Business Intelligence Command and Control Center for the Chief Supply Chain Officer

May 2011
Nari Viswanathan

~ Underwritten, in Part, by ~
Executive Summary

Aberdeen benchmarked 149 supply chain related executives on their business intelligence initiatives in March and April 2011. The top pressure that companies are facing is the growing complexity of global operations (57%), the lack of visibility at various nodes of the supply chain (41%) and the need to improve top line revenue (40%). On the other hand, only 33% of companies have had a supply chain business intelligence initiative in place for more than two years. Given this lack of maturity, the need for business intelligence is more than ever before. The focus of this benchmark report is to identify the top strategic actions that Best-in-Class companies are taking and how they have reached the process maturity required to sustain business value through business intelligence.

Best-in-Class Performance

Aberdeen used four key performance criteria to distinguish the Best-in-Class from Industry Average and Laggard organizations. Best-in-Class companies:

- had an average cash conversion cycle time of 38.9 days
- possessed a, average customer service level of 96% delivered to the customer
- had an average forecast accuracy rate of 78.7%
- decreased their actual warehouse operating cost by 2.1%

Competitive Maturity Assessment

Survey results show that the firms enjoying Best-in-Class performance shared several common characteristics, including:

- Best-in-Class companies are 40% more likely than all others (the Industry Average and Laggard companies combined) to have a single individual or team responsible for collecting and managing operational data
- Best-in-Class companies are 72% more likely than all others to have implemented an operational BI solution
- Best-in-Class companies are 46% more likely than all others to have the ability to measure costs at line-item level to perform activity based costing

Required Actions

In addition to the specific recommendations in Chapter Three of this report, to achieve Best-in-Class performance, companies must:

- Implement the ability to close the gap between forecast plans and actual performance
- Implement an operational BI solution with real-time reporting

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Chapter One:
Benchmarking the Best-in-Class

Business Context

Aberdeen benchmarked 149 supply chain related executives on their business intelligence initiatives in March and April 2011. Aberdeen also conducted the 5th annual Supply Chain Management summit in Chicago, March 29 and 30, 2011 where business intelligence was a key focus of several sessions. As shown in Figure 1, the top pressure that companies are facing is the growing complexity of global operations (57%), the lack of visibility at various nodes of supply chain (41%), and the need to improve top line revenue (40%). On the other hand, only 33% of companies have had a supply chain business intelligence initiative in place for more than two years. Given this lack of maturity, the need for business intelligence is greater than ever before. The focus of this benchmark report is to identify the top strategic actions that Best-in-Class companies are taking and how they have reached the process maturity required to sustain business value through business intelligence.

Figure 1: Top Pressures Faced by Organizations

- Growing complexity of global operations: 57%
- Lack of visibility at various nodes of supply chain: 41%
- Need to improve top line revenue: 40%
- Increased demand volatility: 29%
- Increased supply chain risk exposure: 28%

Geographically, we don’t notice any significant difference in the adoption of a business intelligence program between any of the regions. In other words, whether it is North America or Asia, the pattern of adoption of business intelligence is the same. However when we look at the data from a revenue perspective we find that 50% of large companies (greater than $1 billion USD in revenue) have had a business intelligence program for more than two years. Only 20% of small and mid-size companies report the adoption of a business intelligence program for more than two years. Thus, we find

Fast Facts

✓ Only 33% of companies have had a supply chain business intelligence related program in place for more than two years
✓ 57% of companies have identified the growing complexity of global operations as the top pressure forcing them to look at supply chain intelligence solutions
that larger companies are further along from a timeline perspective. We will investigate further whether simply having a BI program for a longer period of time translates to Best-in-Class performance.

**The Maturity Class Framework**

Aberdeen used four key performance criteria to distinguish the Best-in-Class from Industry Average and Laggard organizations:

- average cash conversion cycle
- average customer service level (i.e., orders delivered on-time and complete to the customer’s requested date)
- average forecast accuracy at the product family level
- actual warehouse operating cost (YTD performance vs. budget)

**Table 1: Top Performers Earn Best-in-Class Status**

<table>
<thead>
<tr>
<th>Definition of Maturity Class</th>
<th>Average Class Performance</th>
</tr>
</thead>
</table>
| **Best-in-Class: Top 20% of aggregate performance scorers** | **had an average cash conversion cycle time of 38.9 days**  
**possessed a average customer service level of 96% delivered to customer**  
**had an average forecast accuracy rate of 78.7%**  
**decrease their actual warehouse operating cost by 2.1%** |
| **Industry Average: Middle 50% of aggregate performance scorers** | **had an average cash conversion cycle time of 48.4 days**  
**possessed a average customer service level of 84.4% delivered to customer**  
**had an average forecast accuracy rate of 64.7%**  
**increase their actual warehouse operating cost by 2.7%** |
| **Laggard: Bottom 30% of aggregate performance scorers** | **had an average cash conversion cycle time of 80.8 days**  
**possessed a average customer service level of 76.3% delivered to customer**  
**had an average forecast accuracy rate of 45.6%**  
**increase their actual warehouse operating cost by 3.5%** |

Source: Aberdeen Group, April 2011

In addition to the impressive achievements of the Best-in-Class companies in terms of the operational performance gaps with all others (the Industry Average and Laggard companies combined), Best-in-Class companies also excel in other areas like the ability to access critical information:

- Best-in-Class companies are 35% more likely than all others to be able to access critical information within the desired time-frame
- Best-in-Class companies also had a net decrease in total landed costs (change in total landed costs per unit handled Include warehousing, transportation costs, and import / export duties and tariffs) of -1% as compared to a net increase of 4% by all others. This achievement is very impressive given the recent upward pressures in costs due to increased fuel costs, increased commodity costs and inflationary pressures globally.
• Best-in-Class companies are also overall more satisfied with their business intelligence solutions, including:
  o 20% more likely to be satisfied with the ability to access data relevant to job role
  o 25% more likely to be satisfied with the ability to create custom views or reports

The Best-in-Class PACE Model

Using a business intelligence solution to achieve corporate goals requires a combination of strategic actions, organizational capabilities, and enabling technologies that can be summarized as shown in Table 2.

