

BENCHMARKING: Get the Gain

Several years ago when I worked at Compaq Computer, I watched as our new CEO, Michael Capellas, briefed managers on the company's financial results. The people around me were whispering in surprise as the numbers were revealed. Though profitability had been eroding amidst fierce price wars, our cash position was somehow growing—and growing dramatically. Despite profits that in 1999 had fallen nearly 70 percent from two years previously, some \$3 billion had flowed into our treasury since 2000. Of that, \$300 million in cost of capital savings had gone directly to the bottom line.

The source of the newfound wealth was a mystery to many in attendance... but not to me. It followed a supply chain benchmarking program that we launched in 2000, the first benchmark that I had done using a tool called the SCOR (Supply-Chain Operations Reference) Model from the Supply-Chain Council. SCOR let us quickly compare the supply chain practices of Compaq's internal divisions against each other, an exercise that would have otherwise taken months or perhaps years to complete.

The benchmarking program also enabled us to pinpoint the most important bottlenecks in our supply chains and to identify needed performance improvements. One by one, we began fixing these supply chain operations. Very quickly, substantial savings in cost, cycle time, inventory and working capital began flowing in, as reported in the CEO's financial review to most everyone's astonishment. The reality is that benchmarking one's supply chain operations internally or against external operations can generate hundreds of millions—and sometimes billions—of dollars in cost savings and revenue improvements.

Another important reality is that benchmarking brings a necessary level of objectivity to performance evaluation. The subjective notion that "We think we're pretty good" isn't really good enough. That was the trap we fell into at Compaq when it came to order cycle time until the benchmarking told us otherwise. The reality is that self-opinion doesn't truly matter to customers, who are comparing you against other suppliers.

My benchmarking experiences at Compaq gave me good insights into the challenges most companies must face in comparing their operational performance across the organization and against external entities. Since that time, I have been part of the Supply-Chain Council's effort to help companies bench-

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Without the Pain

Benchmarking your supply chain performance can be a costly and time-consuming exercise. And as often as not, it doesn't really produce the results you hoped for. It doesn't have to be this way. A new benchmarking approach from the Supply-Chain Council called SCORmark takes out the noise surrounding benchmarking projects and focuses your improvement efforts on where they're needed most.



mark their supply chains internally and externally. With our partner APQC (www.apqc.org), one of the world's premier benchmarking and best practices organizations, we launched our benchmarking program, called SCORmark, in 2007.

This article describes the evolution and core components of that benchmarking initiative. It outlines the recurring challenges managers face in attempting to benchmark their supply chain operations and explains how the SCORmark approach addresses those challenges. Finally, we describe some real-world experiences of the benchmark's users.

Some Basics of Benchmarking

Before going further, it might be helpful to provide some basic definitions and describe my earlier benchmarking experiences at Compaq to put things in context.

There are two main types of benchmarking: qualitative and quantitative. They both share certain essential features, but have quite different purposes and outcomes. In qualitative benchmarking, often called "best practices" or "leading practices," managers gather data

Quantitative benchmarking involves examining a given supply chain and gathering data on performance, not practices.

on techniques for solving supply chain problems and improving performance. If you were having issues with supplier forecasting, for example, you might look at your capabilities with regard to demand planning, S&OP, and CPFR. These techniques are generally applicable, provide valuable results, and have good staying power. Managers compare their techniques to those of organizations with similar supply chains. They then analyze the differences, looking for opportunities to improve certain processes. When you say "benchmarking," many companies think only of this type of qualitative benchmarking. Basically, this was the type of supply chain benchmarking program we conducted at Compaq.

The second type is the quantitative benchmarking of key performance indicators (KPIs), business metrics, and scorecards. This activity involves examining a given supply chain and gathering data on performance, not practices. Managers then compare this performance data to those of organizations with similar supply chains. The goal is to identify any performance differences and note which processes need to be improved and by how

much (that is, what new standards need to be attained). Companies often conduct this type of quantitative benchmarking while doing a financial review of company performance. They also frequently use quantitative benchmarking to tie the company's supply chain goals to its overall strategy.

