encore CONSULTING SERVICES INC

8770 W. Bryn Mawr
13 Floor
Chicago, IL 60631

773.867.8026
Fax 847.995.1993
encoreconsulting.com

Simple Metrics for Your Supply Chain

White Paper

How to Define the First Key Measurements

CONTENT

Managing your supply chain metrics does not have to be a masters-level exercise in finance!

Start by learning several key metrics, and then expand these metrics over time as you and your company's needs expand.

Overview

Those who have been watching the Supply Chain Management industry over the last few years may have noticed the acceleration in the level of sophistication in supply chain management metrics. The August 24th, 2006 edition of Supply Chain Digest (www.scdigest.com) published an article entitled "*Is Accounting a Barrier to Supply Chain Excellence*?" In it, the editorial staff asserts that the financial metrics used by CXOs to measure business performance are outdated for today's more dynamic, less siloed business models. What they also promote is the idea that these metrics are cumbersome and often too sophisticated to be used by departments other than Accounting and Finance. So how does one start measuring supply chain effectiveness without having to hire an accountant?

Measurement Definitions

It is important to start with the basics, or periodically return to the basics, and re-calibrate the level of understanding for those practitioners who have not been closely studying these changes. This article will highlight some of the most common measurements of the strength of a company's supply chain. For the purposes of this article, the examples of common measurements will come from industrial companies, that is, those companies involved in Manufacturing, Retail, Consumer Goods, Service, and other non-financial industries. This "starter set" of measurements can be defined as follows:

- **Revenue Growth** - measures the year-over-year percentage change in revenue
- **Operating Income Margin** – measures the profitability of a company in terms of total profit dollars or as a percentage of total revenues
- **Cost of Goods Sold (COGS)** – measurement used in Operating Income Margin comprised of expenses directly related to the provision of the products or services reflected in revenues
- **Selling, General, and Administrative (SG&A)** - includes expenses related to marketing, promoting and distributing products and services
- **Days Sales Outstanding (DSO)** - measures the average number of days it takes a company to collect its accounts receivable
- **Days In Inventory** - measures the average number of days it takes a company to sell its products, starting with raw materials (if applicable) through finished goods
- **Days Purchases Outstanding (DPO)** – measures the average number of days it takes a company to pay its suppliers

The remainder of this article is intended to explain these key supply chain metrics in further detail. The key audience is any manager who is interested in, or responsible for, supply chain management in any company, in any industry, that needs to begin measuring their performance.

Basic Measurements of SCM Performance

Established companies have found through the course of their existence that there are key measurements that demonstrate to the leadership team how the company has performed and forecast how the company will perform. These measurements often transform themselves over time into a sophisticated array of numbers intended to watch a small, perhaps important, area of the company. Accountants, Finance managers, and MBA's already have an appreciation for these focused measurements, but the rest of the company's management team needs to keep these basic measurements on the forefront of their clipboards as they make their everyday decisions.

Revenue Growth

Top-line revenue is one of the most important financial items a company manages. Investors analyze not just the dollar amount of revenue but, even more importantly, the percentage growth in revenue. Revenue growth simply measures the year-over-year percentage change in revenue. It's calculated as:

(Revenue this period - Revenue last period) / Revenue last period

The period for measuring revenue growth can vary, but typically it is a 12-month period ending in the company's most recent fiscal quarter.

Executives care about this metric because revenue growth provides investors with insights into how well a company is managed. That is, revenue growth shows how effective the executives are at managing their company's ability to convert expenses and investments in physical and human

encore CONSULTING SERVICES INC.
8770 W. Bryn Mawr
13 Floor
Chicago, IL 60631
773.867.8026
Fax 847.995.1993
encoreconsulting.com

Simple Metrics for Your Supply Chain

White Paper

How to Define the First Key Measurements

One of the greatest challenges today for managers in the supply chain is the general shrinking of operating income margin in most industries. This decline in profitability is motivating companies to change how they do business, especially in the supply chain areas.

capital into revenue. However, investors know that not all growth is good growth. Overall performance is impaired if growth in revenue doesn't provide a good return. Managers within the supply chain must consider how their decisions will impact the ability for their company to grow revenue.

Operating Income Margin

Analyzing a company's operating income margin over time, or comparing it to other companies using only dollar amounts, can be challenging because as a company grows, generally operating income grows as well. So it is no surprise that larger companies typically have higher operating income than smaller organizations. But does this mean that larger companies, because they have greater operating income, are more efficient than smaller companies? No! In fact, it doesn't say much at all.