Table 2: Best-in-Class PACE Framework

<table>
<thead>
<tr>
<th>Pressures</th>
<th>Actions</th>
<th>Capabilities</th>
<th>Enablers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growing complexity of global operations</td>
<td>Create timely executive reporting for key metrics</td>
<td>Ability to accurately forecast demand</td>
<td>Traditional BI (historical reporting) platform</td>
</tr>
<tr>
<td></td>
<td>Streamline processes for easier monitoring</td>
<td>Ability to provide executive reports to management</td>
<td>Operational BI (real or near real-time reporting) platform</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ability of supply chain staff to drill down from high level metrics to lower level metrics</td>
<td>Business Activity Monitoring (BAM) technology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Centralized supply chain organization</td>
<td>Complex Event Processing (CEP) tools</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Formal operational KPI methodology in place (e.g., balanced scorecards, six sigma, etc.)</td>
<td>IT / Systems Integrator consulting services</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ERP modules focused on Supply chain intelligence</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Supply chain planning and scheduling (APS) applications</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SaaS based BI tools</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mobile BI</td>
</tr>
</tbody>
</table>

Source: Aberdeen Group, April 2011

Best-in-Class Strategies

Figure 2 illustrates the strategic actions taken by the Best-in-Class as compared to all others. The key-takeaways are two fold:

• To improve business intelligence capabilities, the data indicates that all companies prioritize the creation of timely executive reporting for key metrics (76% for Laggards, 58% for Industry Average and 64% for Best-in-Class). We will see in Chapter Two what the actual process maturity levels are for these companies. Also, we will see that the Best-in-Class companies are distinguished by translating strategic actions into tangible process improvements.

• Best-in-Class companies are more likely to prioritize collaboration with customers to gain better visibility into customer-side processes (39% versus 27% of Average and 10% of Laggards). Being customer focused and demand-driven is a strategy that is difficult to execute in terms of processes due to the lack of control over customers and

“Our business intelligence focus is built around cost modeling. Through a greater understanding of supplier input costs and global trends we can manage cost and supply chain risk in a more effective manner.”

~ Manager of SCM at Large Oil and Gas Manufacturer
their demands. We will again see in Chapter Two, how the Best-in-Class companies have utilized business intelligence solutions to gain visibility into customer collaboration processes.

Figure 2: Best-in-Class, Industry Average and Laggard Strategic Actions

“...We are planning to start a Performance Management initiative throughout the whole company this year. Supply Chain management is also in the scope of this project. Initially, we will define a set of KPI’s. Then, we will formalize the follow-up of these KPI’s using a business intelligence tool.”

~ Finance Staff member at Small European Metals Products Company

It is instructive to take a look at the top three strategic actions identified by the two critical roles of IT and Supply Chain:

- 68% - Create timely executive reporting for key metrics
- 36% - Create multiple scenarios to analyze S&OP plan
- 32% - Facilitate delivery of analytical capabilities to more users

IT organizations need to really understand the requirements of the line of business users in terms of scenario management and the pervasive availability of BI reports. It is not only about executive reporting but also the democratization of BI resulting in more users needing the capabilities. According to the supply chain, operations, manufacturing, logistics and procurement organizations, the top three strategic actions are:

- 64% - Create timely executive reporting for key metrics
- 44% - Streamline processes for easier monitoring
- 36% - Create collaboration initiatives with suppliers to gain better visibility into supplier-side processes

Line of business users need to work with their IT partners to ensure that processes are streamlined and simplified. This will allow the IT organization
to provide better support by creating the infrastructure needed for metrics and process monitoring.

Finally, line of business users need to include their trading partner processes and metrics for gaining visibility into the multi-enterprise processes. This will ensure moving beyond simplistic cost-centric procurement practices to more strategic supply chain thinking.

### Aberdeen Insights — BI for Demand-Supply Networks: Converting Variability into Controlled Processes

In prior benchmark reports, Aberdeen has identified that supply chains are evolving into integrated demand-supply networks where every element in the network is facing challenges of outsourcing and the ensuing loss of control and visibility (Integrated Demand-Supply Networks: Five Steps to Gaining Visibility and Control, March 2009). We can see the implications in Table 3 where the three key constituents namely manufacturers, contract manufacturers and logistics service providers all share the same top pressure of the growing complexity of global operations. However, the manufacturer is further challenged by the need to grow revenue, the lack of visibility into the trading partner, as well as visibility into their own processes. On the other hand, the contract manufacturer is concerned about the diminishing control over supply chain operating costs. The logistics service providers are also challenged by the lack of visibility and the lack of control over costs.

**Table 3: Unity in Variability Across Demand-Supply Networks**

<table>
<thead>
<tr>
<th>Pressure Priority</th>
<th>Original manufacturer and brand owner</th>
<th>Contract Manufacturer/Managed Services Provider</th>
<th>Logistics Service Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Growing complexity of global operations</td>
<td>Growing complexity of global operations</td>
<td>Growing complexity of global operations</td>
</tr>
<tr>
<td>2</td>
<td>Need to improve top line revenue</td>
<td>Need to improve top line revenue</td>
<td>Lack of visibility at various nodes of supply chain</td>
</tr>
<tr>
<td>3</td>
<td>Lack of visibility at various nodes of supply chain</td>
<td>Diminishing control over supply chain operating costs</td>
<td>Diminishing control over supply chain operating costs</td>
</tr>
</tbody>
</table>

Source: Aberdeen Group, April 2011

Given the variability introduced into processes due to the above challenges, companies need to look at business intelligence solutions as a way to control, manage and mitigate the variability. Business intelligence solutions should provide a window not only into the enterprise processes but also their trading partner processes as well.

In the next chapter, we will see what the top performers are doing to achieve these gains.
Chapter Two: Benchmarking Requirements for Success

The selection of business intelligence solutions and integration of these solutions into the supply chain processes plays a crucial role in the ability to turn these strategies into business value. The following case study identifies how an organization was able to create a command control center for their Chief Supply Chain Officer.

