

Balancing Your Value Chain Metrics

Using *The Balanced Scorecard* to manage value chain performance

By **Peter Bolstorff**



"SCOR does not include measures for other critical processes in your value chain."

While **SCOR** provides a proven model to measure and benchmark supply chain performance, it **does not include** measures for the other business processes in the **value chain**, i.e. **product design, sales**, etc. One tried and true method to organize your key performance indicators is *The Balanced Scorecard*², an approach to strategic management developed in the early 1990's by Drs. Robert Kaplan (Harvard Business School) and David Norton. The basic idea is that an organization must measure its performance from a balanced view against its goals as established in its vision and strategy. *The **Balanced Scorecard** has four measurement categories* including **Customer** facing; internal **Process**; company **Financial**; and individual **Employee**.

Based on three value chain projects using SCOR, DCOR, and CCOR¹, this **article** will **illustrate** a **practical way** to **integrate** these leading practice models to help organize, benchmark, and manage **value chain metrics**.

¹ SCOR (Supply Chain Operations Reference), DCOR (Design Chain Operations Reference), and CCOR (Customer Chain Operations Reference) models are trademarks of The Supply Chain Council, www.supply-chain.org.

² The Balanced Scorecard Institute, Cary, NC and Rockville, MD USA. <http://www.balancedscorecard.org/>.

The SCOR Level 1 metrics are organized into customer-facing and internal-facing categories (see Figure 1). The customer-facing category is further separated into three performance attributes, reliability, responsiveness, and flexibility. The internal-facing category is separated into two performance attributes, costs and assets. With some tweaks, we can integrate this grid with *The Balanced Scorecard* organizational framework as shown in Figure 2.

Level 1 Metrics	Performance Attributes				
	Customer-Facing			Internal-Facing	
	Reliability	Responsiveness	Flexibility	Costs	Assets
Perfect Order Fulfillment	x				
Order Fulfillment Cycle Time		x			
Upside Supply Chain Flexibility			x		
Upside Supply Chain Adaptability			x		
Downside Supply Chain Adaptability			x		
Supply Chain Management Cost				x	
Cost of Goods Sold				x	
Cash-To-Cash Cycle Time					x
Return on Supply Chain Fixed Assets					x

Figure 1. SCOR^{7.0} level 1 performance attributes and metrics from SCOR 7.0 Overview, www.supply-chain.org.

The tweaks add another layer of metric categories that attempt to measure the complexity of value chain performance. **Customer** utilizes the SCOR customer facing categories and as you will see from the metric list in Figure 3 broadens the scope to include more than just customer delivery performance. **Process** organizes metrics by value chain process and for those metrics that are a result of multiple processes an Aggregate category is added. **Financial** has categories for both profit and growth (an important aspect of value chain improvement). **Employee** utilizes two categories, one focused on performance and the other on development.

Balanced Scorecard Categories										
Customer Facing			Process				Financial		Employee	
Reliability	Responsiveness	Flexibility	Supply Chain	Design Chain	Customer Chain	Aggregate	Profit	Growth	Performance	Development

Figure 2. Value chain metric categories organized using *The Balanced Scorecard* macro level categories.

The most difficult task, historically, has been identifying the Level 1 metrics themselves. I've observed a couple of methods to accomplish this task. The first way starts with a blank sheet of paper; we've all been through that method. The second way, and the method I've used here, is to identify relevant metrics from a pool of readily available benchmark sources. I utilize five sources in coaching assignments, The Supply Chain Council (SCC), www.supply-chain.org, The Performance Measurement Group (PMG), www.pmgbenchmarking.com, Hoovers, www.hoovers.com, APQC, www.apqc.org, and Manufacturing Performance Institute Benchmark Toolkit (MPI), www.mpi-group.net. Figure 3 illustrates a first draft of a value chain metrics grid including benchmark sources.

