

Benchmark Your Supply Chain: Seven Factors for Success

by Debra Hofman, Jane Barrett, and Lora Cecere

Companies want to benchmark to improve supply chain performance. However, they struggle to link a quantitative benchmark to company goals and then translate the data into prioritized end-to-end improvement projects. This Report will help companies develop the benchmark governance and process to clarify and achieve the benchmark goal.

Acronyms and Initialisms

BI	Business intelligence	SCOR	Supply Chain Operations Reference model
PM	Performance management	VMI	Vendor-managed inventory
S&OP	Sales and operations planning		

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Successful benchmarking is 20% process, 30% leadership, and 50% vertical and horizontal goal alignment.

The
Bottom
Line

Executive Summary One of the most common supply chain inquiries we receive at AMR Research is the request for benchmarking data: What's the average and best-in-class forecast accuracy in high tech? How much inventory do consumer packaged goods companies hold? What is the typical order cycle time in the industrial equipment sector?

Yet, while they desperately want data, companies often struggle with how to use it effectively: what constitutes valid benchmark data, how to compare their own data to the benchmark data, what conclusions they should draw from the data, and how to translate the conclusions into prioritized projects to achieve company goals. For many companies, the search for benchmarking data becomes the end itself rather than the means to an end.

Over a period of six years, AMR Research conducted 70 supply chain benchmarking studies. The findings from this research form the basis of much of this Report. To help companies navigate the benchmarking arena effectively, we offer seven factors for success:

- **Keep your eye on the end-to-end goal**—While companies benchmark for many reasons, the ultimate goal of your supply chain benchmark should be to improve the end-to-end performance of the supply chain rather than any one particular aspect of it. End-to-end performance improvements require companies to look at interdependencies across the metrics, identify prioritized improvement projects, and manage the implementation of those projects, often across organizational boundaries and disparate ownership.
- **Select the right metrics**—Clarity on the purpose of the benchmark will help surface the right metrics—not too many but not too few—that are external in nature and give you an end-to-end view of your supply chain and where you're making tradeoffs.
- **Define a feasible scope**—Recognizing that you have multiple supply chains, clearly define a scope for the benchmark that allows you to aggregate your supply chain operations at a level that is neither too high nor too granular to be meaningful.

- **Compare based on supply chain characteristics, not products**—Identify the characteristics of the scoped supply chain and look for a comparison group of like supply chains, not like products.
- **Get the process right**—Put the right resources in place with clearly defined roles and responsibilities to collect data, and be realistic about the time frame.
- **Turn the data into action**—Look at the interdependencies between metrics rather than comparing each metric to the benchmark number. Use the interdependencies to identify tradeoffs in the supply chain and the levers you can pull to fix them, prioritize the results into actionable projects, and get buy-in to ensure optimal execution of the improvement projects.
- **Make it sticky**—Make benchmarking and measurement sustainable over time in your organization. Avoid the pitfalls many companies encounter in benchmarking that make the process challenging, leading to confusion over the interpretation of the results and hindering the use of the results for continuous improvement.

Measuring performance and periodically benchmarking it are critical components to the ability to excel over time. The best companies do this right. However, while doing all of this is important, good processes and governance will only get you halfway there. Most important in this effort is the clarity that you are benchmarking to improve end-to-end supply chain performance in the context of company goals and making it an ongoing process to drive continuous improvement.

Benchmarking is a term used by different people to mean different things. It might refer to a visit to another company that is known to excel in a certain area to study its processes, or it might mean benchmarking outside-industry best practices or strategies. Here, we use the term *benchmarking* to refer to a quantitative comparison of a specified set of supply chain metrics against the average/median and best of a specified peer group of companies.

Over a period of six years, AMR Research conducted 70 supply chain benchmarking studies across multiple industries. We worked individually with companies to benchmark their supply chain operations against a group of peers. The studies benchmarked each company on 45 operational metrics across the end-to-end supply chain of plan, source, make, and deliver as well as the use of the best practices and technologies that enabled that performance. This Report is based on seven key findings from our benchmarking studies, 14 interviews with manufacturers, and interactions with vendors and system integrators.