Case Study — Command and Control of the Supply Chain Through Business Intelligence

This case focuses on a mid-size telecommunications equipment manufacturer in the Southeast with revenues of over $600M in FY2010. They are manufacturers of switches, integrated access devices, routers, etc. Their model supports two business divisions – one for telecommunication providers around the globe while the other division handles enterprise corporations through distributors and value added resellers.

The company has a combination of in-house and outsourced manufacturing. They utilize subcontractors in Asia like Celestica and Jabil to fulfill the majority of their volume while they manufacture their complex products in house and launch new product introductions. They have SMT manufacturing lines, final assembly and test at their corporate site. In this way they are able to ensure quality and manufacturability before transferring it to an outsourced subcontractor.

The telecommunication industry has seen significant growth in spite of the recession. However challenges abound. Competition is intense and there are high levels of demand volatility. This company has managed to maintain their growth in this marketplace through cost containment, robust feature functionality and world renowned engineering support services. The company is in the throes of moving from a hardware manufacturer to more of a software engineered solution provider. Over the past years they have reengineered their supply chain from supplier’s supplier to customer’s customer across the total value chain. As a result of this activity they have amassed over 100 key performance indicators in the various functions within the supply chain. All supply chain functions have a requirement of benchmarking their metrics on an annual basis with telecom and non telecom “best in class” companies.

They realized however that their existing infrastructure resulted in several challenges. The current data was found everywhere with proliferation of spreadsheets and point solutions. There were only islands of information available.

continued
Case Study — Command and Control of the Supply Chain Through Business Intelligence

Existing spreadsheet based solutions made it difficult to keep track of the myriad of inputs from sales and marketing. In other words there were “islands of information” and most of their time, up to 80%, was spent on managing data and only 20% was spent on analysis. They were determined to reverse those metrics.

A senior manager within the organization said, “Our problem statement is as follows: there is a lack of ability to quickly provide visibility into near time data to manage the business, through KPI’s, transactional reporting and analysis.”

The company decided to adopt a business intelligence solution to solve the challenges outlined above. They evaluated eight vendors and narrowed down the field to two players; one of which is a best of breed player and the other owned by a large ERP company. They engaged industry experts for analysis, conducted on-site benchmark visits and reference conference calls for the vetting process. As part of this in-depth process the best of breed solution provider was selected due to their quick ramp up process, adoptability, ease of use, and low start up costs.

The process of implementing the solution (and more importantly to make sure that the solution was adopted by the enterprise) was undertaken next. The Program Management office conducted demos to cross functional users (more than 30 members). They presented business assessments to the management team consisting of business case, ROI, expected results, timeline, measurement criterion, program management reviews and contingencies. The core team was expanded to include finance, forecasting and planning, procurement, cost accounting, sales and commissions, and quality.

A pilot was conducted for the sales process where bookings, shipments and revenue were modeled. Once this pilot was successful, a prioritized list of additional functions was identified to expand the tool across the enterprise. The S&OP process and procurement were deemed next on the list.

A recently added unique application added to the solution was an executive dashboard which not only highlighted the internal KPIs of the company but also provided real-time updates on the performance of competitors and market partners.

continued
Case Study — Command and Control of the Supply Chain Through Business Intelligence

The solution has several aspects that differentiate it from other supply chain intelligence solutions:

- The solution extracts reports from the underlying database allowing for easier integration with different applications (e.g. new ERP)
- There is an enhanced ability to understand, rearrange and drill into results on the user’s desktop, by SKU, part number, supplier, product family, and division
- There is a single data point for all metrics, eliminating the need for re-working numbers through Excel

In terms of productivity improvements the results were significant: in accounting and operations it was identified that 100 hours per week were saved amongst early adopters. Senior management said, “With this success and the momentum growing we expect to utilize this tool across the entire enterprise.”

Competitive Assessment

Aberdeen Group analyzed the aggregated metrics of surveyed companies to determine whether their performance ranked as Best-in-Class, Industry Average, or Laggard. In addition to having common performance levels, each class also shared characteristics in five key categories: (1) **process** (the approaches they take to execute daily operations); (2) **organization** (corporate focus and collaboration among stakeholders); (3) **knowledge management** (contextualizing data and exposing it to key stakeholders); (4) **technology** (the selection of the appropriate tools and the effective deployment of those tools); and (5) **performance management** (the ability of the organization to measure its results to improve its business). These characteristics (identified in Table 4) serve as a guideline for best practices, and correlate directly with Best-in-Class performance across the key metrics.

Table 4: Competitive Framework

<table>
<thead>
<tr>
<th></th>
<th>Best-in-Class</th>
<th>Average</th>
<th>Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Process</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to provide executive reports to management</td>
<td>92%</td>
<td>80%</td>
<td>70%</td>
</tr>
<tr>
<td>Ability to accurately forecast demand</td>
<td>85%</td>
<td>73%</td>
<td>54%</td>
</tr>
<tr>
<td>Ability of supply chain staff to drill down from high level metrics to lower level metrics</td>
<td>82%</td>
<td>79%</td>
<td>58%</td>
</tr>
<tr>
<td>Ability of supply chain staff to do root cause analysis</td>
<td>73%</td>
<td>69%</td>
<td>48%</td>
</tr>
<tr>
<td>Ability to analyze supply chain risk exposure</td>
<td>69%</td>
<td>60%</td>
<td>29%</td>
</tr>
<tr>
<td>Ability to track total landed costs as the shipment progresses</td>
<td>59%</td>
<td>57%</td>
<td>36%</td>
</tr>
</tbody>
</table>

“A major challenge that we face is that we do not have a common definition of supply chain metrics across multiple functions. There are multiple owners to the process (manufacturing, procurement and commercial customer service). Also supply chain is prioritized lower than new manufacturing or product technologies.”

