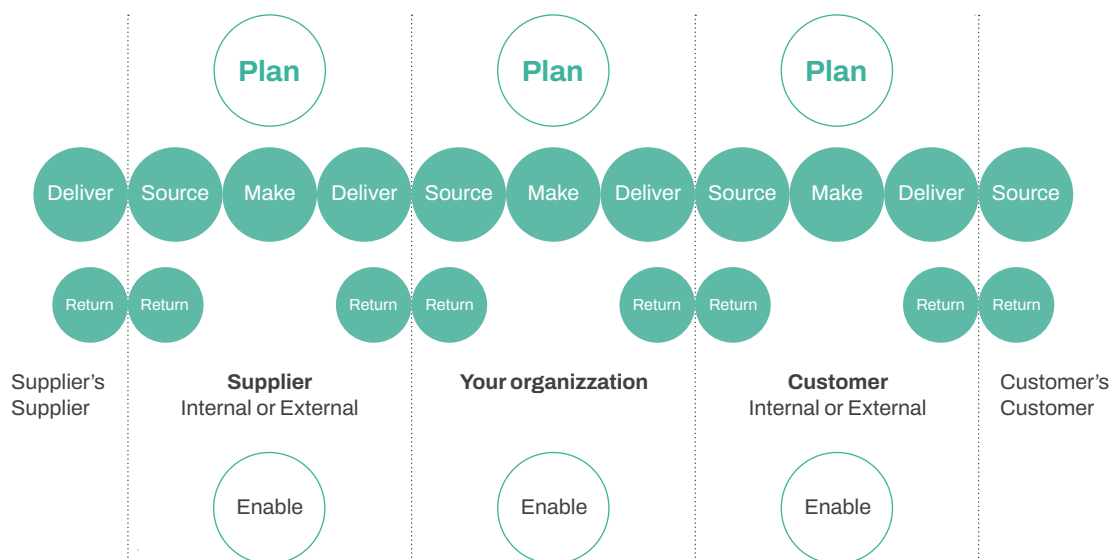
What Is The Approach To Take?

Launching a Supply Chain project requires a working methodology. Today, several frameworks are used but one of the most proven and effective is no doubt the "**Supply Chain Operations Reference (SCOR) model**" endorsed by the Supply Chain Council (SCC), an organisation of more than 750 international companies established in 1996, which a few years ago merged with APICS. APICS's strategy is to make SCOR the reference model for implementing Supply Chain projects for any industry or sector of any size.

The SCOR Model

The **SCOR model** was introduced in 1996 on a volunteer basis and therefore represents a cross-industry framework applicable to a wide range of sectors. Primarily, the model refers to a well-defined perimeter of up to five entities (or companies). First and foremost, these entities include one's own organisation. In **Figure 1** this is shown as "**Your Organization**" and subsequently a **supplier** and a **customer** at the first level of the Supply Chain and at most a **supplier** and a **customer** at the second level, according to the following scheme:

→ **Figure 1: Supply Chain definition - SCOR**



The Driver is Performance

The power of the model lies in starting with the **concept of performance**. Everything that is analysed, reviewed and implemented during a SCOR project must be connected or referable to a **set of metrics** and to an **improvement in performance**. If this is not possible, not even in a qualitative way, the activity is abandoned as there is no certainty that it can bring value to the business. This is a fundamental concept that the working team must always keep in mind.

Another benefit of the SCOR model is that it is an approach that integrates:

- Processes
- Metrics
- Practices/Tools
- Skills

These **4 aspects are the pillars of the methodology**, as well as being interconnected among themselves. For example, if I need to implement a delivery process from the warehouse to the customer, the **SCOR framework will help me to identify and trace the optimal process**, the performance indicators needed to monitor that process (metrics), the practices and/or tools in use (practices/tools) and, a fundamental element, the skills required to carry out the process as efficiently as possible. Familiarity with the SCOR model, which has been used and tested by organisations for more than 20 years, will allow me to be effective in my choices, using the experience and the history of the model, without having to “reinvent the wheel” and struggling with new and risky approaches.