Our benchmarking efforts at Compaq were mainly of the qualitative variety. We had a relatively easy time launching the program as the head of supply chain strategy was the sponsor. He had the authority in the management hierarchy to compel the participation of supply chain managers throughout the company. We also had urgency around the program because of loss of market share. It was clear we didn't have a robust strategy linking top-line performance and supply chain tactics in a changing computer market that saw Dell and HP in particular achieving rapid growth. The qualitative analysis confirmed that we definitely didn't have a detailed linkage between strategy and operations in the field.

In retrospect, however, I realize that it wasn't a perfect program. We were unsure of which areas to benchmark, so we covered all possible supply chain processes and metrics companywide. This turned out to be a complex undertaking, and ultimately we covered a lot of areas needlessly. The program took us the better part of four months and cost about \$350,000 in fees with our Big Five consulting partner. The results we did achieve were highly dependent on the consulting firm's organization of the approach, analysis, and communication of the outcome. Yet all of this "walked out the door" after the consultants issued their final report.

We were satisfied with the results, but I was dissatisfied with the process. We had a wide but fairly shallow (internal) benchmark that gave us valuable direction. Yet we found it difficult to prioritize and focus the program because it was so large and covered so many different supply chains. Moreover, we didn't get any real detail on what activities needed improvement and by how much.

In the end, we decided to focus on order cycle time (and inventory) in three of Compaq's seven major supply chains. Order cycle time then stood at 27 days average, and we had months of inventory. We had very low maturity practices to manage order cycle time. Yet we found that by correcting some of the deficiencies in how we managed processes, we could reach a five-day average order cycle time with at least two weeks less inventory. This focus would end up saving weeks of cash cycle time, which resulted in the billions of dollars of working

capital savings. Each day of working capital was worth a few hundred million dollars. Twenty days of improvement later we hit the \$3 billion mark in capital, and \$100+ million in profit improvement—my first billion-dollar SCOR project!

Several years later, after the merger of Compaq and Hewlett-Packard, we undertook another benchmarking program to look at internal costs in one division. At the outset, it seemed simpler than the broad Compaq study. Since it was quantitative rather than qualitative, we didn't have to juggle huge masses of best-practice data. In addition, the project focused on one specific metric rather than trying to aggregate and align process, metrics, and practices. Among the other plus factors: we had a relatively easy time with the benchmarking launch; C-level sponsorship; the appropriate authority in the management hierarchy (as head of business process management, I worked with his head of strategy to execute the program); and the post-merger urgency to reduce costs significantly.

Despite these favorable conditions, this turned out to be the most painful benchmarking I've ever been through. Instead of using industry standard metrics that showed how we compared against our competitors, we ended up with highly customized metrics and views on the data. We worked again with a Big Five consulting firm (different from the first one) that did the custom research on competing companies, burned through about \$400,000 in fees, and spent months gathering data and performing analysis. In this case, we had a narrow but deep benchmark (internal and external) that gave us good direction. However, lack of standards for comparing the performance data created a lot of extra work. And once again, we did not develop any in-house competency as the consultants did all the organization, research, analysis and communication of the benchmark results.

The Challenges of Benchmarking

Through experiences with these and subsequent programs, I've identified some recurring challenges with regard to instituting an effective benchmarking initiative. These include:

- **Sponsorship**—every benchmarking initiative needs a sponsor, the higher in the organization the better.
- **Scope**—selecting the supply chains to be benchmarked is critical; it's not a simple process.
- **Selection of processes and metrics**—focusing on strategic elements helps keep the program targeted and useful (deep metrics in a few areas rather than

many metrics across numerous areas).

- **Standards**—standard definitions of supply chain processes (e.g., what activities are in manufacturing or procurement) enable “like-for-like” benchmarks across divisions or companies. Conversely, lack of standards make meaningful comparisons difficult if not impossible.

- **Sources**—identifying sources of data for metrics and having clear pointers to which processes generate transactional data necessary for calculations.