~ Manager of Purchasing at Large Industrial Products Manufacturer
### Best-in-Class

<table>
<thead>
<tr>
<th>Organizational</th>
<th>Average</th>
<th>Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Centralized supply chain organization</td>
<td>82%</td>
<td>79%</td>
</tr>
<tr>
<td>Single individual or team responsible for collecting &amp; managing operational data</td>
<td>78%</td>
<td>64%</td>
</tr>
<tr>
<td>Executive position with end-to-end supply chain responsibility</td>
<td>74%</td>
<td>64%</td>
</tr>
<tr>
<td>Open exchange of operational data across business functions</td>
<td>70%</td>
<td>61%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Knowledge / Data Management</th>
<th>Average</th>
<th>Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability of personnel to view the supply chain holistically in terms of linked processes</td>
<td>68%</td>
<td>59%</td>
</tr>
<tr>
<td>Formal programs to coach / train / develop analytical talent in-house</td>
<td>61%</td>
<td>50%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance Management</th>
<th>Average</th>
<th>Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to measure the adherence of the plans to actual figures (e.g., costs, shipments, capacity)</td>
<td>81%</td>
<td>66%</td>
</tr>
<tr>
<td>Ability to measure cross-functional metrics</td>
<td>75%</td>
<td>65%</td>
</tr>
<tr>
<td>Ability to model the KPIs from the previous periods with regards to capacity / resources, forecast accuracy and inventory</td>
<td>75%</td>
<td>71%</td>
</tr>
<tr>
<td>Ability to measure costs at line-item level to perform activity based costing</td>
<td>67%</td>
<td>52%</td>
</tr>
<tr>
<td>Ability to measure and track total BI projects costs vs. budgets</td>
<td>56%</td>
<td>51%</td>
</tr>
<tr>
<td>Ability to measure and track total BI projects costs vs. budgets</td>
<td>54%</td>
<td>52%</td>
</tr>
<tr>
<td>Traditional BI (historical reporting) platform</td>
<td>96%</td>
<td>84%</td>
</tr>
<tr>
<td>Operational BI (real or near real-time reporting) platform</td>
<td>86%</td>
<td>57%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technology Enablers</th>
<th>Average</th>
<th>Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI analytics (e.g., drill-down, slice and dice)</td>
<td>82%</td>
<td>71%</td>
</tr>
<tr>
<td>IT / Systems Integrator consulting services</td>
<td>60%</td>
<td>44%</td>
</tr>
<tr>
<td>ERP modules focused on Supply chain intelligence</td>
<td>56%</td>
<td>51%</td>
</tr>
<tr>
<td>Business Activity Monitoring (BAM) technology</td>
<td>42%</td>
<td>21%</td>
</tr>
</tbody>
</table>

Source: Aberdeen Group, April 2011
Capabilities and Enablers

Based on the findings of the Competitive Framework and interviews with end users, Aberdeen’s analysis of the Best-in-Class demonstrates that they are focusing equally on people, process and technology rather than one or the other. We will make the case for the above through the next few sections where we will walk the reader through the Process, Organizational, Knowledge Management, Performance Management and Technology capabilities of the Best-in-Class and how it differs from Industry Average and Laggard companies.

Process

It is not only important to identify what capabilities Best-in-Class companies are ahead in terms of process but also how long have they been involved. As can be seen in Figure 3, Best-in-Class companies are more engaged and committed in terms of BI initiatives for a longer period of time thus increasing the probability of success.

Figure 3: Length of Time of Adoption of Business Intelligence Initiatives

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Best-in-Class</th>
<th>Industry Average</th>
<th>Laggard</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than two years</td>
<td>34%</td>
<td>24%</td>
<td>18%</td>
</tr>
<tr>
<td>Planning to implement this year</td>
<td>21%</td>
<td>17%</td>
<td>17%</td>
</tr>
<tr>
<td>Between one and two years</td>
<td>18%</td>
<td>18%</td>
<td>17%</td>
</tr>
<tr>
<td>We will begin implementing this year</td>
<td>13%</td>
<td>12%</td>
<td>18%</td>
</tr>
<tr>
<td>Less than one year</td>
<td>7%</td>
<td>6%</td>
<td>9%</td>
</tr>
<tr>
<td>No current or planned activity</td>
<td>4%</td>
<td>22%</td>
<td>16%</td>
</tr>
</tbody>
</table>

Source: Aberdeen Group, April 2011

In Table 5, we can see that Best-in-Class companies demonstrate 15% to 25% more penetration in terms of process capability across the board. This implies that Best-in-Class companies look at the entire life cycle of BI requirements from the Chief Supply Chain Officer (executive role) to the planner (task worker) who deals with completely different levels of process granularity. For example, Sales and Operations Planning (S&OP) is an enterprise wide (or business unit wide) process which requires a level of

“We have limited implementation of a corporate-wide BI tool. Because of this limited implementation it is difficult to use the tool to display SC metrics. There are plans to continue this implementation but it is not happening fast enough (i.e. it is over the course of many years rather than months). It is likely that we will not have full functionality for perhaps one to three years.”

~ Director of Supply Chain, Large Wholesale Distributor
aggregation and data collection that is different from doing cost analysis in a warehouse distribution center.

**Table 5: Process Granularity and BI requirements**

<table>
<thead>
<tr>
<th>Process</th>
<th>Role</th>
<th>BI Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall enterprise wide process (e.g. Sales and Operations Planning, Risk Management)</td>
<td>Chief Supply Chain Officer, VP of Supply Chain</td>
<td>These solutions should provide mapping between operational supply chain metrics and financial metrics, and allow drill-down capabilities into lower-level metrics.</td>
</tr>
<tr>
<td>Analytics and Root Cause Analysis</td>
<td>Information worker (IT staff)</td>
<td>These applications should provide advanced analytics capabilities (including historical analysis and forward-looking estimates) for supply chain specialists, with the ability to perform root cause analysis and to drill down into specific business areas. These applications should provide significant levels of configuration flexibility for modeling business metrics.</td>
</tr>
<tr>
<td>Functional Processes (e.g. Demand Planning, Transportation Planning)</td>
<td>Task worker (e.g. Demand Planner, Supply Planner)</td>
<td>These applications should provide add-on capabilities for business analysts and lower-to-mid-level managers involved in various roles within the organization. For example, an inventory planner’s main goal is to minimize inventory held while maximizing customer service levels.</td>
</tr>
</tbody>
</table>

Source: Aberdeen Group, April 2011

**Organization**

Best-in-Class companies are more democratic in their utilization of BI across the organization, as seen in Figure 4. Also, as we saw in Table 5, the specific BI requirements are different whether it is an executive or an information worker or a task worker. In order to make the availability of reports pervasive, new technology approaches must be adopted like mobile technologies, cloud/SaaS based solutions.