The SCOR framework will also **indicate the Best Practices** currently used in specific domains and processes typically seen in mature companies, which I can choose to apply to my own organisation as it is required. Thus, the SCOR model is also an extremely powerful **benchmarking tool**, a fundamental aspect that will be revisited in a later section.

Processes - An International Language

The processes identified by the SCOR framework are, by definition, crossfunctional to the **organisation**. The SCOR model takes into account **3 levels of processes**. The top level consists of **6 such processes** (previously there were 5 but in the version 11 of the model they have become 6 with the addition of “Enable”), defining the scope and content of an enterprise’s Supply Chain:

1. Plan
2. Deliver
3. Make
4. Source
5. Return
6. Enable

This classification of processes is international and has become a **common language** in all sectors, identifiable in the documentation of projects of all kinds, in bibliographies, university books, courses and Supply Chain books - aspect that represents an important advantage of the SCOR model.

These level 1 processes are then exploded to the next level, identifying a number of the key Supply Chain characteristics. For example, at Level 2 the Source or Make processes are represented by:

- Source Stocked Product (identified by sS1)
- Source Make to Order Product (sS2)
- Source Engineer to Order Product (sS3)

and

- Make to Stock (sM1)
- Make to Order (sM2)
- Engineer to Order (sM3)

We will use this level 2 as part of a “high-level” analysis of company processes. While at this level it is not necessary to go into great detail, it is however important to identify whether we are speaking of Make to Stock or Make to Order processes (for example when analysing the flow of products between various supplier, manufacturer and customer locations, where we will use levels 2 to identify if in a specific location the production is Make to Stock or Make to Order).

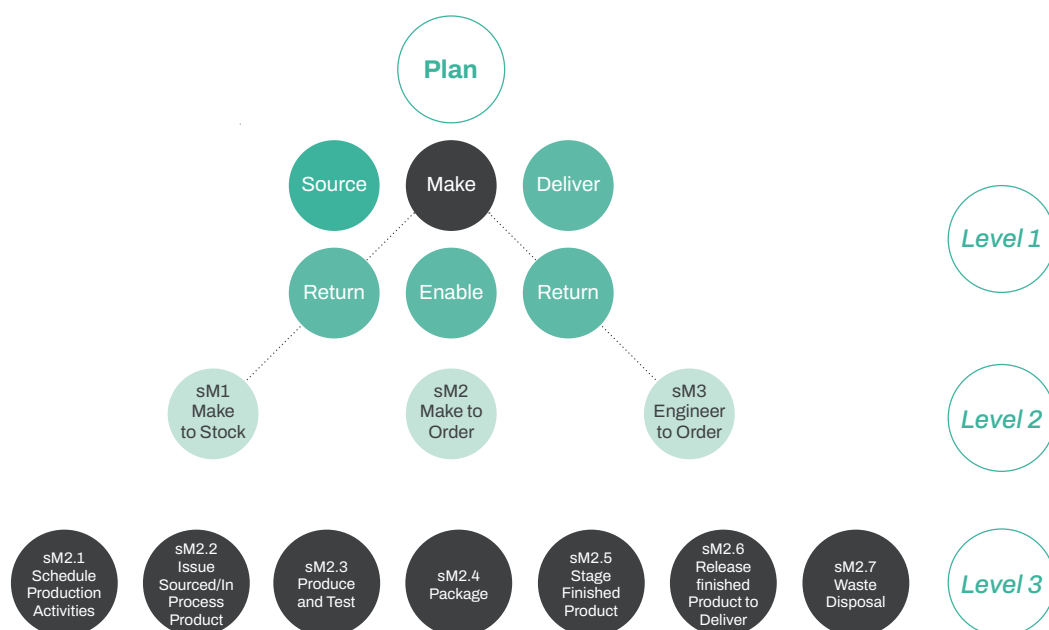
This classification in different manufacturing strategies will also allow me to compare Supply Chains with similar characteristics: in fact, comparing the performance of a Make to Stock Supply Chain with a Make to Order Supply Chain can be misleading. The SCOR framework also describes the level 3 processes, which are more detailed.