- **Cost**—benchmarking can be expensive, especially when outside consultants are used. It's not uncommon for the cost of a single benchmark to range between \$300,000 and \$500,000.

- **Time**—the benchmarking process can take from three to five months; set expectations accordingly.

- **Deriving meaning**—the benchmarking initiative must be structured so that the results produced are meaningful.

So how do supply chain managers address these challenges and conduct benchmarking that is truly effective? In the last five years, Supply-Chain Council members have asked us to build a metrics repository based on SCOR for benchmarking purposes—that is, a scorecard that would let them compare their performance against industry peers and companies outside their industry. Many members in particular wanted to be able to periodically check on a couple of key metrics to see if their performance was in order.

The Supply-Chain Council had to carefully consider how it would respond to this member need, recognizing that compiling the data necessary for even a casual check-up could be a daunting task. In 2005, we began negotiation with APQC to build a SCOR benchmarking resource for our members. In 2006, IBM sponsored the development of the SCC/APQC benchmarking system, which has the trademarked name of SCORmark. The approach we took recognized the value of process reference models such as SCOR, coupled with the value of having access to benchmarking data.

We began the SCORmark development process by asking what were the realistic expectations of a quantitative benchmarking exercise and how could we reach those expectations. We quickly agreed that more than a database of metrics information was required. Rather, we needed a system for performing benchmarking that, to the best of our ability, would resolve the key issues in the benchmarking process. There were some challenges we could not address directly—C-level sponsorship of a benchmarking program, for instance. But we decided we



could address most of the other issues.

First, on the challenge of **scope** and focus. SCOR provides an elegant and effective three-step process for (1) identifying all the supply chains in a given business, (2) prioritizing them according to business impact, and (3) linking them to business strategy. The “supply chain” identification matrix greatly simplifies all of the discussions about “what” supply chains are present. Generated from sales and marketing segment data, and from product and supplier segment data, the matrix quickly gives a commonsense stratification of supply chains for further examination. Exhibit 1 shows such an identification matrix for the fictitious ComfyCo Air Conditioning Company. In this case, ComfyCo identified three supply chains: Big Air, Small Air, and Commercial.

Classification System) coding system. (NAICS replaces the old SIC classifications.) We added in SCOR’s standard supply chain types—Make-to-Order, Make-to-Stock, or Engineer-to-Order. Thus, for any company, even complex conglomerates, once managers identify a piece of their supply chain that they want to benchmark, they can unambiguously compare it to similar supply chain types in a given region and industry.

NAICS has more than 1,175 distinct industry codes, which provides a rich set of types to identify almost any possible supply chain industry segment. For instance, a supply chain may be defined as Chemical Industry, European, Build-to-Order. It could be defined as High-Tech Manufacturing, Asia-Pacific, Engineer-to-Order. If you’re a toy manufacturer, soybean grower, or IT service

provider, there’s a category for you to use. There are also segments for different sizes of supply chains based on revenue; so you can compare small-to-small and small-to-extra large if that’s your wish. The categories, geographies, and supply chain types were “menuized” to simplify the benchmarker’s task of identifying both internal and external supply chains for comparison.

The next challenge addressed was **selection of metrics**. This has long been a subject of intense discussion at Supply Chain Council training sessions on the SCOR model. SCOR has several hundred supply chain metrics organized by purpose (level) and categories. A purpose could be creating and measuring strategy (Level 1), diagnosing process defects (Level 2), or measuring workflow performance (Level 3). All metrics fall into one of five categories based on the metric’s strategic impact.

EXHIBIT 1

Supply Chain Identification Matrix for ComfyCo Air Conditioning Co.

Supply-Chain Identification Matrix	Geography-Customer or Market Channel			
	Retail		Commercial	
	Big Box Retailer	Internet Direct	Commercial Building	Commercial Major Acct
Big AirCo		X	X	◀ “Big Air” SC
Small AirCo	X	X		◀ “Small Air” SC
Custom Industrial			X	
Standard Industrial			X	X

The supply chain “priority matrix” simply ranks the identified supply chains according to company performance criteria (see Exhibit 2). Then the supply chain “strategy matrix” links the prioritized supply chains to top-level company strategy (Exhibit 3), according to whether each should be superior (S), give you an advantage (A), or be at parity (P) competitively. This is a simple 1-2-3 approach to identifying what to benchmark, instead of spending weeks of agonizing discussion.

