SAP BusinessObjects™

IMPROVING SUPPLY CHAIN EFFECTIVENESS
A MEASUREMENT-DRIVEN APPROACH TO CONTROL COST AND RISK

CONTENT

EXECUTIVE SUMMARY
MANAGE THE COMPLEXITY AND RISK OF THE MODERN SUPPLY CHAIN

Today's supply chains face increases in complexity and risk. While the traditional supply chain involved factories with relatively few suppliers, distributors, carriers, and customers, the modern supply chain is an interconnected supply network that grows more complex every day. It encompasses multiple transportation systems, consolidators, ports of loading and unloading, and warehouses – all of which may be dispersed around the globe. This complexity also increases the need for tight coordination, network alignment, and the mitigation of significant risk. These risks may include suppliers going out of business, shipments held up in customs, costs subjected to hefty commodity price spikes, or inventories stocked with incorrect products.

This paper will discuss the risks and challenges facing supply chains today and describe how companies can meet those challenges by taking a measurement-driven approach to improve supply chain performance and maximize efficiency. The paper also describes SAP® solutions that can help companies increase the effectiveness of their supply chains to control cost and mitigate risk while ensuring optimal supply chain operations.

> To manage cost, it is necessary to comprehend total supply chain cost and its underlying operational drivers. It's not enough to track just the cost of total raw material; it's also necessary to consider related costs for transportation, customs, and taxes and even factor in duty recapture from trade agreements.

CHALLENGES FOR THE MODERN SUPPLY CHAIN

MANAGING VOLATILITY, COST, RISK, AND COMPLIANCE

Supply chain executives are under tremendous pressure to meet the demands from internal and external stakeholders. Executives must balance supply with increasingly volatile demand. They must control spending and cost while "keeping the lights on," which means operating efficiently and complying with various customs and security regulations. Some of these challenges include the following.

Volatility

Recently, over the course of one year, the global economy has experienced dramatic drops in the securities market and extreme volatility in the energy market. For many companies, these developments have also lowered customer demand to new levels and left their supply chains unable to operate at the current scale. At the same time, the remaining customers continue to expect superior customer service and wider product choice. As a result, organizations recognize the need for accurately forecasting demand while receiving timely information about the status of materials and finished goods shipments to drive a high-performing supply chain.

Cost

To no one's surprise, reducing supply chain cost is a top executive priority. For many companies, in fact, reducing costs is a more crucial priority than improving customer service. But even though costs savings is rated a top priority, many supply chain networks face rising costs and the concomitant shrinking of margins.

To manage cost, it is necessary to comprehend total supply chain cost and its underlying operational drivers. For example, it's not enough to track just the cost of total raw material; it's also necessary to consider related costs for transportation, customs, and taxes and even factor in duty recapture from trade agreements.

Risk

Most supply chains have gone global. Operational activities that are not part of the core business can be handled more cost-effectively by partners, often located in geographical locations with specific cost and trade agreement advantages. The combination of outsourcing more functions while driving single supplier strategies has increased the complexity of managing supply chain activities and performance – and exposed supply chains to far greater risk than in the past. A supply chain glitch, such as loss of a key supplier or a container held up by customs or pirates, may have a significant impact on a company's market capitalization and growth.

This is because extended supply chain disruptions can raise alarm bells for a company's investors. Companies recognize that they can no longer afford to ignore supply chain risks or manage their supply chains by instinct. As a response to the global landscape, many companies are developing a comprehensive risk management strategy, incorporating processes and tools to identify, quantify, and mitigate risk, proactively and systematically.

Regulations

Performance management of a global supply chain involves meeting a broad array of compliance requirements. Consider the complexity of a single cross-border shipment, which can involve more than 25 parties and require creating up to 35 documents and complying with 600 trade laws. Supply chain leaders must consider how emerging legislation will affect their operations.

For example, the Registration, Evaluation, Authorisation, and Restriction of Chemicals (REACH) regulation will phase in across Europe over the next 10 years and require registration of chemicals at the substance level. It will extend beyond the chemicals industry and into companies that sell products throughout Europe. Beyond Europe, regulations across the world are in flux and pose a rising challenge to managing global trade compliance. Brazil, for example, currently requires the electronic filing of every material movement and sales transaction.

