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Insights from The Conference Board Asia-Pacific Supply Chain Council

Supply Chain Benchmarking

Process and Methodology

by Vipin Suri

Supply chain operations within an organization should be constantly reviewed to identify where improvements can be made. One method is to perform a series of benchmarking tests for price, quality, design, efficiency, and cost effectiveness.

In general, companies perform two types of benchmarking: results benchmarking, which focuses on quantitative performance measures, and best practices benchmarking, which focuses on how well processes are executed. The results of both styles of benchmarking are best used together because results benchmarking only provides a basis for ranking a company, not a strategy to improve its performance. Successful supply chain benchmarking incorporates all of the elements in the global supply chain and focuses on product specifications, operational performance, management practices, and software solutions. Although supply chain benchmarking involves three major elements—the supplier, the distributor, and the interface of the two—customer satisfaction should be the primary motivation for establishing a benchmarking program.

Getting Started

In addition to their efforts to establish resilient operations, supply chain professionals strive to be cost competitive. Successful supply chain benchmarking can help them achieve both goals. When used in conjunction with improvement initiatives, benchmarking offers a performance measurement tool that can measure companies' comparative operating performance, identify best practices and possible improvements, and determine how a business is performing against its potential. Benchmarks can also help businesses assess a variety of costs—the cost of goods, the cost of doing business (including inbound and outbound logistics), and opportunity costs. (For additional advantages of benchmarking, see "Benefits of Successful Benchmarking" on page 2.)

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But where should companies begin? Previously created benchmarking data—whether quantitative (performance-based) or qualitative (best practice)—can provide a good starting point. Consulting and research firms or other benchmarking service providers can be used to undertake competitive benchmarking projects that identify the strengths and weaknesses of processes used by competing firms within an industry. For companies that have performed internal benchmarking and want to investigate new ways to improve the performance of their internal processes, external benchmarking can produce significant improvements and identify benchmarking peers in other industries.

Defining the Scope of Supply Chain Benchmarking

A company can have multiple supply chains operating within its global supply chain.[1] Organizations should therefore think at the metric level and identify the products, channels, and geographies for which data can reasonably be combined. (For a step-by-step process for results benchmarking, see "A Step-by-Step Process for the Quantitative Comparison of Supply Chain Metrics.")

Benefits of Successful Benchmarking

In addition to providing useful comparisons with other companies, supply chain benchmarking can identify:

- performance improvements
- interdependencies and relationships between key performance indicators (KPIs)
- better business tradeoffs
- opportunities for cross-industry best practices
- baseline information for goal setting, prioritization, and ongoing performance measurements

A Step-by-Step Process for the Quantitative Comparison of Supply Chain Metrics

1. Determine the scope of the inquiry (e.g., planning, procurement, manufacturing, and logistics)
2. Select a set of supply chain KPIs to measure and compare
3. Identify a peer group of companies
4. Agree on measurements and targets that can reach the site and process levels
5. Develop reporting templates and determine the timing of measurement (e.g., daily, weekly, etc.)
6. Plan the implementation approach
7. Obtain stakeholder buy-in for benchmarking and its benefits
8. Identify tools and resources for data collection
9. Collect and validate data
10. Analyze and interpret results
11. Develop an action plan
12. Track execution of actions

1 For benchmarking purposes, supply chains for make-to-stock and make-to-order product lines should be separated because of differences in inventory management.

Supply chain KPIs

Metrics are an important component of qualitative best practices. Executives can use performance metrics to perform gap analyses and identify areas needing improvement. Two general types of supply chain KPIs—customer facing (e.g., on-time delivery) and internal (e.g., inventory carrying costs) —allow companies to benchmark on several levels. More specifically, supply chain management KPIs should include:

Delivery performance metrics On-time delivery, performance to commit, fill rate, and return rates.

Cycle-time metrics Promised lead time, actual lead time, and supply chain cycle time.

Inventory and cash management metrics Inventory days of supply, days sales outstanding, days payables outstanding, and cash-to-cash conversion.

Supply chain cost metrics Overall supply chain costs, order management costs, inventory carrying costs, supply chain finance and planning costs, supply chain IT costs, procurement department staffing, and savings.

Specific benchmark data gained through these metrics are focused on the identification of key capabilities to enable an integrated demand-supply network (IDSN).[2]

Supply chain benchmarks of standard processes

Another way to approach supply chain benchmarking is to look deeper into traditional supply chain processes.