Continuing on the issue of scope, SCORmark adopted the NAICS (North American Industry

purpose could be creating and measuring strategy (Level 1), diagnosing process defects (Level 2), or measuring workflow performance (Level 3). All metrics fall into one of five categories based on the metric’s strategic impact.

EXHIBIT 2

Supply Chain Priority Matrix for ComfyCo

Supply Chain	Overall Rating	Criteria Weight	Revenue & Rank		Gross Margin & Rank		Number of SKUs & Rank		Unit Volume & Rank		Strategic Value & Rank	
			20	20	20	20	20	20				
Big Air	120		1	20	2	20	1	20	1	20	1	20
Small Air	180	Weighted Result Ranking	2	40	1	40	2	40	2	40	2	40
Comm'l	300		3	60	3	60	3	60	3	60	3	60

EXHIBIT 3

Supply Chain Strategy Matrix for ComfyCo Air Conditioning Company

Performance Attribute or Category	Competitive Requirements		
	Big Airco	Small Airco	Comm'l
Reliability	S	A	S
Responsiveness	A	A	A
Flexibility	A	P	A
Cost	P	S	P
Asset Management	P	P	P

S = Superior A = Advantage P = Parity

These categories are reliability, responsiveness, agility, cost, and assets. Order Cycle Time, for example, is a responsiveness category metric. Cash Cycle Time is an asset-type metric, and so on.

To understand the breakout, consider Cash Cycle Time (Level 1-strategic). This metric is composed of Days Sales Outstanding, Days of Inventory, and Days Payables Outstanding (Level 2-strategy diagnostic). Total Supply Chain Management Cost (Level 1-strategic) is composed of constituent non-COGS process costs—Plan, Source, Deliver, Return (Level 2 -strategy diagnostic), which in turn are composed of costs of each component process (level 3-process diagnostic).

To do a supply chain benchmark with SCORmark, the user needs to select at least one Level-1 strategic metric for each of the five major categories. Further, he or she must prioritize the company's strategy in each of those five categories according to whether the supply chain must achieve superiority, advantage, or parity. One (and only one) superior rating is allowed for analyzing a benchmark, two advantage, and two parity ratings. For the superior category, we would expect managers to select component metrics at Level 2 – strategy diagnostics and some at Level 3 – process diagnostics. For the advantage category, we would expect them to add some component metrics at level 2 – strategy diagnostics. This would build out a benchmark or “SCORcard” of 24 metrics: 5 (Level 1 metrics) + 3 (Level 2 superior metrics) + 10 (Level 3 superior metrics) + 6 (Level 2 advantage metrics). That number is not too big, not too small. Most important, it is sharply focused on company strategy. (See Exhibit 4 for sample metrics selection)

This process is really not as complicated as it may sound. When supply chain managers have a menu of metrics organized by category in front of them, metrics

selection becomes almost cut and dried. Selecting Level 1, and then inheriting Level 2 (and Level 3) metrics is a clear and logical process. It is a deceptively simple system because SCOR already has cause-effect data on all strategic, strategy-diagnostic, and process-diagnostic metrics. Rolf Poluha wrote an excellent book¹ that actually articulates the statistical significance (that is, cause-effect relationships and correlations between metrics) for all SCOR metrics. The book provides a fantastic amount of detail for sticklers.