FORMALIZING PERFORMANCE MANAGEMENT FOR THE SUPPLY CHAIN

A LIFECYCLE APPROACH TO IMPROVE SUPPLY CHAIN OPERATIONS

To survive in today's economy, leading organizations are creating performance management programs for their supply networks that cohere to a formalized lifecycle and help them manage numerous, complex activities with focus and clarity. This supply chain performance management lifecycle includes the following phases:

- Strategize
- Plan
- Monitor
- Optimize

> Supply chain strategies must be aligned to the overall strategic goals and priorities of the company. The company's management team must create specific high-level strategies for the supply chain that help the organization meet its overall objectives. Corporate goals must be translated into supply chain goals, and supply chain goals must be cascaded across multiple levels so that they become tangible for each operator within the supply chain network.

Strategize

Supply chain strategies must be aligned to the overall strategic goals and priorities of the company. The company's management team must create specific high-level strategies for the supply chain that help the

organization meet its overall objectives. Corporate goals must be translated into supply chain goals, and supply chain goals must be cascaded across multiple levels so that they become tangible for each operator within the supply chain network.

For example, if the organization's high-level strategy is to save 3% on its costs for next quarter's total materials, a top-level strategy for the supply network might be to save 5% on supply chain management costs. While the

second-level strategic objectives could include efforts to reduce order management costs, material acquisitions costs, and planning and financing costs, a third-level objective could be to reduce inbound transportation costs and storage costs.

Plan

In the planning phase, concrete details about how the strategy will be implemented are captured. At this stage, target values are established along with key performance indicators (KPIs) so that the success of the plan can be monitored. The selection of KPIs for the supply chain is such an important area that we return to it later in this paper. Traditionally, formal planning has for the most part been applied only to budgets. Most company efforts to develop and execute thoughtful operations plans have been less structured and often implemented without regard to financial and strategic expectations, and without factoring in risk.

Today, operational planning has evolved conceptually into integrated business planning, which aligns business functions and synchronizes with the strategic financial plans to create a consensus-driven operational plan for supply and demand matching. Risk-adjusted planning is also part of the process and entails factoring potential risk scenarios into supply chain plans. Unless this sort of what-if analysis is conducted, management cannot establish the means to mitigate these risks.

Monitor

Following the plan phase, organizations execute the strategy and begin monitoring its progress to analyze whether the strategy has the desired effect. The actual performance of operations must be monitored against planned performance via the KPIs and metrics established earlier in the lifecycle.

Analytics are key to monitoring and analyzing the success of the supply chain strategies in place. Key measures include supply chain cost, perfect order shipments, and forecast accuracy. Performance management scorecards adhering to established frameworks such as the Supply Chain Operations Reference model (SCOR), described later in this paper, also fit in with this stage in the performance management lifecycle.

Optimize

Just because your supply chain is operating with real efficiency does not safeguard it from potential difficulties. At this final optimize stage of the performance management lifecycle, managers use input from the monitor phase to optimize the performance of the supply chain. To help them understand cause and effect in the context of the supply network's operations, they can use models to perform what-if analyses across a host of scenarios.

For instance, how much can margins be increased by switching to nearshoring for top-tier sources? What effect would deploying hybrid vehicles across 40% of the ground transportation fleet have on fuel consumption and maintenance? Can inventory warehouses be safely consolidated within the western hemisphere once management has met the goal of closing two more plants? Management can predict the future performance of its program based on a model of past and current performance, and at the same time it can use these models to further optimize its current performance.

METRICS FOR THE SUPPLY CHAIN
ESTABLISHING COMPREHENSIVE METRICS ACROSS THE OPERATION

Although standard business practices govern key financial processes such as revenue, asset value, or earnings before interest and tax, the same has not been true for supply chain management programs. Every stage of the performance management lifecycle is contingent upon how well management works with metrics. Without appropriate metrics, management cannot set targets or monitor operations.

supply chain metrics increase. Potential metrics are numerous, and hundreds could be deployed. But selecting the right metrics goes a long way toward bringing performance management for the supply chain up to speed.