At this level, it becomes necessary to enter a more advanced stage of the SCOR project in order to properly configure **AS IS and TO BE** processes. In fact, in the final phase of the project, it is often necessary to reach another level of specificity of the processes (levels 4 and 5) whose configuration is left to each individual organisation to define.

In practice, if a particular company, for a given product family, produces to order, it will be necessary to detail the level 1 “Make” process in a level 2 “Make to Order” process (using the acronym sM2) with all the operational consequences of the case in question, both upstream and downstream.

The sequence of processes at the first three levels and their explosion up to the third level is illustrated in Figure 2. This makes it possible to outline the coupling of processes between customers and suppliers in a structured and consistent way.

→ Figure 2: Make - Levels 1, 2 and 3 processes example (Make to Order)

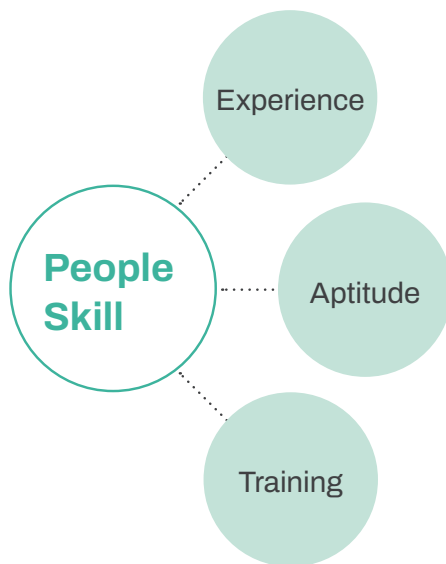


Skills: the building blocks for sustainable performance

SCOR is a framework that also integrates the Skills component into its approach. Skills are the combination and result of an individual’s Experience, Training and Aptitude.

For any process defined, there is a need for Skills to ensure its proper performance, implementation, and continuous improvement. The SCOR model therefore also maps out the Skills required for level 3 processes as well as the training activities recommended to improve the Skills in question. This is another great advantage of the SCOR model, as it accurately **details the Skills required** and the training that could be of benefit.

→ **Figure 3: Factors influencing Skills**



For example, for the sP2.1 Identify, Prioritise & Aggregate Product Requirements process, the model recommends a list of Skills that includes Inventory Management. To gain these Skills a number of Training activities such as the APICS CPIM and CSCP certifications are recommended by the model (Figure 4).

→ **Figure 4**

Level 3 Process	Skills needs	Training
sP2.1 Identify, Prioritize & Aggregate	HS0.058 Inventory Management	HT.0006 APICS CPIM
Product Requirements		HT.0007 APICS CSCP

The classification which the SCOR model attributes to the different Skill levels is also very interesting. These correlate to Skills as the levels of maturity correlate to processes. With the progression of their level of expertise, resources are able to handle more complex SCOR areas. At the Competent level an individual can oversee Metrics, but to manage improvement projects it is necessary to reach the Proficient level.

The SCOR framework therefore ties processes to Skills. Once the **TO BE processes** have been outlined, it is straight forward to define which Skills will be needed and the corresponding development plans or, in some cases, a hiring plan.

For those who wish to know the specific Skill levels by position (for example Supply Chain manager or Buyer/Planner), APICS has developed very useful Skill models, downloadable from the www.advanceschool.org website.

Indicators - everything is ready for use

The indicators used by the model relate to the following five Attributes:

1. Reliability
2. Responsiveness
3. Agility
4. Cost
5. Asset management

The power of these indicators lies in the fact that:

- a. They look **both inside the company**, at costs and cash flow (Costs and Asset Management), as well as outside (Outside-in view), in other words how the customer is served (Reliability, Responsiveness and Agility)
- b. They are **well defined** and can be used in any type of business and between different Supply Chain players without being subject to re-discussion or interpretation.
- c. They can be used as a **benchmarking tool**. Typically, this is possible at the prerogative of large consulting companies that have their own databases. Here, instead, benchmark data can be accessed through a subscription.