Compare this straightforward process to the seemingly endless benchmarking debates around:

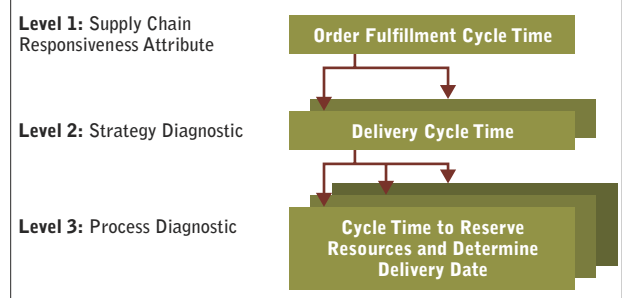
- Metric definitions (what should “complete order” really mean?).
- Which metrics are valuable to our company (a guessing game)?
- How should we decompose the metrics once we've defined them.

I've been through these debates, and they are neither pretty nor short. At Compaq in the mid-1990s, when we were standardizing the definition of order cycle time, on-time delivery, inventory days and related metrics, it took almost a year to achieve a global consensus on how to measure and manage the data.

Responding to the **standards** challenge, SCOR developers have created or adopted the most widely accepted definitions of supply chain metrics in use among around 2,500 companies worldwide over the last 11 years. This greatly facilitates data gathering. For instance, order cycle time is defined as beginning with receipt of a customer order and ending with the customer acceptance of the service or material. There is no debate about interpretation. Managers do not need to undertake (or have consultants undertake) custom programs to create like-for-like comparisons. The SCOR metrics already do that. More significantly, managers do not have to embark on customized programs to gather and reclassify external data—that is, figure out how to

EXHIBIT 4

Sample Level 1, 2, and 3 Metrics Selection



compare their operations to those of other companies.

Another important advantage is that SCOR provides guidance for data gathering. All the SCOR strategic, strategy-diagnostic, and process-diagnostic metrics provide a specific list of process **sources** for the raw data necessary for calculations. With this guidance, companies can readily identify process owners who govern access to IT systems that may hold transactional data. This provides rough back-of-the-envelope planning for data gathering and quality control of the measurements, thereby speeding up the onerous data-gathering phase of the benchmark.

On the challenge of reducing the **cost** of benchmarking, council members and other interested parties can easily learn how to use the SCOR methodology and SCORmark workflow. (For more information on this, see accompanying sidebar.) A consultant may be valuable in providing the manpower to gather the data and manage a big benchmarking program. But managers do not need any expertise in the fundamentals of benchmarking—selecting and defining the metrics, the methodology, and how to analyze the data—outside of the SCOR framework itself. Once a company has standardized on SCOR and trained managers on how to use the model, they can easily execute the benchmarking and interpret the results. No key information “walks out the door” at the program’s conclusion.

The SCORmark approach saves time and money. Users avoid the cost of customized benchmarking because the system is based on open standards shared among the SCOR community via the SCORmark system. In effect, access to the standards is part of the cost of membership to the Supply-Chain Council. In addition, SCORmark cuts the time required to conduct a benchmark (assuming that your company manages supply chains with standard metrics) to a fraction of the usual three to four months. In fact, we’ve seen high-quality benchmarks completed in as short a time as one day, though the norm is typically two to three weeks. APQC will need time to perform statistical validation (“quality checks”) of the benchmark data, which can take up to one week. Once your company is known to provide quality data, the statistical validation can be done within days.

Consider the implications of this capability.

Gaining Access to SCORmark

The SCORmark benchmarking tool itself is available only to members of the Supply-Chain Council (SCC). The cost to join the SCC is \$3,000 for a company in one region, for example the United States; \$5,000 for companies in multiple regions; and \$600 for academics. There are no restrictions on the number of individuals within a company who can log into the tool.

Non-members can view the 2007 benchmark results, but again must be members to participate.

The Supply-Chain Council plans to introduce a half-day benchmarking tutorial in 2008 to be presented around the country. The session will be open to members and non-members alike.

For more information, visit www.supply-chain.org.

Instead of spending one or two quarters benchmarking and goal setting with lagging data, a company can benchmark monthly, and identify leading trends and set forward-looking goals on a continuous basis. There are no substantial additional costs in using monthly KPI data (SCOR data), and benchmarking against that data over and over.