However, governance structures must be enforced for organizational accountability. For example, Best-in-Class companies are 40% more likely than all others to have a single individual or team responsible for collecting and managing operational data. Also, Best-in-Class companies are 35% more likely than all others to have an executive position with end-to-end supply chain responsibility.

A common theme identified at the Aberdeen Supply Chain Management summit 2011 was the fact that more companies are having their Chief Supply Chain Officers take charge of IT spending for supply chain related areas (at least partially if not all IT spend).
Figure 4: Pervasive Availability of BI is Key to Best-in-Class Performance

<table>
<thead>
<tr>
<th>Description</th>
<th>Best-in-Class</th>
<th>Industry Average</th>
<th>Laggard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pervasive, all our supply chain staff have access to role based reports</td>
<td>21%</td>
<td>17%</td>
<td>13%</td>
</tr>
<tr>
<td>Reports are available to the core super user team who also know how to</td>
<td>39%</td>
<td>30%</td>
<td>22%</td>
</tr>
<tr>
<td>make basic modifications to reports</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited, we have canned reports but we have to ask IT team to enhance</td>
<td>29%</td>
<td>31%</td>
<td>40%</td>
</tr>
<tr>
<td>reports</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited, we have to request IT team to provide us the reports</td>
<td>11%</td>
<td>22%</td>
<td>24%</td>
</tr>
</tbody>
</table>

Source: Aberdeen Group, April 2011

Knowledge Management

Best-in-Class companies have obtained significant gains over all others in the area of Knowledge Management. For example, Best-in-Class companies are 30% more likely than all others to have open exchange of operational data across business functions. They are 35% more likely than all others to have the ability of their personnel to view the supply chain holistically in terms of linked processes. They are 40% more likely than all others to have formal programs to coach/train/develop analytical talent in-house.

The following comment from the Director of SCM at a Large European manufacturer sums the challenge that companies face today, "Frequently, we see that supply chain information is information that an individual knows versus information that the company knows. The more we pull this individually known information into the corporate knowledge bank, the more visibility we have into what's happening in the supply chain."

By training the employees to move beyond their own functional areas and understanding the impact of their decisions on the overall supply chain, Chief Supply Chain Officers can create an environment of collaborative decision making. This approach will also result in cross-pollination of talent within the organization across functions such as manufacturing, design, operations, procurement, etc.

"We have our current data everywhere in our employees' minds. We have islands of information resulting in spending 80% of time in data gathering."

~ VP of Program Management at a Mid-size Telecommunication Equipment Manufacturer
Performance Management

When it comes to performance management, Best-in-Class companies have understood that "the devil is in the details." Best-in-Class companies are 25% more likely than all others to have the ability to measure the adherence of the plans to actual figures (e.g., costs, shipments, capacity). Best-in-Class companies are 33% more likely than all others to have the ability to measure cross-functional metrics. Best-in-Class companies are 46% more likely than all others to have the ability to measure costs at line-item level to perform activity based costing.

We are seeing increased focus on utilization of business intelligence capabilities to manage costs at a highly granular level and be able to do root-cause analysis on key cost related performance metrics (Figure 5). The example shows a company identifying root adoption of standards like the Supply Chain Council's SCOR (Supply Chain Operating Reference model). This is recommended to enforce standardization and the ability to benchmark with peers.

Figure 5: Root Cause Analysis on Cost Metrics

Technology

When it comes to technology, companies are facing the challenge of too many existing BI systems and solutions (Figure 6). Over 85% all companies report having some form of a historical reporting platform already implemented. However we see a significant break when it comes to operational BI solutions and analytics solutions. Best-in-Class companies are 72% more likely than all others to have implemented an operational BI solution. Given the increased amount of outsourcing of processes and the
loss of control and visibility that companies are facing, lead-times for decision making have shrunk dramatically. Forty-three percent (43%) of respondents indicated that they need to have the data for making operational decision making with a day. However, only 38% of respondents have the ability to access the critical operational information within that timeframe. There is thus a disparity between the speed at which information is desired versus the speed at which information is available. Operational BI solutions can help bridge that gap.

Figure 6: Technology Enablers for Business Intelligence

Table 6 identifies the current usage of BI solutions and planned usage from a deployment model perspective. Some of the takeaways from this are:

- Best-in-Class companies are across the board more likely to adopt a BI solution irrespective of deployment model
- All companies are more likely to adopt an integrated BI solution or a SaaS based BI solution versus a traditional on-premise stand alone BI solution

These findings indicate that companies are looking to their existing solution provider (ERP or Advanced Planning Solution) or a BI solution that is embedded into existing systems instead of having completely stand alone solutions.
### Table 6: Current and Planned Adoption of Deployment Models

<table>
<thead>
<tr>
<th>Currently Used Deployment Methods</th>
<th>Best-in-Class</th>
<th>All Others</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current</td>
<td>Planned</td>
</tr>
<tr>
<td>On-Premise BI - Web Server Based</td>
<td>54%</td>
<td>15%</td>
</tr>
<tr>
<td>On-Premise BI - Client-Server Based</td>
<td>59%</td>
<td>19%</td>
</tr>
<tr>
<td>Integrated BI (BI functionality integrated as a module or extension within other enterprise applications (e.g., ERP, CRM))</td>
<td>38%</td>
<td>35%</td>
</tr>
<tr>
<td>SaaS (Software as a Service - BI hosted offsite by a third party vendor as single instance (hosted) or shared instances)</td>
<td>21%</td>
<td>58%</td>
</tr>
</tbody>
</table>

Source: Aberdeen Group, April 2011

### DMA Gains Intelligence on Demand-Supply Network Using a Cloud BI Solution

DMA is a national food service distribution cooperative founded in 1986 to provide supply chain services to multi-unit restaurants. Comprised of 11 regional distributors, DMA competes with national broadline distributors including Sysco and US Food service. Annual revenues are $3B USD. DMA distributors purchase products from hundreds of national brand manufacturers such as Cargill, Coco-Cola, Kraft, Kellogg’s, and Hormel and distribute them to leading restaurant operators like PF Chang’s, Potbelly, and Famous Dave’s.

