

Using Lean, Six Sigma, and SCOR To Improve Competitiveness

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Few issues a company must address are more important than how to achieve and maintain competitiveness. Many organizations follow three basic steps to maintain and improve their competitive position:

- 1) Define competitiveness for the business:
 - What are your customer expectations?
 - How are your competitors performing?
- 2) Determine the gaps between your competitors' performance and your own.
- 3) Close the gaps.

The dominant improvement methods in use today are Lean Manufacturing, Six Sigma, and the SCOR (Supply Chain Operations Reference) model. All three methods can help a company achieve business improvements, but none of them can be used alone to complete the competitiveness cycle. Experience has shown that SCOR is an excellent prelude to a Lean Six Sigma approach for developing a portfolio of projects.

The Combination of Lean and Six Sigma

Lean Manufacturing focuses on reducing cycle time and increasing process speed. Its goal is the removal of non-value-added process steps or time traps from the process. Lean is a great method to help organize work areas, reduce WIP (Work-In-Process), and speed material flow through the entire manufacturing process. Successful Lean initiatives yield lower inventory cost, higher productivity and flexibility, and faster response time to the customer.

Six Sigma is a statistical quality goal that represents the achievement of a quality level equal to no more than 3.4 defects per million opportunities. For most companies, this is a significant if not radical improvement in quality. But Six Sigma is more. It also focuses on reducing defects and variability within a formalized project management structure. In fact, the management structure for executing and managing projects is a real strength of the Six Sigma approach. When executed well, Six Sigma can help an organization achieve very significant improvements in quality, reduction of defects, and ultimately lower cost. Six Sigma is not only for manufacturing, but any operation where an opportunity exists for error, including order entry, customer service, sales, HR, etc.

By combining Lean and Six Sigma, it is possible to achieve highly effective improvements in a company's operations. There are, however, weaknesses in this approach:

First, the project selection process is not well defined. It does not require the company to methodically select, rank, and assign projects, but usually relies on more subjective methods. Projects may or may not be aligned with the corporate business strategy and goals.

Second, Lean Six Sigma efforts tend to be aligned by organizational functions (silos) rather than by supply chains. This can result in departmental improvements, but fall short in achieving end-to-end supply chain improvements.

Since Lean Six Sigma depends primarily on brainstorming for project ideas, it can be difficult to sustain long-term momentum once the initial waves of projects are complete. Brainstorming will identify the most obvious issues, but eventually runs out of steam.

The Addition of SCOR to Lean Six Sigma

SCOR is a cross-industry model designed to analyze a supply chain and identify improvement opportunities in both Material flow and Work & Information flow. The SCOR model defines a supply chain as:

“The integrated processes of Plan, Source, Make, Deliver and Return, spanning your supplier’s supplier to your customer’s customer, aligned with Operational Strategy, Material, Work & Information Flows.”

The SCOR model is implemented in phases, starting at a high level (usually Enterprise or Supply Chain) and progressing down to Material flow and Work & Information flow activities.

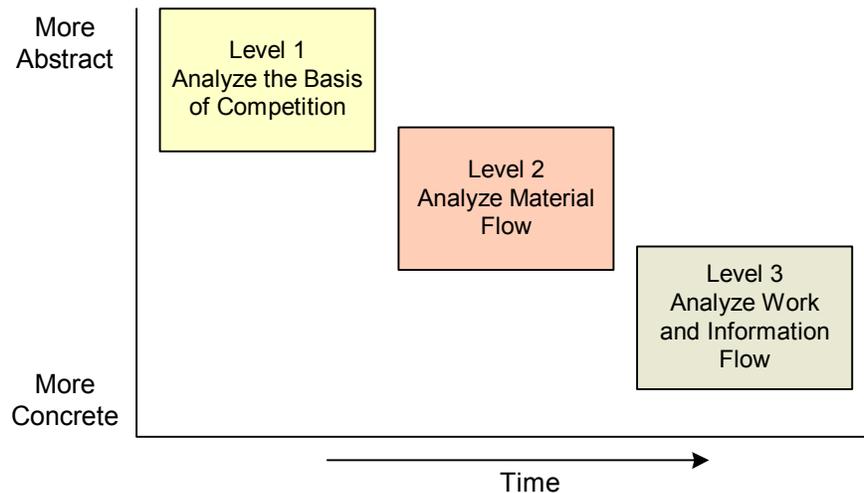


Figure 1. Development of SCOR model.

Level 1
Analyze the Basis
of Competition

During Phase I, company strategy and priorities are aligned and clarified from a supply chain standpoint. This phase also focuses on the development of a balanced SCORcard complete with competitive data and a gap analysis that identifies where a company’s improvement efforts can be most effectively applied.

Level 2
Analyze Material
Flow

Phase II involves the analysis of material flow throughout the supply chain from suppliers through to customers. This analysis provides the basis for identifying disconnects that eventually become Lean Six Sigma projects.

Level 3
Analyze Work
and Information
Flow

Continuing deeper into the organization, Phase III focuses on the efficiency of key transactions in the supply chain such as Purchase Orders, Work Orders, Sales Orders, and Planning Events. These transaction types represent the functions of PLAN, SOURCE, MAKE, DELIVER, and

RETURN and will result in a detailed map of how work and information flow. These maps identify operational “disconnects,” i.e. processes that aren’t working the way they should.

The final result of completing the three phases of a SCOR project is a prioritized portfolio of projects that vary from strategic to tactical initiatives and short-term (< 1 yr.) to longer-term (2-5 years). When properly conducted, a SCOR project should yield opportunities equal to 3% of sales.

Once SCOR is applied to develop the portfolio of supply chain improvement initiatives, Lean Six Sigma can be effectively employed to carry out the improvement projects.

Applying All Three Methods to Achieve Competitiveness

A SCOR project begins by educating management and developing a SCOR sponsor and design team. The design team will do the project work as outlined in phases 1-3 above. Next, a scope for the project must be determined that can range from multiple supply chains to only a portion of one supply chain. The company’s strategic and tactical needs will help answer the scope question.

Phase I: As shown above, the design team develops a SCORcard, listing competitors, and collecting competitive data. This phase is crucial because it answers the first two competitiveness questions “ How is competitiveness defined for the business?” and “What are the performance gaps between our company and our competitors?”

Phase II: A detailed analysis of material flow will identify improvement opportunities that will help close competitive gaps.

Phase III: Material flow is followed by Work & Information flow where the efficiency of major transaction types is evaluated. Transactions usually included, for example, are Purchase Orders, Sales Orders, Work Orders, and Planning Events.

The outcome is a portfolio of improvement opportunities that feeds implementation teams, including Lean Six Sigma teams.

In conclusion, using SCOR as a prelude to Lean Six Sigma offers several advantages:

- SCOR aligns improvement efforts with the supply chain, not organizations.
- SCOR provides a comprehensive analysis of a supply chain, focusing on the customer as the end-point.
- SCOR enables the selection of projects, which will have the most impact on achieving strategic objectives and improving the P&L.

Black Belts on SCOR

The following quotes are from Six Sigma Black Belts who have seen the impact of SCOR on business improvement projects:

"SCOR brings a supply chain discipline to improvement that Lean Six Sigma does not."

"SCOR connects everything together."

"Without a formal program structure, our projects languished and died on the vine."

"SCOR provides a common frame of reference and SC language for a range of Black Belt teams."

"We have exhausted our opportunities on the floor and need a way to expand our focus."

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