Keep your eye on the end-to-end goal

“My boss wants a number for average cost per pick in a warehouse, so he sent me off to do a benchmark. I am not sure why he needs this data.”

The importance of doing a benchmark for the right reasons cannot be overstated. The companies most successful at benchmarking came away with information they often didn't expect going into the process: whether or not and how well they were executing against their business strategy and, if not, how to execute better.

The reasons companies typically state for doing a benchmark include to baseline and compare to the competition, look for industry best practices, and set performance targets, to name a few. Often, however, the stated goals are only part of the story. An interesting variety of pressures tend to drive benchmark initiatives (see Figure 1).

Companies often start the process thinking they'll find out if they're holding too much inventory, or if their costs are too high, or how they're doing on demand forecasting. But the real value of a benchmark is not in the individual numbers themselves, and it's not in the comparison of each metric, in isolation, against some industry average. The value lies in the totality of the metrics as a group: how does each metric interrelate with the others, what do the interdependencies tell you about the tradeoffs you're making, are those tradeoffs consistent with your business strategy, and are there levers you can pull so you don't have to make those tradeoffs but can still achieve your goals?

Comparisons of one metric or another that are done in a vacuum and seek some ideal number are particularly dangerous. For example, a company may look for the lowest transportation cost and then use that as its own target. But we often find that when a company is particularly good on a certain metric, there's a tradeoff it is making somewhere else that allows it to achieve that.

The tradeoff is usually:

- Unconscious—i.e., the company is often unaware of it
- Not a tradeoff another company should emulate

The company with the lowest transportation cost, for example, may also have the longest transportation time and the highest damage-in-transit, reflecting poor service from the carriers.

Figure 1: Perspectives on supply chain benchmarking

The official reasons companies want to benchmark

- Compare to the competition
- Look for cross-industry best practices
- Baseline
- Set targets and prioritize
- Use as basis for ongoing measurement

What is really behind many decisions

- My boss just came back from a conference where she heard that transportation costs should be less than 6% of sales
- We need a reason to blame someone else
- We don't think we are so bad
- Everyone else is benchmarking



Companies should also benchmark to improve end-to-end supply chain performance in the context of company goals:

- Look for interdependencies, not metrics in isolation
- Identify key levers to improve performance
- Make better business tradeoffs

Source: AMR Research, 2008

Select the right metrics

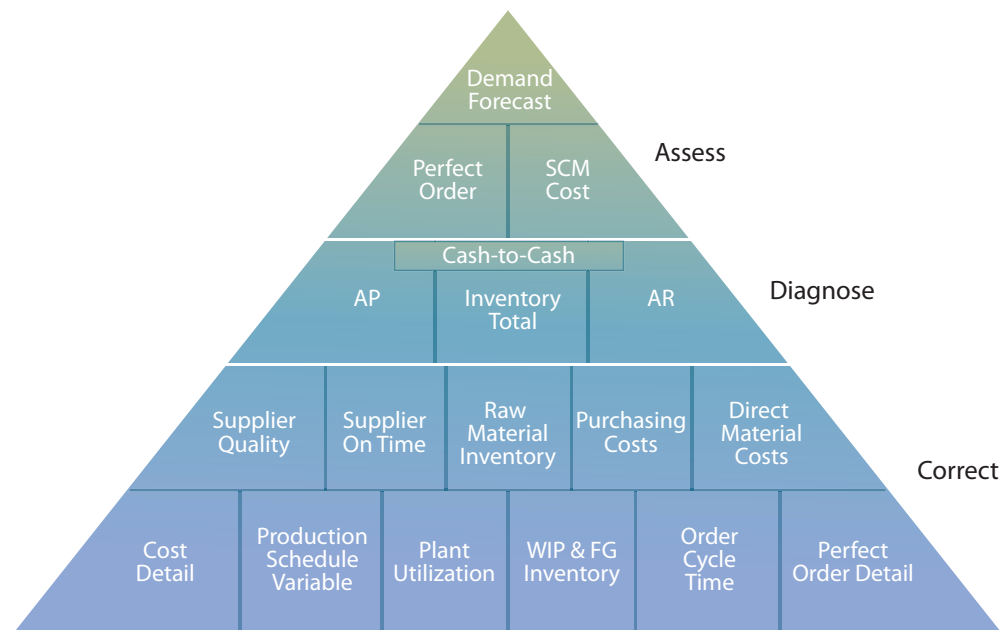
“What we realized is that we were measuring far too much, yet we missed out on some key metrics. For example, we did not measure total supply chain costs, only the logistics elements.”