Expressing operating income as a percentage of revenue mitigates the impact of a company's size and facilities comparison over time and across companies. Operating income margin is calculated as:

Operating Income / Revenue

Operating income margin doesn't solve all measurement issues in analyzing how well revenue and costs are managed, but it often provides guidance on areas you can explore to improve profitability.

Executives care about this metric because over time, operating income is a key source of cash to grow the business, maintain assets, pay dividends, etc. Second, investors tend to pay more for companies with a higher operating income margin. And last, companies with higher operating income margin tend to have easier access to capital. One of the greatest challenges today for managers in the supply chain is the general shrinking of operating income margin in most industries. This decline in profitability is motivating companies to change how they do business, especially in the supply chain areas.

Cost of Goods Sold as % Revenue

Cost of Goods Sold (COGS) is comprised of expenses directly related to the provision of the products or services reflected in revenues. Within different industries, this means capturing costs in different areas of the business:

- For manufacturing companies, major categories are raw materials, direct labor costs and factory overhead.
- For distribution and retail companies, the main category is the purchase cost of the products sold.
- For service companies, Cost of Services Sold primarily includes people-related expenses and payments to third parties for products and services utilized in the provision of the service.

COGS is expressed as a percentage of revenue, also referred to as Common Size or Percentage of Sales analysis, to mitigate the impact of a company's size. The percentage of Cost of Goods Sold is calculated as:

Cost of Goods Sold / Revenue

Expressing COGS as a percentage of revenue does not solve all measurement issues in analyzing how well these costs are managed. But when used properly, conducting trend and comparative analyses of COGS provides powerful insights into potential areas of opportunity.

Comparing a company's COGS over time or to that of other companies using only dollar amounts is challenging because as a company grows, so does the cost of goods sold. Also, larger companies typically have higher cost of goods than smaller companies because of the volume of goods sold. But this doesn't mean that larger, or growing, companies are less effective at managing these costs. In fact, it doesn't say much at all!

Executives care about this metric because COGS as a percentage of revenue has always been a major concern of executives since, for most companies, it absorbs a significant portion of revenues. Managers in supply chain should understand that there has been an even greater focus on reducing these costs over the last decade as the price of goods and services and, in turn, profitability have declined in many industries, as has revenue growth in more recent years.

Selling, General & Admin as % Revenue

Selling, General and Administrative (SG&A) includes expenses related to marketing, promoting

8770 W. Bryn Mawr
13 Floor
Chicago, IL 60631

773.867.8026
Fax 847.995.1993
encoreconsulting.com

Simple Metrics for Your Supply Chain

White Paper

How to Define the First Key Measurements

Managing you supply chain metrics does not have to be a Masters-level exercise in Finance!

Start by learning several key metrics, and then expand these metrics over time as you and your company's needs expand.

and distributing products and services. Other major items include corporate administrative expenses such as accounting and finance, planning, human resources, research and development, and maintenance of administrative facilities

Just like cost of goods sold or operating income, analyzing a company's SG&A over time or comparing it to the SG&A of other companies using only dollar amounts is challenging because as a company grows, so does SG&A. Also, larger companies typically have higher SG&A than smaller organizations because of the volume of goods sold. But this doesn't mean that larger, or growing, companies are less effective at managing these costs. Again, it doesn't say much at all!

The useful measurement is SG&A as expressed as a percentage of revenue. This will mitigate the impact of a company's size. The percentage of SG&A is calculated as:

SG&A / Revenue

Expressing SG&A as a percentage of revenue doesn't solve all measurement issues in analyzing how well these costs are managed. But, it often provides guidance on areas you can explore to improve profitability.

Executives care about SG&A because it is often a large expense for the company, and often it's difficult to link these costs directly to revenues. Many executives think that SG&A is simply a cost of doing business, but few companies effectively manage SG&A. A manager in the supply chain should remember that like Cost of Goods Sold, a dollar reduction in SG&A goes straight to the bottom line. But keep in mind that the goal isn't just to manage SG&A; the goal is also to manage overall performance of the supply chain.

Days Sales Outstanding (DSO)

Accounts Receivable are moneys owed to a company by its customers for products and services they've bought but have not yet paid for. They typically grow if revenues are increasing, and shrink if revenues are decreasing. Days Sales Outstanding measures the average number of days it takes a company to collect its accounts receivable. It's calculated as:

Accounts Receivable / Revenue / 365

DSO doesn't solve all measurement issues in analyzing how well accounts receivable are managed. It often does, however, provide guidance on areas of opportunity to further explore.

Executives care about DSO because for many industries, managing accounts receivable, and, in turn, DSO, is a critical component of working capital management. Additionally, it also ties up funds that could be used elsewhere in the company. A manager in the supply chain should understand that the companies that are better at managing DSO will likely provide both more accurate and timely information to the company. It's this information that often helps to improve the efficiencies of back-office operations and their costs.