The foodservice industry has seen intense competition and pressure to reduce distribution and transportation costs. The service level requirements from customers are very stringent. Lack of end-to-end visibility into the supply chain is a key gap for chain operators. Recognizing an opportunity to provide value for its customers, DMA has made smart IT investments and process improvements to aggregate data across multiple independent sources in a highly flexible cloud based environment.

*continued*
DMA Gains Intelligence on Demand-Supply Network Using a Cloud BI Solution

There are three roles involved in this solution – distributor (food service distributor), manufacturer (food and beverage) and customer (restaurants). DMA's distributors operate their businesses using their own independent ERP systems which are integrated for DMA into a single platform managed by iTradeNetwork (ITN). Individual distributor SKUs are cross-referenced into a standard DMA SKU number using specific business rules. Heinz ketchup for example will be characterized differently by each distributor but is linked by product number to a specific DMA product with a standard set of DMA managed product attributes (i.e. description, manufacturer item number, pack/size, categorization, etc.). DMA uses a cloud based BI environment to provide hundreds of supply chain managers with insights in product movement, usage and end user compliance. This solution provides self-service for their users.

One use case example of this solution is as follows: DMA partnered with a customer to design reporting that would identify occurrences of non-scheduled product purchases that result in extra deliveries and customer pick-ups. Extra deliveries drive additional expense for distributors and customers alike and reducing unscheduled activity leads to improved supply chain efficiency. The report tree was not intended to provide answers as to why extra deliveries occur but rather help the user detect patterns and areas of opportunity. Information learned from the reports aid in discussions between distributors and store operations personnel to leverage best practices and make other adjustments to reduce occurrences.

The report helped to identify that certain stores were not building orders in an effective manner where products were either missing from orders or ordered in the wrong quantities. This resulted in extra deliveries or will call pick-ups to ensure an adequate supply. These stores were guided to make better use of tools within the order entry system which reduced by 50% the time it took to assemble the orders with improved accuracy.

Another example of how cloud based BI provides extraordinary value is visibility into the movement of products used in Limited Time Offer (LTO) campaigns that many DMA customers deploy to drive traffic. These LTOs often require new products be added to distribution for a short period of time. Ensuring a continual supply of product is critical but making sure no product is left over at the conclusion is a tricky endeavor requiring continual monitoring of product usage at the store level coupled with movement from manufacturer to distributor. DMA provides daily tracking of inventory values to streamline this process.

continued
DMA Gains Intelligence on Demand-Supply Network Using a Cloud BI Solution

The company is using a completely hosted multi-enterprise BI solution. DMA has approximately 60 organizations utilizing this solution. There are 120 to 150 active users with logon credentials to this solution, and $6B of spend is managed in the system. There are 250 to 300M of rows of data in the system.

DMA usage reporting provides the amount of food products used by restaurant location. This can be drilled down to the lowest level of detail, an item on an invoice, or summarized on a national basis. Enhanced KPI scorecard reporting details key metrics on a weekly basis including distribution performance such as quantity ordered, quantity shipped, pre ship fill rate, post ship fill rate, out of stock percent, damage, etc.

Key Benefits of the business intelligence solution include:

- Near real time insight into product movement
- Compliance reporting
- Ad hoc analysis
- Dashboards
- Reducing food distribution costs
- Tracking inventory positions

"We face a significant lack of visibility to global operations. The reason or this is that BI is run separately and a lot of effort is spent in manually consolidating data from various BI solutions."

~ Director of Supply Chain at a Large Apparel Manufacturer
Aberdeen Insights — Selecting a BI solution Provider

The following are the key criterion companies should adopt while selecting a BI solution provider:

a) East of use: Given the need for BI to be pervasive, it should be made easy to use by the line of business users. This is an area that cannot be compromised. While getting the demo from the solution providers, ensure that the supply chain analyst's buy in is obtained.

b) Solution domain expertise: Supply chain requirements are highly variable from industry to industry and also from large enterprise to mid-size enterprise. Given this, the solution provider should be able to demonstrate hands-on supply chain domain expertise.

c) Hidden costs: The solution should not require expensive modular add-ons and user-driven pricing that can increase maintenance costs. The implementation should not require the use of expensive SIs and instead should be implemented by the client team themselves.

d) Risks: The solution should have been implemented in enough client organizations to have gone through the "engine break-in" stage. Ask for customer references not only from a business value gained perspective but also from implementation risk point of view.

e) Impact on IT organization: BI solutions, when implemented within SCM, should not be a massive IT implementation. New deployment approaches such rapid deployment packages, SaaS BI should be explored to cut dependency on the IT organization.

f) Technology: Ideally the technology should utilize fast, in memory, associative data vs. traditional and complex OLAP cubes in order to make sure that your organization is not stuck with obsolete technology.

h) Enabling collaboration: This is a unique requirement for SCM wherein trading partner collaboration is a must for organizations. The solution should support a multi-enterprise model out of the box.

i) Integration: The solution should extract reports from the underlying database allowing for easier integration with different applications, (e.g., ERP or APS solutions).

Keep in mind that technology's goal is to empower the employee and allow faster decision making.
Chapter Three: Required Actions

Whether a company is trying to move its performance in business intelligence from Laggard to Industry Average, or Industry Average to Best-in-Class, the following actions will help spur the necessary performance improvements:

Laggard Steps to Success

- **Improve ability to do root cause analysis.** Forty-eight percent (48%) of Laggards indicate the ability to do root cause analysis versus 73% of Best-in-Class companies. As seen in Figure 5, the solution should model the supply chain metric hierarchy in detail and allow the end user to navigate through the metrics in order to do root cause analysis. In addition to the structured navigation, there should be the ability to do unstructured ad-hoc navigation through the data model.