Planning (demand management, materials planning, and production scheduling) Many planning KPIs are available, but companies must determine the indicators that are truly important to their organizations' operational performance. Examples include cash-to-cash cycle time, inventory carrying costs, days inventory outstanding, finished goods inventory turn rate, cost of goods sold as a percentage of revenue, forecast accuracy, number of full-time equivalents (FTEs) for the supply chain planning function per $1 billion in revenue, production schedule adherence, total expediting of costs to execute the production plan, value-added productivity per employee, and return on assets.

Procurement (sourcing strategy development, supplier selection and contract management, order management, and supplier appraisal and development) Examples of KPIs benchmarked for procurement include total cost of the procurement cycle per purchase order or per $1,000 in purchases, rate of annual raw material inventory turns, average supplier lead time in days, days payable, number of FTEs for the procurement cycle per $1 billion in purchases, and the percentage of purchases made via an electronic marketplace.

Manufacturing (production scheduling, production, and performing maintenance) Common manufacturing KPIs include finished product first-pass yield (FPY), percentage of defective parts per million (DPMO), and scrap and rework costs as a percentage of sales and quantities shipped per employee. Other KPIs benchmarked for product manufacturing are manufacturing cycle time, actual production rate as a percentage of maximum capable production rate, annual work-in-process (WIP) inventory turn rate, unplanned machine downtime as a percentage of scheduled run time, warranty costs (i.e., repair and replacement) as a percentage of sales, and labor turnover rate as a percentage of the workforce.

Logistics (logistics strategy, planning for inbound material flow, warehousing, outbound transportation, and managing returns and reverse logistics) Standard KPIs for product delivery include order fill rate, pick-to-ship cycle times for customer orders, total cost of outbound transportation process per $1,000 in revenue, number of FTEs required to operate outbound transportation per $1 billion in revenue, the percentage of sales order line items not fulfilled due to stock-outs, the percentage of full-load trailer/container capacity used per shipment, and the percentage of orders expedited. Examples of KPIs for logistics/warehousing as a whole include total logistics costs as a percentage of revenue, freight costs as a percentage of revenue, the percentage of sales orders delivered on time, the number of FTEs for the logistics function per $1 billion in revenue, and the ratio of premium freight charges to total freight charges.

2 Key capabilities should be defined in five categories: process, organization, knowledge, technology, and performance measurement.

The Perfect Order Index

In order to measure and benchmark on-time delivery, fill rates, and quality and customer satisfaction through a single KPI, many companies use a perfect order index.[a] The perfect order index is a composite number that measures the following components:

Delivered on time The percentage of orders that arrive at their final destination at the agreed-upon time between the customer and the shipper.

Shipped complete The percentage of orders shipped with all lines and units.

Shipped damage-free The percentage of customer orders shipped in good and usable condition.

Correct documentation The percentage of total orders for which the customer received an accurate invoice and other required documents.

The perfect order index is calculated by multiplying the percentage scores for these components. If a company has a 95 percent score for each of the four components, for example, then the perfect order index would be: 0.95 X 0.95 X 0.95 X 0.95 = 81.5 percent.

[a] For more information, see Kate Vitasek and Karl Manrodt, "Perfect Order Report," which is available on the *Supply Chain Digest* website (www.scdigest.com).

Identifying the Benchmarking Peer Group

It is important to know a company's processes and its level of performance thoroughly before a benchmarking visit. The benchmarking team should also be clear about what it wants to learn before approaching a potential benchmarking peer group. (After all, the benchmarking peer group members are expecting to receive similar information in return.) Both parties should understand and agree on the expectations of the benchmarking peer group, how the information that is gathered will be treated, who will have access to the data, and how the data will be used.

Because achieving and maintaining customer satisfaction are always the ultimate objectives, best performers are those firms that have higher levels of performance in terms of their customer-facing process capabilities than organizations that meet the industry average or laggard companies (i.e., benchmarked companies that fall in the bottom half of the results pool). Capabilities used to determine high performers include the ability to accurately forecast demand across multiple channels and tiers, obtain timely access to supply chain partners' data, and integrate trading partner data into internal processes.

Best-in-class companies also involve suppliers and customers in the sales and operations planning (S&OP) process and use customer feedback to ensure a more accurate match of demand and supply. These companies also collaborate with suppliers on inventory management levels and on invoice reconciliation to improve invoice and payment processes.

The importance of the data coordinator

A data coordinator should run the data collection effort. Responsibilities for this position include pulling the necessary people together, defining tasks, and conducting analyses. Having the right coordinator is critical. The coordinator should be someone with influence in the company and the respect of his or her peers. In order to collect the right data and validate its accuracy, the coordinator should have a thorough understanding of the supply chain function.