As compared with most financial metrics, many operational metrics are leading metrics, which is why external observers have begun to place so much

By employing accurate metrics architecture, organizations can see progress in advance of financial conclusions and make appropriate adjustments to strategies and processes in accordance with obstacles in real time. Companies can also provide employees with more accurate data about actions that concern their current performance so that they too can make adjustments in the moment and not after the fact.

> By employing accurate metrics architecture, organizations can see progress in advance of financial conclusions and make appropriate adjustments to strategies and processes in accordance with obstacles in real time. Companies can also provide employees with more accurate data about actions that concern their current performance so that they too can make adjustments in the moment and not after the fact.

Operational Metrics in the Supply Chain

Over the past decade, companies have come to realize that they must increase the focus on operational metrics in the supply chain if they are to achieve the desired results. Just as the scope of financial metrics has increased, expanding from simply profit to profit by product, by customer, by geography, and so forth, so too must the scope of

emphasis on them. Leading metrics are defined as those measures that are taken upstream of the process or project and then along the way to help achieve the target objectives. Lagging metrics are defined as those measures that are taken at the end of a process or project. For example, revenue is a lagging metric, while perfect order rate is an indicator of current customer satisfaction and future revenue – hence a leading metric.

Finding the Right Path with Supply Chain Metrics

A company's success in improving its supply chain performance can depend on the metrics it chooses to gauge that performance. But too often, a company can fail to employ meaningful metrics that reflect the reality of its particular supply chain operation, or the strategic goals that drive the organization as a whole. In fact, when choosing from the seemingly endless universe of possible supply chain metrics, a company's choices may correlate to core business strategies in name only. This is because the company has failed to establish a clear nexus between each metric and key business objectives.
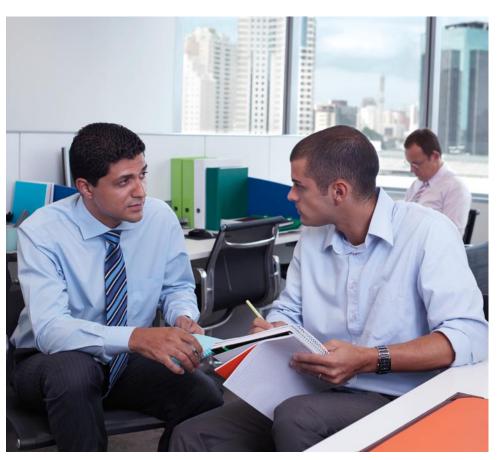
Validating the metrics used is also crucial. Metrics should be based on a proven methodology so that they actually measure what they are designed to measure. In addition, a company must evaluate each metric in the context of an overall business process. A company should never mistakenly apply a metric

to one part of the organization at the expense of another. For example, a KPI indicating low inventory levels in one part of the business might trigger high stock-outs in another part of the business.

In addition, a company's choice of metrics must be supported by relevant information within the organization – whether that information resides in databases and spreadsheets or in the experience and knowledge of employees. Once a company's supply chain metrics are in place, they should be relied upon to guide subsequent changes within the organization, and any changes that do take place should be evaluated using the same metrics.

Managing Supplier Relationships Based on Metrics

As previously stated, improving partner relationships requires transparent, collaborative processes that establish clear communication with everyone in a company's partner network. For example, a company must clearly communicate its needs and expectations to the supplier. Companies must then measure the performance of their suppliers, share goals, and provide them with the results of their analyses. Collaboration is vital in this process. However, before any such program can be implemented, organizations must determine the most effective metrics to monitor and improve supplier performance. To identify the best metrics, companies should consider the following factors:

- Improvement capabilities – scenario and what-if analysis, supplier suggestions, value calculation, project management and execution, and auditing
- Collaborative scoring – viewpoints from various corporate roles, qualitative surveys, and weighted scoring
- Application integration – integration with other supply management solutions
- Supplier self-service – self-scoring, self-registration, supplier input of KPIs, and dispute resolution
- Scorecarding and reporting – analytical capabilities to drill down into detailed performance data, role-based scoring, and analysis

The extent of improvement in supplier performance, of course, is also contingent on the quantity and quality of the programs that companies implement to measure it. The length of time a program has been in place, a program's scope, and the percentage of supply base measured by the program must be considered to determine its success.