Process Model	Metric & Benchmark Source	Level 1 Value Chain Metrics	Balanced Scorecard Categories																	
			Customer Facing			Process			Financial		Employee									
			Reliability	Responsiveness	Flexibility	Supply Chain	Design Chain	Customer Chain	Aggregate	Profit	Growth	Performance	Development							
SCOR	APQC PMG	Perfect Order Fulfillment	X																	
CCOR	PMG	Warranty Fulfillment	X																	
CCOR	PMG	Service Order Fulfillment	X																	
DCOR	MPI APQC	Product Quality	X																	
SCOR	APQC PMG	Order Fulfillment Cycle Time		X																
DCOR	APQC	New Product Development Cycle Time		X																
CCOR	GAP	Selling Process Cycle Time		X																
CCOR	APQC	Return Process Cycle Time		X																
SCOR	PMG	Upside Supply Chain Flexibility			X															
DCOR	PMG	Engineering Change Order Flexibility			X															
DCOR	PMG	Design Reuse Flexibility			X															
CCOR	APQC	Total Returns Management Cost							X											
CCOR	GAP	Total Customer Chain Management Cost							X											
CCOR	ALL	Days Sales Outstanding							X											
SCOR	PMG APQC	Total Supply Chain Management Costs				X														
SCOR	ALL	Inventory Days of Supply				X														
DCOR	APQC PMG	Total Design Chain Management Cost					X													
DCOR	APQC	Total Warranty Cost						X												
DCOR	APQC PMG	New Product Revenue								X										
SCOR	ALL	Cost of Goods Sold								X										
ALL	APQC PMG Hoovers	Sales, General, and Administrative Cost								X										
SCOR	ALL	Cash-to-Cash Cycle Time								X										
ALL	PMG Hoovers	Asset Turns								X										
ALL	Hoovers	Return on Assets								X										
ALL	ALL	Gross Profit Margin									X									
ALL	ALL	Operating Margin									X									
ALL	Hoovers	Net Profit Margin									X									
ALL	Hoovers	Revenue Growth										X								
ALL	Hoovers	Gross Profit Growth										X								
ALL	Hoovers	Operating Margin Growth										X								

Figure 3. A draft list of value chain level 1 metrics and benchmark sources. Commonly used SCOR metrics are highlighted in yellow.

By choosing metrics from available benchmark sources, the benchmarking step is essentially a fill in the blank task. Figure 4 is a subset of the value chain metric list and their statistical benchmark comparison data. Where do you fall on the scale?

Process Model	Metric & Benchmark Source	Level 1 Value Chain Metrics	Value Chain Benchmark		
			Performance Versus Comparison Population		
			Parity 50th Percentile	Advantage 70th Percentile	Superior 90th Percentile
DCOR	APQC	New Product Development Cycle Time	245 days	186 days	99 days
DCOR	PMG	Design Reuse Flexibility	22%	37.15%	42.30%
DCOR	PMG	Total Design Chain Management Cost	9.50%	8.49%	7.47%
DCOR	PMG	New Product Revenue	22.50%	39.20%	55.90%
ALL	Hoovers	Sales, General, and Administrative Cost	19.45%	13.00%	9.06%
ALL	Hoovers	Revenue Growth	13.94%	18.99%	31.31%
ALL	Hoovers	Gross Profit Growth	18.01%	31.55%	39.66%
ALL	Hoovers	Operating Margin Growth	34.29%	63.55%	165.95%

Figure 4. Statistical benchmark data^{3 4} for select value chain metrics.

³ Design Reuse Flexibility, Total Design Chain Management Cost (PLM Operating Cost), and New Product Revenue data © Copyright 2003 The Performance Measurement Group, LLC, subsidiary of management consultants PRTM. All Rights Reserved. Used with permission.

⁴ New Product Development Cycle Time © Copyright 2005 APQC. All Rights Reserved. Used with permission.



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It is not just SCOR anymore. With increasing, complex interactions between product development, sales and marketing, human resources, and supply chain, more sophisticated measurement and management techniques are required. As with most great ideas, the answer was published a long time ago. I am hopeful that this article has shed some new light on some tried a true approaches. It seems to work from my view of the trench! For more information please email Peter directly, peterbolstorff@scelimited.com, 651 439 3422.