For quantitative benchmarking, the metrics portfolio should be kept small, cover the end-to-end supply chain, and use calculations based on industry standards, such as the SCOR model. Focus only on the metrics that matter and can be managed, and select outside-in metrics that measure and translate your performance as your customer experiences it. Mapping your end-to-end supply chain metrics against a model such as the Hierarchy of Supply Chain Metrics can help you ensure that you have enough metrics to get a good end-to-end view of the supply (see Figure 2). For a deeper discussion, see “The Hierarchy of Supply Chain Metrics: Diagnosing Your Supply Chain Health.”

Identifying the enablers in use and mapping them to the metrics is also important. Companies make large investments in enabling technology and best practices, such as sales and operations planning (S&OP), forecasting tools, vendor-managed inventory (VMI), and e-commerce. It’s useful to know whether you are getting the benefits for which these tools were implemented.

For example, companies use demand-planning software to help achieve better forecast accuracy. Use the benchmark to point you to whether the technology and best practices you’ve implemented are providing the benefits you anticipated and where you might focus efforts to further improve the use of the technology or practices.

Figure 2: The Hierarchy of Supply Chain Metrics



Source: AMR Research, 2008

Define a feasible scope

“We knew we had multiple supply chains but did not realize that we needed to separate our make-to-stock and make-to-order product lines for measurement purposes.”

Most companies have multiple supply chains operating within their total global supply chain, and the definition of what constitutes a supply chain is often independent of a company’s organizational structure. For example, consider a food and beverage manufacturer in which one of the divisions sells both dry and refrigerated goods. We would expect transportation costs for refrigerated goods to be higher than for dry goods; combining these into one set of numbers would aggregate data to a meaningless level.

To define the scope, think at the metric level. Identify the products, channels, and geographies for which data can reasonably be combined to ensure a level of aggregation that is not too large (where you’ve combined such disparate performance that the result will be meaningless) or too small (where you’re so focused that it’s not useful).

Compare based on supply chain characteristics, not products

“I had never thought of a peer group in that way, but once I realized we have similar supply chains, we could compare our office furniture business to an automotive supply chain.”

Once the scope has been defined with clean and clear boundaries, look for a peer group to compare against. The selected peer group could come from other divisions within your organization or from an external comparison.

To define a valid external comparison, look for supply chains with similar characteristics. Characteristics include, for example, the nature of the distribution channel, the nature of the supply channel, or the manufacturing strategy (e.g., make to order versus make to stock). Benchmarking against supply chains that make the same product is less important, except to the extent that the product affects the expected outcome of the metrics, as noted above in the refrigerated versus dry goods example.

At the same time, do look for comparisons in which different business decisions have been made, as this will help determine how well a strategy is achieving its goals. For example, a company with predominantly outsourced manufacturing can compare against supply chains with in-house manufacturing as long as the metrics are carefully managed to get a true comparison. We found in our benchmarking studies that companies that had outsourced to reduce their costs were often not achieving that goal but hadn’t realized it until the benchmark.

Get the process right

“This is like any other change management project. We spent more time on trying to coordinate all the activities and manage resistance and internal politics than anything else.”

Conducting a benchmark must be managed as a project, with the right roles and responsibilities in addition to a well-defined process and timeline.

Roles and responsibilities

A benchmark project needs a sponsor to lead the project and a coordinator to manage the data collection effort. Typically, the sponsor is the head of the supply chain or related organization. The benchmark coordinator is responsible for pulling together the necessary people, data, tasks, and analysis in a structured and systemic manner. The coordinator is usually calling on resources from different parts of the organization to provide the data specific to those areas.