This panel of well-established indicators **makes it possible to understand what a company may aspire to in terms of performance**, without having to navigate in the dark and without the risk of defining objectives that may be too ambitious or too easy to achieve.

Figure 5 illustrates the values of a number of indicators of an organisation.

These values are then compared with those of other companies in a similar sector and, very importantly, with a similar Supply Chain, segmented into three categories:

- **Parity:** value attributable to companies that have reached a performance level greater than 50% of the target population (50% percentile)
- **Advantage:** value attributable to companies that have reached a performance level greater than 70% of the target population (70% percentile)
- **Superior:** value attributable to companies that have reached a performance level greater than 90% of the target population (90% percentile)

This allows a company to be aware the performance ranges associated with different metrics, to compare itself with similar companies and Supply Chains and to identify appropriate benchmark levels.

→ **Figure 5: SCOR indicators – Benchmarking example**

ATTRIBUTES		METRICS	YOUR COMPANY	PARITY	ADVANTAGE	SUPERIOR
RELIABILITY	1	Perfect order fulfillment	95%	92%	96%	98%
RESPONSIVENESS	2	Order fulfillment cycle time	22d	16d	10d	7d
AGILITY	3	Upside supply chain flexibility	93d	120d	93d	70d
	4	Upside supply chain adaptability	-	-	-	-
	5	Downside supply chain adaptability	-	-	-	-
	6	Overall value at risk	-	-	-	-
COST	7	Supply chain management costs	11%	11%	9.5%	8.0%
	8	Cost of goods sold	-	-	-	-
ASSET MANAGEMENT	9	Cash to cash cycle time	35d	60d	45d	35d
	10	Return on supply chain fixed assets	-	-	-	-
	11	Return on working capital	-	-	-	-



“I spent months working to identify, define and confirm KPIs for my programme and establish targets within my company. After 7 months I discovered the SCOR model. Had I been familiar with it and applied it earlier, I would have saved days of work and workshops with my colleagues, reducing the project time by half”.

Supply Chain Project Manager, Packaging sector

Supply Chain strategies

It is not possible to excel in everything

It is well known that a company cannot compete on every level, making it necessary to establish a Business strategy on which to focus. This decision will have an impact on the Supply Chain strategy, on priorities and on the metrics on which a Superior positioning will be established.

The SCOR approach aims precisely to select **FOCUS areas** in line with the business strategy in order to steer an organisation's efforts and projects in the most efficient direction. For example, a company looking to stand out in terms of Lead Time, will strive to be Superior in the Responsiveness performance attribute.

But the questions that must be answered are:

To be Superior, how many days of cycle time have to be reached?
Where are we today?
What is the gap to close?



"I found the SCOR methodology the most suitable method for defining and implementing the Supply Chain strategy, thanks to the general nature and versatility of its use.

Today, defining how the supply chain is expected to help the company compete becomes of fundamental importance, as the supply chain itself is a key business asset. To achieve the goals set, an executive strategy which mirrors the business strategy must therefore be defined.

Of course, where necessary, it will be of primary importance for the company to determine where to project itself with order winner characteristics, and where with order qualifier characteristics, identifying the dangers represented by the potential order looser scenarios.

By applying the SCOR methodology, we have defined Responsiveness and Agility as Superior characteristics, and Cost and Reliability as Advantage characteristics. The next question was: how far away are we from the objectives set? By applying the SCOR method, we quickly identified the gap to close."

Supply Chain & Operations Manager, Aeronautical sector

Best Practices

The third pillar of the model consists of the availability of Practices in relation to the previously mentioned processes and indicators. In the version 11 of the SCOR model, Practices are classified according to the following four criteria:

→ Figure 6: Classification of Practices

Classification	Definition
Best Practices	Are current, structured and repeatable practices that have had a proven and positive impact on Supply Chain performance.
Emerging practice	Introduce new technology, knowledge or radically different ways of organizing processes. Emerging practices may yield a step change in performance by redefining the playing field within an industry.
Standard	Are how a wide range of companies have historically done business by default or happenstance. They do the job, but don't provide a significant cost or competitive advantage.
Declining	Represent ways of doing business, which can be widespread, that have proven to result in poor supply chain performance.