Days In Inventory

Inventory is the value at cost of products a company's purchased or produced, but not yet sold. It consists of funds invested in Raw Materials, Work-In-Process, and Finished Goods. Inventory primarily exists because of imbalances in the rates products are produced and sold. But you cannot tell how effectively inventory is managed simply by looking at the dollars invested in it. Inventory typically varies with revenue. However, clues as to how well inventory is managed are provided by Days In Inventory, a metric that measures the average number of days it takes a company to sell its products, starting with raw materials (if applicable), through finished goods. Days In Inventory is calculated as:

Inventory / Cost of Goods Sold / 365 Days

Days In Inventory doesn't solve all measurement issues in analyzing how well inventory is managed. It often does, however, provide guidance on areas of opportunity to further explore.

Executives care about Days In Inventory because inventory is a critical component of managing financial performance for most non-services companies. Many executives know reducing days in inventory frees up cash to be invested elsewhere, allows a company to sell the same product at lower prices, permits entrance into new markets with lower margins, and delivers other benefits that improve financial performance and

encore
CONSULTING SERVICES INC
8770 W. Bryn Mawr
13 Floor
Chicago, IL 60631
773.867.8026
Fax 847.995.1993
encoreconsulting.com

Simple Metrics for Your Supply Chain

White Paper

How to Define the First Key Measurements

About the Author

Thomas C. Wojcik, Jr. is responsible for strategic direction, relationship management, quality, marketing, and staff management of Encore's Supply Chain Management practice. In his 19-year career in Information Systems and Logistics, Tom has successfully created, staffed, managed, and delivered innovative solutions to his client's business issues through the use of tight project management, thoughtful business process engineering, and prudent implementation of technology.

create competitive advantage. It also represents one of the most contentious issues across different parts of a company. A manager in the supply chain should understand that the major challenge in managing inventory comes with having groups with differing scorecards coupled with a seldom-taken enterprise view. However, shrinking profitability, lower growth and increasing customer demands are forcing companies to seek new solutions for managing inventory; solutions that enhance overall financial performance and, at the same time, maintain and/or improve customer service levels.

Days Purchases Outstanding (DPO)

Accounts Payable (A/P) are moneys a company owes suppliers for services provided and components bought but not yet paid for. A/P typically does not bear an explicit rate of interest. There is, however, an implicit rate in the prices suppliers charge. These implicit charges show up in COGS for direct procurement items, and SG&A expenses for indirect procurement. Clues into how effectively accounts payable are managed are provided by examining Days Purchases Outstanding, the average number of days it takes a company to pay suppliers. DPO also provide valuable insights into whether or not a company will pay on time. DPO is calculated as:

Accounts Payable / Purchases / 365 Days

COGS is often used in the calculation as a proxy for purchases since companies typically don't provide public information on purchases. Remember, items associated with COGS often include direct procurement (purchases), salaries and wages, and overhead. Using COGS, therefore, overstates the true purchases per day and, in turn, understates DPO. However, since DPO is calculated for all companies using COGS, this helps facilitate comparison across companies.

Executives care about Days Purchases Outstanding because the higher the A/P balances the higher cash flow. This can put a company in the position of borrowing money, at a cost of interest, to pay suppliers while their customers take time in paying them. A manager in the supply chain should understand that the smart suppliers are charge customers an implicit interest (or a capital charge) on the funds they lend through accounts payable. This implicit interest is part of the purchase price which, shows up in cost of goods sold. Therefore, the optimal management of accounts payable requires trade-offs between supplier credit terms and the price charged by the supplier.

Conclusion

For some time now, Finance professionals and MBA's have used sophisticated metrics to measure the performance of their companies. But not everyone needs to have a finance background to begin collecting data and measuring the performance of their department. Supply Chain professionals should have an understanding of the measurements in this article so that they have a better chance of managing an effective supply chain organization. There is truth to the notion, "you can't manage what you can't measure." Don't delay, and understand how to measure your supply chain today.

About Encore's Supply Chain Management Practice

Encore's Supply Chain Management Practice helps clients reduce their risk by breaking apart lengthy, dependent blocks of work into manageable units. By applying a "pilot project" mentality, each step of the project earns the right to take the next step, minimizing the uncertainty of cost or benefit. Supply Chain Management subject matter experts employ several methodologies to manage effort and results.

For more information on this topic, or other supply chain questions, please contact Tom Wojcik, Practice Leader, Supply Chain Management at twojcik@encore-c.com or check us out on the web at www.EncoreConsulting.com.