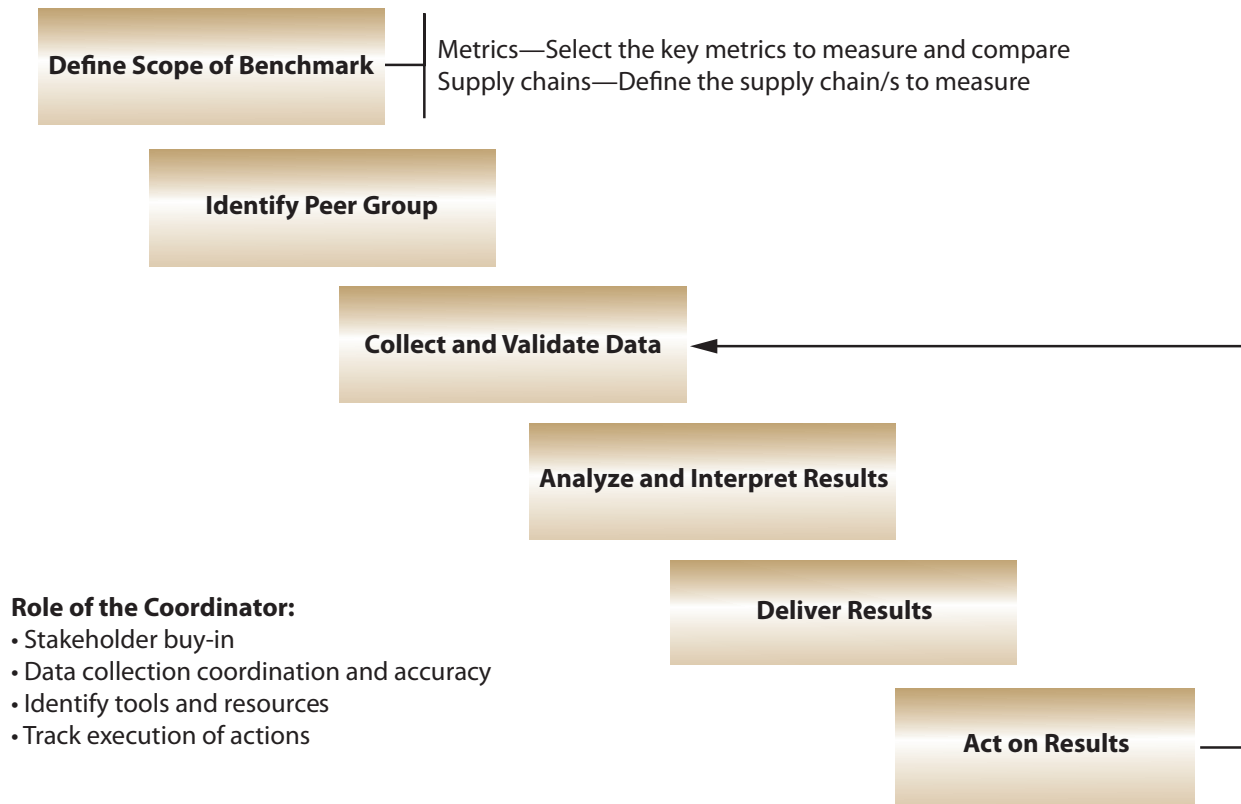
Having the right person as coordinator is critical to success. The coordinator must be at the right level in the organization with enough influence and be respected enough by peers to be able to mobilize the effort. This person must also have a deep enough knowledge of supply chain in order to gather the right data and validate it.

Process

Figure 3 summarizes the major steps in the process. Collection and validation of the data, typically the longest part of the process, can present unexpected challenges. Having the right systems and tools to enable collection of accurate data is an advantage that provides repeatability. Most large organizations have disparate systems, processes, and interpretations of data, and data gathering is a one-off, tedious manual exercise. While this is a business-owned and business-led initiative, IT may need to be involved to work out how to coordinate data or tools across systems.

What can be even more challenging is applying and interpreting the metric definitions in a way that ensures you have comparable data to the peer group. Even with a clearly defined calculation laid out, differences from company to company mean there is still plenty of room for interpretation. For example, in calculating a stockout, are backorders included or not? What is the right definition of on-time delivery given that different customers have different windows of acceptability? Should you include inbound transportation costs in your direct material costs or net them out?