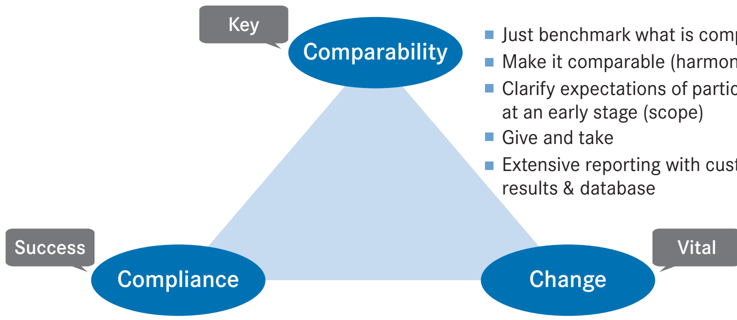
Improving Performance

After the data is collected, the most difficult step remains—converting the data into an action plan. Data transparency and comparative analysis often result in change management issues that should be managed with great care. Different people will have different interpretations of the numbers, and there may be some organizational resistance to change.

A structured approach should be used to coordinate the action plan effort and ensure a meaningful outcome. The focus should be on relationships between the metrics rather than the comparison of individual KPIs to benchmark numbers (e.g., trade-offs between cost and service levels). There should also be discussions with the peer group members about how to fix any issues.

Three Categories to Consider

In order to succeed in benchmarking projects and avoid costly mistakes, companies need to benchmark what is comparable, create strong change management plans, and ensure they are in strict compliance with antitrust rules and other commitments.



Comparability:

- Just benchmark what is comparable
- Make it comparable (harmonize)
- Clarify expectations of participants at an early stage (scope)
- Give and take
- Extensive reporting with customized results & database

Change:

- It is not about blaming (someone/ a unit). It is about learning.
- Generate an open mindset and a learning organization

Compliance:

- Keep strict compliance, with antitrust rules being the overriding principle
- Formal legal documentation
- Strict anonymization of results
- Minimum number of participants required

Source: Ralf Busche, director, supply chain Asia Pacific, BASF

Benchmarking Pitfalls

There are any number of ways benchmarking projects can go wrong. Here are some of the most common mistakes.

Confusing benchmarking with participating in a survey A survey of organizations in a similar industry is not really benchmarking because a survey cannot reveal what is behind the numbers.

Developing action plans based on preexisting "benchmarks" Numbers available from a survey may simply not be applicable to all companies.

Forgetting about service delivery and customer satisfaction A narrow focus on cost benchmarks at the expense of service delivery and customer satisfaction data will not provide the full story.

Trying to benchmark at too high or too granular a level For the supply chain data to be meaningful, the scope of the benchmarking project must be well defined.

Not aligning with business goals For benchmarking to be effective, it must be aligned with the ultimate goal of improving the end-to-end performance of supply chain operations.

Not defining clear roles and responsibilities The absence of an executive sponsor and a data coordinator can result in data access difficulties, defensiveness, blame, and incorrect metrics.

Not establishing the baseline The effectiveness of benchmarking efforts is hampered when the details, costs, and performance levels of all of the company's processes are not known.

Difficulty putting the data to work A simple comparison of company metrics with benchmark numbers that does not take the relationships between the two sets into account can make it difficult to turn results into actionable projects.

A Final Word

Supply chains, which are a critical determinant of a company's competitiveness, are incredibly difficult to manage because they cross functional, enterprise, geographic, and political boundaries. To set appropriate goals and identify best practices, an individual company's supply chains should be understood and compared with those of industry peers and best-in-class organizations. Through this process, companies can gain greater understanding of the very latest systems and practices that are crucial for improving the management of their own supply chains.

About the Author

Vipin Suri is program director for The Conference Board Supply Chain Council and The Conference Board Functional Excellence and Shared Business Services Council in the Asia-Pacific region. As a management consultant in shared services for the past eight years, he has assisted several companies in Asia-Pacific and North America review the effectiveness of their supply chains and other business support functions and implement shared services. Prior to becoming a management consultant in 2002, Suri was vice president, shared business services, for BHP Billiton in Australia. He also held several senior positions in M&A, customer service, purchasing and materials management, network services, network asset management, and shared services during his 26 years at Ontario Hydro in Canada. Suri is a doctoral degree candidate in shared services at the University of Twente in the Netherlands.

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