Finally, with respect to **deriving meaning** from the benchmark results, we start with the fact that SCORmark is designed around the SCOR methodology. So once managers select their appropriate metrics and identify their company strategy, the benchmark not only places their company relative (by metric) to their industry or selected demographic, but also identifies the targeted improvements needed (see Exhibit 5). The analysis of this benchmark performance gap ties directly into the subsequent phases of SCOR—material flow, work and information flow—for identifying the root causes of performance problems. It also tells you what projects you’re going to need to execute to address the problem areas.

EXHIBIT 5

Sample Summary Benchmark Result

Attribute	S/A/P	Metric (Level 1)	You	Parity	Adv	Superior	Target Gap
Reliability	S	Perfect Order Fulfillment	97%	92%	95%	98%	1%
Responsiveness	A	Order Fulfillment Cycle Time	14 Days	8 Days	6 Days	4 Days	8 Days
Flexibility	P	Ups. Supply Chain Flexibility	62 Days	80 Days	60 Days	40 Days	0
Cost	P	Supply Chain Management Cost	12.2%	10.8%	10.4%	10.2%	1.4%
Assets	A	Cash-To-Cash Cycle Time	35 Days	45 Days	33 Days	20 Days	2 Days

Early Experiences with the Benchmark

What are the lessons learned from development of the new SCORmark program? First, many companies have serious difficulty defining their supply chain for the purposes of benchmarking. Many believe they have “a” supply chain (or three or four or five...) when in fact they have a large constellation of supply chains. Using the SCOR supply chain definition matrix technique, companies can easily identify all of their supply chains by major project line/customer segment. They can then choose groupings of these to benchmark based on shared characteristics. I see this as becoming more deeply embedded in the benchmarking workflow because we designed the SCORmark system with the assumption that companies already did something roughly equivalent to identify supply chains.

Second, there is a huge variation in how much detail companies manage in their supply chain data. This became clear when we saw how long it took various companies to beta-test the benchmarking system. Here’s a sampling of how long it took companies to gather and submit the necessary data for the benchmark tool:

- Company A: 6 hours
- Company B: 2 days
- Company C: 10 days
- Company D: 6 weeks
- Company E: Abandoned the survey because it was too difficult to get the data.

Now, these companies are in different industries with different levels of supply chain maturity. However, Company A had used SCOR for years, had standardized its operations around the model, and was able to easily pull its standard performance data for benchmarking. Company B also had used SCOR for years. The company had not standardized operations on SCOR metrics, but it did have metrics data that it used in SCOR programs. Company C had good operational metrics, but those metrics were not standardized. Company D had some operational metrics, not standardized. Finally, Company E simply had serious difficulty compiling any

metrics. (We also suspect it had trouble in defining its supply chains for the purpose of benchmarking.)

Among the first 30-40 companies using SCORmark, we also saw similar variations in time-to-complete the exercise, with a skew towards taking several weeks to complete. Half our beta testers were relatively sophisticated SCOR users. Those users that had standardized on SCOR could quickly complete benchmark surveys and get frequent updates. That is the ideal situation.

The biggest hurdle to benchmarking is coming up with standard ways to compare one company’s operations with another’s in order to make “like-for-like” comparisons.

Benchmarking a supply chain clearly can help companies determine their relative performance and shore up operations to stay competitive. But until recently, conducting effective benchmarking quickly and cost-effectively was a monumental task, one that consumed big budgets, patience, and time. The biggest hurdle was coming up with standard ways to compare one company’s operations with another’s in order to make “like-for-like” comparisons. The SCORmark system has done the heavy lifting of defining those standards. It’s now becoming far easier for manufacturers and their supply chain partners to determine whether they’re keeping pace and what they need to do about it.

Supply chain benchmarking doesn’t have to be a complex, costly undertaking. Early adopters of SCORmark have proven that convincingly. If you’re looking for a relatively pain-free—yet effective—way of benchmarking your supply chain activities, SCORmark could be right for you, too. ☺☺

Sources:

- ¹ Poluha, Rolf G. *Application of the SCOR Model in Supply Chain Management*. Youngstown, NY: Cambria Press, May 2007.