Supply Chain Audit—Measures and Process

Overview

1. Performance measures must include the total supply chain- supplier through manufacturer to and including customer, i.e. measure total inventory in the supply chain, total landed cost to the customer, total cycle time, total order errors, etc.

2. Provide capability to measure based on common performance i.e. inventory turns, errors, etc. plus special measures that a customer might request i.e. a customer might want to measure errors for a multi line order, some other customer might be more interested in errors for individual line items, etc. A customer might be more interested in costs unbundled- what they pay for each service performed whereas another customer might only desire the total landed cost.

3. Measures of value that help drive customer success are becoming more demanded ie meeting delivery times within a delivery window that the customer might request change to meet there shifting demands. I.e. not just getting the product to the hospital on-time but delivering the individual products to the specific nurse station by floor.

4. Provide measures in terms of ratios rather than only absolute values i.e. stating absolute inventory value is useful, but inventory turns at a point in time tells a ratio that can be more valuable as a comparison. Cost by function is useful, but warehouse cost, etc. as a percentage of total supply chain cost and as a percentage of sales, etc. might be useful for improvement comparison.

5. Provide absolute and ratios of each component cost plus total for each enterprise and if possible the key members in the supply chain. Costs of orders from entry to delivery for various markets could also be useful. Costs by function, market, customer, and product line are becoming important.

6. Provide activity measures for each function- units, weight, orders, etc.

7. Measure errors for each activity. There is more interest in using statistical process control tools to define errors, variation and standard deviations i.e. the six sigma quality of Motorola etc.

8. Measures of customer service by activity- time, average and standard deviation.

9. Actuals against benchmark levels and targets is important

10. Progress against the goals to improve costs, quality, speed and environmental waste from packaging, production, etc.

11. Traditional models measure against balance sheet (assets, liabilities) and income statement (revenue, and expenses). We not have to measure also performance on tangible assets (physical , financial) and intangible (consumer/customer, employee/supplier) .

12. Initiatives should be measured on not only expected cost reduction but also revenue generation.

13. A performance strategy like supply chain should be developed globally, but with differences by global region.

14. Measures should be considered primary – bottom line measures of interest to key stakeholders ie earnings per share shareholders, meeting customer success measures-customers, etc. There are also secondary measures that are used for management control and correction but are not the final measures- ie inventory turns, cycle times by activity, costs by activity, etc.

15. Customer service measures based on direct survey of customers, etc.
16. Incentive measures for internal teams assigned to initiatives
17. Key processes should have performance measures using the above as appropriate.
18. Measures can be static or dynamic. Static is a point in time ie cost per unit is $x / per unit or dynamic – an example is cost as percentage at time as a ratio against cost as a percentage expected at a future time. Or the actual measure is x and the expectation within 6 months is y.

Audit Purpose

Purpose of the supply chain audit is to:
1. Determine what the goals of supply chain strategy should be to best support the company's business and growth objectives
2. Identify service and cost performance under the current methods of operation
3. Measure and show realistic expectations for how the company could perform given specific and "do-able" improvements
4. Find "low hanging fruit" changes that could be made with relative ease/speed
5. Create a time-phased plan for a new supply chain management and control structure

Objectives and Scope

The objectives of the audit are to:
- ❑ Define for the company a cohesive supply chain management vision
- ❑ Identify the operating requirements to fulfill that vision
- ❑ Measure the current performance of the company in each supply chain area covered
- ❑ Find performance levels at which the company can realistically operate in each area
- ❑ Show the cost saving and service improving potential of gaps between current practice and realistic potential
- ❑ Develop a plan for achieving short, medium and long range benefits

The scope of the audit will cover:
- ❑ The customer requirements that the supply chain network must meet or exceed
- ❑ The purchasing, inventory, transportation, warehousing and fabrication activities
- ❑ The supply chain strategy, network strategy, organization, performance measures and information systems needed to support these activities
- ❑ All of current operating Branches
- ❑ Entire product line, markets etc.
- ❑ A planning horizon stretching out three to five years