SUPPLY CHAIN OPERATIONS REFERENCE MODEL

ANALYZING THE THREE LEVELS OF SUPPLY CHAIN OPERATIONS

Companies can adopt a variety of models to structure their supply chain performance management efforts. However, the Supply Chain Operations Reference model, developed by the Supply Chain Council, is one of the most commonly accepted industry frameworks for supply chains. It offers a starting point from which companies can delve further into managing the performance of their supply chain processes.

the supply chain by establishing standard definitions and metrics by which companies can define and measure themselves and their partners.

SCOR includes three levels of process detail. Level 1 defines the scope and content for SCOR. At this level, competition performance targets are set. Level 2 provides the means for an organization's supply chain to be configured to order from core process cate-

and information inputs and outputs, process performance metrics, best practices, and system capabilities required to support best practices. Here is where companies fine-tune their operational metrics strategy.

SCOR KPIs at Levels 1, 2, and 3

Level 1: At this level, organizations establish the metrics for their complete end-to-end processes. Metrics at this level can include order fulfillment cycle, supply chain management cost, cost of goods sold, and cash-to-cash cycle time.

Level 2: This level entails refining the metrics for the supply chain. KPIs at this level are more fine-grained, and many focus on managing supply chain costs such as order management, planning, and finance.

Level 3: An example of the fine-tuned operation metrics used at this level is outbound transportation cost, a factor leading to higher issues with reduction in cost. For instance, high outbound transportation cost can lead to a reduced cost objective, which in turn could be a result of cross-distribution center transfers, express freight, or fuel price per unit.
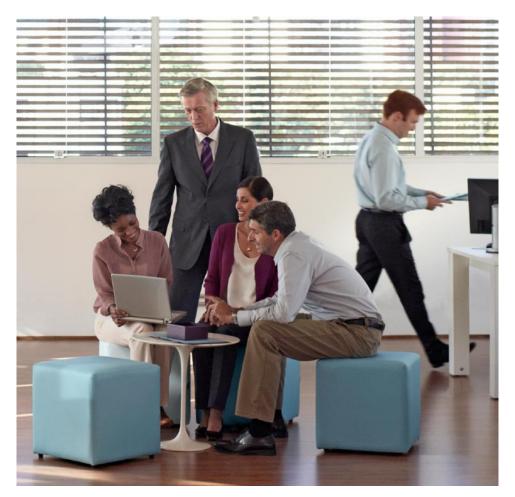
Companies that operate at the highest performance level of a supply chain maturity model are collaborating fully across all relevant lines of business as well as with suppliers and customers. These companies have full visibility across the entire supply chain that enables them to quickly recognize demand and supply fluctuations. Their supply networks are highly responsive, maintaining a critical balance between supply and demand to keep inventory levels low and minimize stock-outs.

SCOR combines business process reengineering, benchmarking, and measurement into a cross-functional framework that can be used to help improve supply chain operations. Further, SCOR helps organizations better communicate information about

gories. Companies implement their operations strategy through the configuration they choose for their supply chain. At Level 3, businesses define their ability to compete successfully in their chosen markets. This level consists of process element definitions

ASSESSING THE MATURITY OF SUPPLY CHAIN PROCESSES

MOVING FROM THE STATIC TO THE ON-DEMAND SUPPLY CHAIN

Supply chain maturity models recognize the fundamental relationship between supply chain effectiveness and the maturity of supply chain processes. These models not only help a company determine the efficiency of their supply chains, but they also provide clear guidelines toward improving supply chain performance. By applying the tiered performance-level requirements typical of most maturity models, a company can sustainably move from a linear, static supply chain to a responsive, demand-driven supply network.

Most supply chains operating at similar performance levels share common characteristics that define their efficiencies as well as their inefficiencies. For example, companies that operate at the lowest performance levels of a supply chain maturity model can be characterized as experiencing frequent overstock and understock conditions. These companies will often conduct supply chain planning activities only quarterly; engage in isolated, manual-driven supply chain processes; and will most likely have no formal supplier relationships or collaboration activities with suppliers.