Figure 3: The benchmarking process



Source: AMR Research, 2008

Making measurement repeatable through technology

While there exists a rich history of using technology to automate measurement in finance, sales, and administration areas, supply chain measurement that uses these tools is relatively immature. We expect supply chain to become an area of focus for vendors as market consolidation continues and supply chain value increases in importance.

Outside of the supply chain management arena, nearly every software vendor has some play in making ongoing measurement a reality. There are a host of products and services that gather, aggregate, cleanse, store, and present performance indicators for finance, sales and administration, and the granular transaction data that supports those measures. We see two major areas: business intelligence (BI) and performance management (PM) software, and business process and analytic applications.

BI and PM software

Firms including **Informatica**, **DataFlux**, **IBM**, **Business Objects (an SAP company)**, **Microsoft**, and **Oracle** provide dedicated products to integrate and cleanse data from virtually any source within and outside the enterprise. **Teradata**, **Microsoft**, **Oracle**, **IBM**, and **SAP** have well-established suites to store data in relational and/or multidimensional formats. BI and analytics providers, including **Cognos**, **SAS Institute**, **Actuate**, **Information Builders**, and **Microstrategy** as well as many of the vendors mentioned earlier, deliver myriad ways to visualize, analyze, present, and distribute information to the right people at the right time. Finally, scorecard vendors such as **ActiveStrategy**, **Actuate** with its **performancesoft**, and **Theoris** deliver the technologies for companies to build out a structured measurement and management system.

For a deeper discussion on the BI-PM market, please see “The Business Intelligence and Performance Management Spending Report, 2008-2009: Inside the \$57.1B Market.”

Business process and analytic applications

These applications deliver information about specific processes and outcomes in the context of their content area. Examples include **Ariba** for spend management information, **Kronos** for workforce metrics, and **Silvon** for supply chain measures. Additionally, the enterprise application suites—now the owners of many BI-PM assets—are rich sources of content for any supply chain benchmarking process. **IDS Scheer’s** process performance measurement application allows companies to gain insight into how specific business processes are performing.

Timeline

The time and effort required to collect data cannot be underestimated. Success here is closely tied to having the right coordinator. In our benchmarking studies, companies occasionally were able to collect the data for one North American end-to-end supply chain in a lapsed time of four to six weeks. More often it took 8 to 12 weeks, including numerous discussions, to clarify the metric definitions.

Turn the data into action

“We were able to collect the data without too much trouble. We’re a company that loves data; we have data everywhere. Our problem is doing anything with it.”

Often the most difficult step in the process is turning the data into action. The data itself can be overwhelming and unclear, and different people will have legitimately different interpretations of what it is telling them. In addition, the results can highlight areas of performance that are subpar, and there may be resistance and defensiveness as a result. As noted earlier, the scope of an end-to-end supply chain by definition often transcends organizational boundaries and business owners, bringing with it internal politics and sometimes conflicting agendas.

How the data will be used is also a factor, and this is closely tied to the overall culture of a company. People tend to be defensive if they believe the results will be used to blame, highlight inadequacies, or reduce financial incentives. In companies that make it clear the results will be used for continuous improvement and to identify problem areas in the entire system rather than in individuals, people tend to embrace the results of a benchmark and look for ways to apply it. One company we worked with went so far as to reward people for identifying problem areas.

A structured governance model and process with clearly defined rules is required to coordinate the effort and ensure a useful outcome. This should be treated as a company-wide change management initiative not only to deal with these organizational issues but also cultural differences and resistance to the concept of data transparency and comparative analysis.

In interpreting the data, focus on the interdependencies between metrics rather than each metric compared to the benchmark number. Look for themes and patterns in the data to identify the tradeoffs you’re making. For example, demand forecast error, perfect order, and inventory are connected, and you may be trading off cost (e.g., holding inventory) to keep service levels (e.g., the perfect order) high. Use the patterns to point to the levers that are available to fix any issues. For example, improving the demand forecast error by even a small amount can dramatically improve both inventory and the perfect order (for further discussion and examples, please see “What Does Good Look Like? Answers Lie in Performance Measurement”).