SCOR is also an archive of all available Best, Emerging and Standard Practices, extremely useful during the TO BE analysis phase. Best Practices make it possible to save time and to identify effective and efficient solution already available on the market. Emerging Practices may yield a step change in performance (i.e. DDMRP defined in version 12 as an emerging practice). In this context, the SCOR framework proves itself to once again be an **incredible benchmarking tool**.

How to manage a scor programme

The launch of a SCOR programme requires a great deal of attention. Some keys to the success of such an initiative are strong sponsorship (as in all projects), shared awareness within the Executive Team that a gap exists, resources, Change Management and Project Management.

Other elements can be added to this list, but the ingredients above are those considered key to the success of the programme. A SCOR programme does not reach its completion in 2 months and often requires many resources covering different functions. As a result, a "stage gate" approach is needed, where all stakeholders are involved in the review of the various stages, mandating a Go or No-Go decision to next stage.

The SCOR model proposes a consolidated RaceTrack, broken down into 5 phases:

1. Pre Meeting
2. S = Set the Scope
3. C = Configure
4. O = Optimize
5. R = Ready for implementation

At the end of each of these stages, a Gate Review takes place with the Executive Team, which decides whether to proceed to the next step and, in case of a GO decision, allocating the necessary resources.



“I helped deliver an important E2E project within a BU with several production sites and core processes. The approach used involved a multifunctional Steering Committee (Managing Director, Production, Sales, Supply Chain, etc.), Sponsor, Project Team and Project Manager. The programme has moved forward for over a year and many opportunities have emerged concerning various planning and scheduling processes, in production as well as in Demand Management. Every time we recommended areas for improvement, these were presented to the Steering Committee for approval, after having already assessed acceptance by the production sites teams. On a couple of occasions, during the implementation phase, a number of key project resources risked becoming bottlenecks as they were also involved in other priority activities. However, we always managed to avoid an impasse thanks to the fact that all functions had been involved in the Gate Review. Thus, during the most challenging times, we were able to adapt to redefine priorities and release the necessary resources. The stage-gate approach ensures communication, sharing with respect to targets and commitment.” E2E

Supply Chain Program Manager, Food Sector

Effectively choosing the perimeter on which to intervene

While it is good practice to select a single Attribute on which to strongly differentiate one’s organisation from the competition, it is also very important to establish on which Supply Chain to target efforts. This is decided in the S - Set the scope phase and the SCOR framework helps to classify the various Supply Chains based on specific drivers.

The decision is made based on quantitative data (e.g. margins, turnover, volumes), but also taking into consideration strategic factors such as the willingness to grow in certain geographical areas or with respect to certain Customers.

Conclusion

SCOR is a model designed to help generate Supply Chain performance. Without measuring and setting benchmarks, it is impossible to improve performance. Metrics are therefore of great importance.

The main characteristics of the SCOR model and its value within Supply Chain Improvement programmes include:

- Integrated framework of processes, metrics, practices/tools and skills.
- Consolidated and “proven” model, used for over 20 years: there is no need to “reinvent the wheel”! it is suitable for all types of businesses.
- Contains a set of well-defined and internationally recognised processes classified at levels 1, 2 and 3, providing a powerful toolkit for conducting as is and to be analysis, as the model is also a common language.
- A powerful benchmarking tool: the data of more than 750 companies/1000 supply chains form the basis for the benchmarking. all this makes it possible to understand the gap with respect to companies operating in similar industries and supply chains
- Stage-gate guidelines for delivering supply chain improvement programmes.

All this can be summarised in the following testimony:



“SCOR is much more than an integrated framework: it is Performance, Strategy and Money in the BANK!”

VP Supply Chain, Construction sector.

Upcoming APICS courses are listed on the websites:

Italy: www.advanceschool.org

Switzerland: www.advanceschool.ch

Bibliography

- APICS CSCP (Certified Supply Chain Professional) Programme
- APICS CPIM (Certified in Planning & Inventory Management) Programme
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