By contrast, companies that operate at the highest performance level of a supply chain maturity model are collaborating fully across all relevant lines of business as well as with suppliers and customers. These companies have full visibility across the entire supply chain that enables them to quickly recognize demand and supply fluctuations. Their supply networks are highly responsive, maintaining a critical balance between supply and demand to keep inventory levels low and minimize stock-outs.

Even a company that finds itself at the lowest performance tier of a supply chain maturity model can rapidly improve. By using automation software that streamlines integrated supply chain processes, increases supply network visibility, and supports partner collaboration, a company can quickly and cost-effectively improve supply chain effectiveness and performance.

IDENTIFYING AND MANAGING RISK IN THE SUPPLY CHAIN

ANTICIPATE RISK ACROSS THE ENTIRE NETWORK

Risk awareness can inform strategy. Deciding where to open a new plant – or close one – should be based not only on profitability but also on an assessment of the risks associated with the options. What may appear to be the best option viewed from a traditional assessment (such as cost-effectiveness) may not be the best option once risk is considered.

Unfortunately, it is impossible for organizations with globally extended supply chains to have at their disposal all of the data all of the time. This is why predictive capabilities and technologies that enable reliably accurate what-if analysis have become so vital, as companies must shift focus from cost-efficiency to opportunity and reward analysis.

Industry leaders are now using tools that enable them to openly account for risk and make decisions based on the potential costs and value that each risk entails. These companies can effectively mitigate multiple risks across the supply chain – including volatile demand, product motility and complexity, excess stock, and inconsistent sales.

For instance, industry leaders are now using tools that enable them to openly account for risk and make decisions based on the potential costs and value that each risk entails. These companies can effectively mitigate multiple risks across the supply chain – including volatile demand, product motility and complexity, excess stock, and inconsistent sales. Rather than shrink from such risks, these companies embrace them by seeking out the opportunities that the risks may offer, such as improvement in margins, growth in market share, and better relations with top customers.

It is no longer feasible for organizations to view performance monitoring as simply watching, examining, and analyzing performance and processes. In today's business world, monitoring performance means monitoring risk as well. Increasingly, companies are held responsible for monitoring risk in the supply chain, and the risks of their partners as well as their own risk exposure.

CONTINUOUS SUPPLY CHAIN EFFICIENCY WITH SAP SOLUTIONS

IMPROVE VISIBILITY, LOWER OPERATING COST, AND STAY COMPLIANT

SAP offers solutions to help organizations optimize their supply chains to reduce costs, mitigate risk, and help ensure compliance. Fully leveraging existing implementations of SAP software for enterprise resource planning, these solutions interoperate to improve supply chain visibility and increase operational efficiency. Furthermore, timely metrics tailored to specific roles help reduce supply complexity – enabling organizations to continuously improve business performance and keep customers satisfied.

Align Supply Chain Operations to Overall Strategic Goals

All over the world, organizations struggle not only to develop effective supply strategies but also to align these strategies with daily activities on the ground. The SAP BusinessObjects™ Strategy Management application helps on both counts. The software enables organizations to establish priorities based on strategic benefit and relative risk. Users can link those priorities to performance metrics that are visible to all stakeholders in the organization, so they can quickly assess strategic performance and execute on areas that require action. In the end, the application lets organizations more intelligently manage resources and helps ensure individual productivity, accountability, and adoption of organizational goals.

Achieve Cost Savings Through Cost Visibility

Reducing supply chain costs is a top executive priority, and understanding those costs and the operational drivers

behind them is critical for identifying savings opportunities. This is where the SAP BusinessObjects Spend Performance Management application can help. Enabling supply chain–wide collaboration and full spend visibility, the application automatically captures data across the supply chain and supports the spend decisions based on all factors – both direct and indirect – that affect cost. The software helps organizations find and act on savings potential, allowing them to set up and enforce performance targets and proactively monitor contract compliance. It even helps organizations reduce supplier risk, pinpointing single-supplier dependencies and establishing risk mitigation priorities.