- **Improve the ability to analyze supply chain risk exposure.** Twenty-nine percent (29%) of Laggards indicate having the ability to analyze supply chain risk exposure versus 69% of Best-in-Class companies. Recent events like the Tsunami and Earthquake in Japan have resulted in the proliferation of supply chain risks from both the supply and demand sides. It is imperative that companies have the ability to consider supply chain risks as part of the regular processes such as S&OP, CPFR etc. In other words, these should not be considered special processes and risk management scenarios be included as part of the day in the life of the planner.

- **Implement the ability to measure cross-functional metrics.** Forty-eight percent (48%) of Laggards indicate having the ability to measure cross-functional metrics versus 75% of Best-in-Class companies. Companies should explore the SCOR model and link the various segments of the supply chain like Operations, Procurement and Manufacturing through cross-functional metrics. Silo-based approaches those individual organizations take (for example, a manufacturing organization looking to maximize its equipment efficiency and a procurement organization trying to reduce spend) must be avoided through cross-functional metrics that the Chief Supply Chain Officers have in their command and control center.

Industry Average Steps to Success

- **Institute a single point of responsibility for managing operational data.** Sixty-four percent (64%) of Industry Average companies have a single individual or team responsible for collecting and managing operational data versus 78% of Best-in-Class companies. However there must be automation of this process to
make it more efficient. One of the reasons why manual methods fail is due to the dependence on external data to run even the internal processes like MRP, S&OP, etc. In fact 50% of respondents have indicated that between 30% and 60% of their ERP data comes from external sources (B2B Integration and Collaboration: Trading Community Enablement for the Multi-Enterprise Supply Chain, March 2010). The top three sources of these external data are suppliers, customers, and 3PLs.

- **Implement the ability to close the loop between plan and actual.** Sixty-six percent (66%) of Industry Average companies indicate the ability to measure the adherence of the plans to actual figures (e.g. costs, shipments and capacity) versus 81% of Best-in-Class companies. This bridging of the gap will result in enhanced responsiveness. With improved operational efficiency in mind, companies need to focus on how to use their BI solution to drive responsiveness in their supply chains. Specific areas of improvement should be prioritized - for example, distribution or warehousing processes, in-transit shipment tracking, visibility into competitive carrier rates or monitoring logistics bottlenecks.

- **Implement an operational BI solution.** Fifty-seven percent (57%) of Industry Average companies indicate that they have implemented an operational BI solution versus 86% of Best-in-Class companies. Being able to take control of or respond to disruptive events is critical for top-performing companies to differentiate themselves further from their competitors. Control can be achieved with the help of tools such as workflow and escalation mechanisms in addition to mere tracking of events, setting up role-based alerts, and increasing the use of supply chain BI.

**Best-in-Class Steps to Success**

- **Institute a C-level Supply Chain Officer.** Fifty-two percent (52%) of Best-in-Class companies have instituted a C-level Supply Chain Officer. Today’s executives at Best-in-Class companies are more likely to be in close touch with the state of affairs across the enterprise, including supply chain and manufacturing operations and their impact on overall business performance. With globalizing supply chains becoming more of a differentiator for truly global 21st century firms, executives now need to closely look at supply chain management dynamics. Executive dashboards need to allow for drill down into higher-level metrics to view more granular supply chain operational metrics.

- **Implement the ability to do profit optimized supply demand balancing.** Fifty-seven percent (57%) of Best-in-Class companies have implemented the ability to do profit optimized supply demand balancing. There are opportunities in this area for process improvement. For example, in the S&OP process, the solution should convert the operational volumes associated with the
traditional S&OP plan real-time into various financial metrics. This will enhance the engagement level of the financial organization.

**Aberdeen Insights — The Best-in-Class are more satisfied with their BI solutions**

Based on the benchmarking of supply chain processes with respect to the end user satisfaction levels of business intelligence technologies, we see from Figure 7 that Best-in-Class companies are more satisfied than all others. Even though the results are along expected lines, there is a deep implication that we need to consider - business value through technology does not necessarily translate to end user satisfaction. In fact, previous experience with end user respondents has revealed a dichotomy where technology solutions that have been raved about by the Chief Supply Chain Officer were not exactly praised by the actual users of the solution. So it is refreshing to see the symmetry in the results.

**Figure 7: Satisfaction Level with Business Intelligence Related Areas**

<table>
<thead>
<tr>
<th>Area</th>
<th>Best-in-Class</th>
<th>Industry Average</th>
<th>Laggard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to access data relevant to my job role</td>
<td>3.62</td>
<td>3.41</td>
<td>2.99</td>
</tr>
<tr>
<td>Response time to information requests</td>
<td>3.60</td>
<td>3.33</td>
<td>3.04</td>
</tr>
<tr>
<td>Ability to create custom views or reports</td>
<td>3.34</td>
<td>3.03</td>
<td>2.62</td>
</tr>
<tr>
<td>Anywhere, anytime access to actionable information</td>
<td>3.00</td>
<td>2.75</td>
<td>2.60</td>
</tr>
</tbody>
</table>

Source: Aberdeen Group, April 2011
Appendix A: Research Methodology

Between March and April 2011, Aberdeen examined the use, the experiences, and the intentions of 150 enterprises using business intelligence technologies in a diverse set of enterprises specifically focusing on supply chain related processes. Aberdeen supplemented this online survey effort with interviews with select survey respondents, gathering additional information on business intelligence strategies, experiences, and results in the realm of supply chain processes. Responding enterprises included the following:

- **Job title:** The research sample included respondents with the following job titles: C-Level executive (CEO, CFO, CTO, CIO) (10%); VP/General Manager (16%); Director (22%); Manager (37%); staff (5%); other titles (10%).