The benchmark results will highlight many areas for improvement, too many to focus on at once. One way to prioritize the results is to segment them into three categories:

- **Immediate focus**—In this category are the root cause levers that, if fixed, will significantly affect other areas. For example, improving supplier-on-time delivery can help to improve raw material inventory, production schedule variance, plant utilization, and inbound transportation costs.
- **Raise the bar**—These are areas that may be performing on par, but should be improved slightly to be consistent with business goals. For example, if moving into new products and services is a key company goal, you may decide that new product time to market should be improved even though the benchmark shows it as on par.
- **Monitor and revisit**—For many metrics you need to only monitor and revisit since problem areas are likely to be fixed by improvements in other areas addressed by the immediate focus actions.

Make it sticky

“Someone asked me why improvement projects worked in my old company, while here we struggle. I can’t put my finger on any one factor. We just seemed to get all the pieces right.”

Completing a supply chain benchmark successfully, while important, is not enough by itself to ensure ongoing effective performance management. Often companies go through the trouble of completing a benchmark, only to then let the results collect dust on a bookshelf. We found that a minority of the companies we benchmarked were able to effectively use the results and the findings from the benchmark process on an ongoing basis.

Companies that follow six key factors can make benchmarking and measurement sustainable over time.

- **Leadership**—Strong leadership at a senior level is essential for all the reasons outlined above: supply chains in many organizations cross organizational boundaries, cultural issues, and change management challenges associated with shining a light on individual and departmental performance. Invariably, there will be naysayers, and it’s critical to have a strong leader able to encourage the debate necessary for buy-in but end the discussion when that debate has crossed the line into resistance. This leader also keeps her eye on the complete goal, managing the outcome across the end-to-end supply chain.

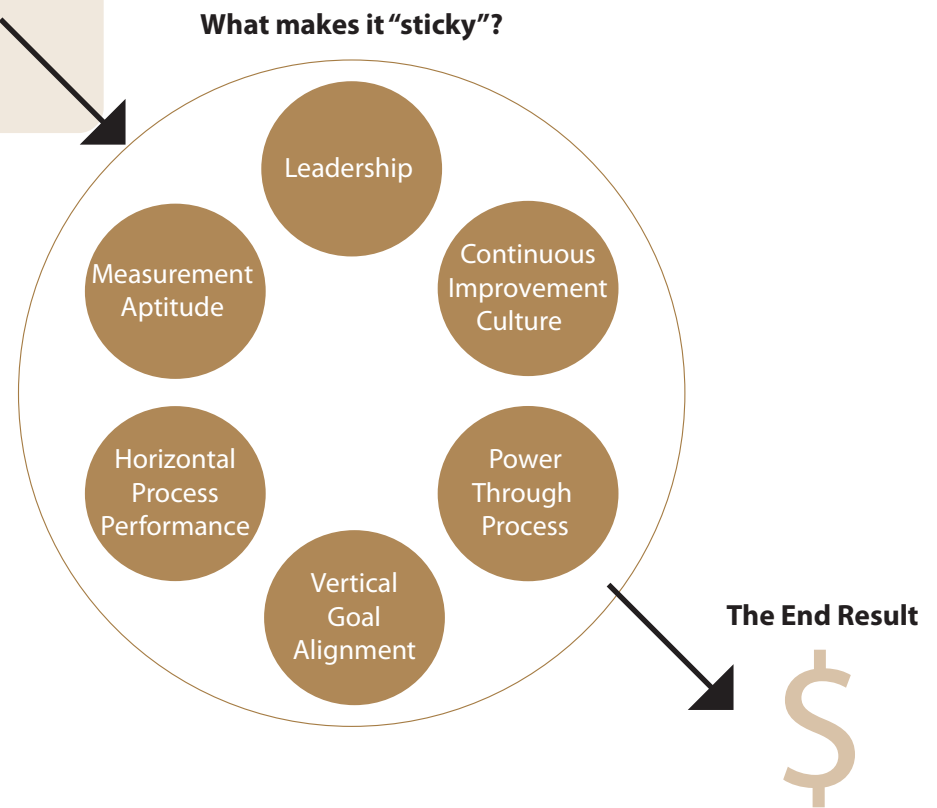
- **Continuous improvement culture**—While leadership is critical, the right attitude needs to exist within the organization as well. Being able to embrace bad news, make data transparent to all, eliminate a culture of blame, and reward people for identifying opportunities for improvement is part of the DNA of leaders like **Toyota**. Excellence addicts focus passionately on their moments of truth, whether it be zero defect, product availability, patient outcome, etc. They also focus on making the data visible to everyone through integrated scorecards or dashboards.
- **Power through process**—One of the major challenges to longevity of the benchmark results is change in leadership. Like many initiatives, benchmarking can be driven by a strong leader but will only live as long as the leader's term. Institutionalizing continuous improvement and best practices through a process minimizes the effect of executive churn. The S&OP process and meetings, in which supply chain tradeoffs are assessed by a group of cross-functional business leaders, are a natural place in which to embed the results of a benchmarking exercise and ensure that the resulting improvement projects are executed over time.
- **Vertical goal alignment**—Anchoring the results of an end-to-end supply chain benchmark in the context of the business is key to its sustainability. One high-tech leader asked its strategic customers to rate them on five key dimensions. The supply chain group identified where their actions and initiatives affected each of those key dimensions, drawing a clear line between their contributions and the company's goals. That kind of alignment helps not only to communicate the importance of supply chain to the wider organization, but also provide a burning platform for their own continued incentive.
- **Horizontal process performance**—Similar to a vertical alignment to business goals, connecting the dots across the component processes is critical to sustaining results. Keeping an eye on the end-to-end goal and managing the interdependencies across functions of the supply chain and beyond continue to be important after the benchmarking exercise finishes in order to sustain performance improvements over time. For further insights, read “Defining a Metrics Architecture and Establishing the Metrics That Matter.”
- **Measurement aptitude**—Many companies go through the process and set up queries, spreadsheets, and dashboards, only to toss them once the benchmark is over. Applying the findings about measurement from the benchmarking process and reusing them over time along with the tools is key to making the results sustainable.