Continuously Improve Supply Chain Effectiveness

It's clear that today's globalized, complex supply chains require a formalized, discretely phased lifecycle approach that constantly optimizes performance. The SAP BusinessObjects Supply Chain Performance Management application supports end-to-end processes, automation, and diagnostics to continuously improve supply chains. The standards-based software supports established supply chain frameworks, including SCOR, helping organizations execute process-oriented activities and break down operational silos. The application provides robust, automated data collection facilitated by tight integration with existing applications. Because information is derived from the actual business processes that affect an organization's supply chain, the software allows decision makers to fully

understand the operational drivers that affect performance. The application even highlights operational dependencies and delivers alerts when deviations occur from performance targets. This enables organizations to make better-informed trade-off decisions and react quickly to changes in the supply chain.

Improve Performance Through Comprehensive Monitoring

The SAP BusinessObjects Process Control application supports the continuous controls and monitoring organizations need to improve supply chain performance. The software puts organization-wide business process control into a single, centralized system, allowing organizations to manage operational, financial, and IT controls from a single location. With a single system of record to help ensure audit integrity, the application also enables continuous compliance visibility through comprehensive reports and dashboards that monitor control effectiveness, even across multiple enterprise systems. Organizations can quickly configure rules that enforce process integrity across even the most complex supply chains. By using the software's automated workflows and exception alerts, organizations can improve process efficiency, strengthen management by exception, shorten audit cycles, and reduce compliance costs.

Identify Hidden Risks and Know How to Mitigate Them

Managing supply chain risks by instinct and rules of thumb is no longer an

option. To deal with globalized, partner-driven supply chains, organizations must adopt a comprehensive risk management strategy. The SAP BusinessObjects Risk Management application can help with automatic monitoring of key risk indicators across the entire supply chain. It provides managers at all levels of the organization a complete, detailed risk profile

Manage Compliance, Speed the Supply Chain, and Reduce Costs

Taking the worry and complexity out of supply chain compliance issues is a key goal for any supply chain manager. The SAP BusinessObjects Global Trade Services application supports centralized global trade management activities to reduce the cost and risk of interna-

management, up-to-date product classifications, and powerful analytics using daily business data. This enables organizations to avoid supply chain bottlenecks, production downtime, and costly penalties from errors.

Integrate Environmental, Health, and Safety Oversight

Environmental compliance is an essential component for business success – and more than ever environmental compliance extends to the supply chain. With the SAP Environment, Health, and Safety Management (SAP EHS Management) application, organizations can streamline all environmental processes within their existing infrastructure. Constantly monitoring regulated emissions and chemicals, the software empowers organizations to manage by exception with functionality that supports automated detection and corrective action guidance. Organizations can also use the software to establish and enforce organizational and regulatory thresholds that meet stakeholder requirements as well as local, regional, national, and international regulations. Ultimately, SAP EHS Management helps organizations comply with environmental regulations and maintain a positive corporate profile that helps ensure ongoing business success.

> SAP offers solutions to help organizations optimize their supply chains to reduce costs, mitigate risk, and help ensure compliance. Fully leveraging existing implementations of SAP software for enterprise resource planning, these solutions interoperate to improve supply chain visibility and increase operational efficiency.

using role-based dashboards and threshold-based alerts. The software also helps ensure that assessing risk becomes an integral part of an organization's strategic planning activities. It supports organization-wide collaboration by unifying operational risk management – combining IT infrastructure controls with strategic, financial, and compliance risk management. Organizations can use the software to effectively implement risk management processes, leveraging a hierarchical model to better understand risk mitigation priorities and responsible stakeholders. With this application, organizations can better identify risks and quantify risk exposure with powerful monitoring functionality that supports comprehensive risk mitigation activities.

tional trade. Organizations can help ensure full regulatory trade compliance using standardized, enterprise-wide trade compliance processes for supply chain, human resource, and financial management. The software supports automated compliance checking, including embargo checks, sanctioned party screening, and export and import license management. Timely cross-border trade information can be shared with partners, such as freight forwarders, brokers, insurance agencies, banks, and regulatory entities. This helps accelerate cross-border transactions through improved transparency and automation that's built into supply chain operations. The software also supports comprehensive letter-of-credit

Find Out More

To learn more about how solutions from SAP can help your organization improve its supply chain performance, contact your SAP representative today or visit www.sap.com/epm and www.sap.com/grc.

www.sap.com/contactsap

THE BEST-RUN BUSINESSES RUN SAP™