Deliverables

The deliverables of the audit will be:
- ❑ An measurement and documentation of the current state of supply chain operations, including:

- o Activities and how they work in practice
- o Costs in total, by supply chain function, by product line and by branch)
- o Service, both internal and external to customer, by total, supply chain function, product line, branch, etc.
- ❑ ***Opportunities*** uncovered by comparing *practical* "best practices" with current operations. Each opportunity will be clearly identified and its cost and service benefits measured. Opportunities will be categorized into:
  - o *Short term implementation plans*, including resource requirements, time and costs. Short term opportunities will be ones that are low risk, can be accomplished with current resources/staff, can be implemented in 3-6 months, and would require little or no consulting assistance
  - o *Longer term plans*, covering opportunities that will take more than 6 months to implement, or may require additional resources/staff, or may require additional outside assistance. Some of these plans may be detailed, and some may be at a higher level, depending on the follow on effort required to achieve the benefit
- ❑ ***A Supply Chain Management Strategy and Vision Statement*** to support the business strategies and objectives
- ❑ ***A plan for hiring a candidate executive to head the supply chain management function***, including any interim assistance that might be beneficial as the new person comes aboard.
- ❑ ***Additional deliverables to be identified and spelled out include*** suggested changes to standard operating practices, performance measures, functional tracking tools (i.e. fill rates, costs, etc.).

The Audit Technique and Work Plan

To perform the supply chain audit a combination of interviews, historical data, and on-site observations are used to gather information as to how currently performs supply chain tasks. This performance is compared to what could achieve, gathered from our databases and observations of other companies' performance. A realistic set of data that reflect relative size, resources, bargaining volume, service emphasis, etc. to arrive at a realistic evaluation of opportunities is used. Below are some of the measures that would be used in evaluating each functional area:

Purchasing and Vendor Sourcing
- Assessment of number and selection of vendors
- Structure of agreements and incentives
- Commodity strategies
- Vendor performance
- Improvement opportunities

Transportation
- Assessment of number and selection of carriers
- Rate structures and cost compliance by carriers
- Carrier delivery performance
- Equipment availability

- Mode selection and consolidation opportunities

Warehousing
- Current methods used at the Branches for warehouse activities
- Annual freight in/out and warehousing related operating cost of Branches vs. potentials for a two-tiered central warehouse/Branch system
- Throughput cost per unit assessments of Branches vs. using a central warehouse/Branch system
- Service and fill rate comparisons of current operations vs. a system with a warehouse
- Assessment of total volume flowing into the company and resulting potential negotiating strength with vendors, carriers and warehousing providers

Inventory
- Value of inventory by category (ABC class, region, product line, etc.)
- Obsolescence rate
- Inventory carrying cost and storage cost
- Inventory deployment by geography
- Inventory performance
- Potentials for improvements by changes in stocking policies

Supply Chain Network Assessment
- Understanding of current and projected demand demographics
- High level cost assessment of inbound freight, outbound freight, and internal costs of each site vs. a system utilizing warehousing, Master Branches, or vendor stocked inventories
- Service attractiveness of each site
- Benefits of alternative networks vs. current operations

Fabrication sites
- Geographic volume maps of customers serviced by each fabricating site
- Centralized fabrication vs. decentralized fabrication
- Cost assessment
- Service assessment

Information Systems
- Process mapping of information flows through the order management cycle
- Process time mapping of a sample of orders to show time expenditures and "dead" time
- Evaluation of timeliness and availability of information to control low cost/ high service

Customer Service
- Assessment of logistics-related customer service requirements for a sample of customers

- o Timeliness
- o Accuracy
- o Damage
- o Provision of status information
- Evaluation of past performance in relation to requirements for the sample customers

Performance and Control Measures
- Evaluation of supply chain performance measures in each of the areas above
- Evaluation of how these measures fit with business goals and vision
- Effectiveness of measures
- Evaluation of responsibility and control areas versus authority areas
- Evaluation of what decisions should be made at which levels in the organization in order to be most service and cost effective