While we have focused in this Report on supply chain measurement and benchmarking, companies typically have other measurement programs and tools in place as well. Clearly, these initiatives should be aligned and where possible, coordinated in a center of excellence, as described in “Building Performance Management Centers of Excellence: Business Intelligence and Beyond.”

Figure 4: Making the benchmark sustainable over time

Benchmarking Pitfalls

- Unclear goals
- Executive churn
- Conflicting agendas
- Culture of defensiveness and blame
- Silo'd use of metrics
- Wrong metrics and scope
- Data access issues



Source: AMR Research, 2008

A shining example—sustainable use of benchmark results across the extended supply chain

The combined capabilities of a consumer products company (Company A) and 10 key trading partners enabled them to enhance their competitive positions and reduce total costs across the extended supply chain by 20%. They did this through benchmarking, sharing results, finding best and worst practices across the group, and optimizing supply points across their network.

After benchmarking its own North American supply chain, Company A realized that improving its own performance alone was not sufficient. It needed to involve key partners and improve performance across the extended supply chain. How did it achieve this? After gathering some 20 end-to-end supply chain metrics from each of its partners, Company A invited executives from each company to a summit to discuss challenges and opportunities as well as reach consensus on how to collaborate for joint value creation.

The session outcome was a pleasant surprise. One executive stood up and openly shared his costs, and the rest followed. They found wide variation of performance and processes in the different businesses. The exercise enabled them to identify best practice centers of excellence, and they jointly implemented initiatives such as conserving warehouse space, reduced handling costs and out of stocks, standardized terms with common suppliers, production swap, and moving to a distribution hub model.

This group continues to collaborate, share knowledge, and realize benefits across the extended supply chain.

Appendix A: Related research

- “The Hierarchy of Supply Chain Metrics: Diagnosing Your Supply Chain Health”
- “What’s Involved in Benchmarking Your Inventory?”
- “Industrial Manufacturing Benchmarking: Filling the Perfect Order With Less Inventory”
- “Benchmarking B2B E-Business: The Value Is in There”
- “What Does Good Look Like? Answers Lie in Performance Measurement”
- “Defining a Metrics Architecture and Establishing the Metrics That Matter”
- “Building Performance Management Centers of Excellence: Business Intelligence and Beyond”

Notes

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