- **Functional responsibility:** The research sample included respondents with the following functional areas of responsibility: logistics/supply chain (34%); operations/procurement (19%); IT/BPM (20%); sales and marketing (16%); corporate management (5%); other areas (6%).

- **Industry:** The research sample included respondents from the four major industry segments - Process, Consumer, Discrete and High-tech/electronics. Key demographics are:
  
  - Discrete (21%): Aerospace/Defense (5%), Automotive/Other Vehicles (5%), Industrial Product Manufacturing/Industrial Equipment Manufacturing (11%)
  - Consumer (34%): Apparel (2%), Consumer Durable Goods/Consumer Electronics (11%), Consumer Packaged Goods (5%), Food/Beverage (5%), Retail (4%), Wholesale/Distribution (7%)
  - Process (15%): Chemicals (2%), Metals and metal products/Mining/Coal/Chemical manufacture (8%), Paper/lumber/timber (2%), Pharmaceutical manufacturing (3%)
  - High-tech/electronics (12%): Health/medical/dental devices or services (8%); high-technology/Computer equipment and peripherals (6%), telecommunication equipment (3%)
  - Transportation/Logistics (9%)
  - Others (9%)

- **Company size:** Forty-two percent (42%) of respondents were from large enterprises (annual revenues above US $1 billion); 33% were from midsize enterprises (annual revenues between $50 million and $1 billion); and 25% of respondents were from small businesses (annual revenues of $50 million or less).

- **Geographic region:** Sixty (60%) of respondents were from North America; 21% were from Europe; 10% were from Asia; 6% were from Middle East/Africa; 3% were from South/Central America and Caribbean.

---

**Study Focus**

Responding supply chain and IT executives completed an online survey that included questions designed to determine the following:

- Process challenges facing supply chains today and what are they doing to measure its performance
- The degree to which business intelligence technologies is deployed in their supply chain operations and the financial implications of the technology
- The structure and effectiveness of existing BI implementations
- Current and planned use of BI to aid operational and re-engineering activities
- The benefits, if any, that have been derived from BI initiatives

The study aimed to identify emerging best practices for BI usage in SCM, and to provide a framework by which readers could assess their own management capabilities.
### Table 7: The PACE Framework Key

<table>
<thead>
<tr>
<th>Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aberdeen applies a methodology to benchmark research that evaluates the business pressures, actions, capabilities, and enablers (PACE) that indicate corporate behavior in specific business processes. These terms are defined as follows:</td>
</tr>
<tr>
<td><strong>Pressures</strong> — external forces that impact an organization’s market position, competitiveness, or business operations (e.g., economic, political and regulatory, technology, changing customer preferences, competitive)</td>
</tr>
<tr>
<td><strong>Actions</strong> — the strategic approaches that an organization takes in response to industry pressures (e.g., align the corporate business model to leverage industry opportunities, such as product/service strategy, target markets, financial strategy, go-to-market, and sales strategy)</td>
</tr>
<tr>
<td><strong>Capabilities</strong> — the business process competencies required to execute corporate strategy (e.g., skilled people, brand, market positioning, viable products/services, ecosystem partners, financing)</td>
</tr>
<tr>
<td><strong>Enablers</strong> — the key functionality of technology solutions required to support the organization’s enabling business practices (e.g., development platform, applications, network connectivity, user interface, training and support, partner interfaces, data cleansing, and management)</td>
</tr>
</tbody>
</table>

Source: Aberdeen Group, April 2011

### Table 8: The Competitive Framework Key

<table>
<thead>
<tr>
<th>Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Aberdeen Competitive Framework defines enterprises as falling into one of the following three levels of practices and performance:</td>
</tr>
<tr>
<td><strong>Best-in-Class (20%)</strong> — Practices that are the best currently being employed and are significantly superior to the Industry Average, and result in the top industry performance.</td>
</tr>
<tr>
<td><strong>Industry Average (50%)</strong> — Practices that represent the average or norm, and result in average industry performance.</td>
</tr>
<tr>
<td><strong>Laggards (30%)</strong> — Practices that are significantly behind the average of the industry, and result in below average performance.</td>
</tr>
</tbody>
</table>

In the following categories:
- **Process** — What is the scope of process standardization? What is the efficiency and effectiveness of this process? |
- **Organization** — How is your company currently organized to manage and optimize this particular process? |
- **Knowledge** — What visibility do you have into key data and intelligence required to manage this process? |
- **Technology** — What level of automation have you used to support this process? How is this automation integrated and aligned? |
- **Performance** — What do you measure? How frequently? What’s your actual performance? |

Source: Aberdeen Group, April 2011

### Table 9: Relationship Between PACE and the Competitive Framework

<table>
<thead>
<tr>
<th>PACE and the Competitive Framework – How They Interact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aberdeen research indicates that companies that identify the most influential pressures and take the most transformational and effective actions are most likely to achieve superior performance. The level of competitive performance that a company achieves is strongly determined by the PACE choices that they make and how well they execute those decisions.</td>
</tr>
</tbody>
</table>

Source: Aberdeen Group, April 2011
Appendix B:
Related Aberdeen Research

Related Aberdeen research that forms a companion or reference to this report includes:

- **Integrated Demand-Supply Networks: Five Steps to Gaining Visibility and Control**: March 2009
- **Multi-enterprise Manufacturing: The Role of Visibility and Collaboration in Driving Responsiveness**: July 2009
- **Cloud Logistics: Solution for Enabling Multi-Enterprise, Cross-Channel Logistics Networks**: May 2010
- **Supply Chain Intelligence: Adopt Role-Based Operational Business Intelligence and Improve Visibility**: Feb 2010
- **Sales and Operations Planning: Strategies for Managing Complexity within Global Supply Chains**: July 2010

Information on these and any other Aberdeen publications can be found at [www.aberdeen.com](http://www.aberdeen.com).

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**Author:** Nari Viswanathan, Vice President / Principal Analyst, Supply Chain Management (nari.viswanathan@aberdeen.com)

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150 Great Neck Road, Suite 400
Great Neck, NY 11021
Telephone: 510.526.0672
www.supplychainbrain.com
kkeller@supplychainbrain.com