Operational Analytics for Logistics, Supply Chain and Transportation:
GRABBING THE BULL BY ITS INFORMATIONAL HORNS
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INTRODUCTION

As a Logistics Professional, you'll probably agree that information management is becoming one of the most important facets of your business.

What you do with your data could mean the success, mediocrity or failure of your business. Transportation and logistics companies need to deliver. Period. And they can do this by delivering on their data.

As you well know, competition in the logistics industry is fierce with new players constantly challenging the traditional way of conducting business. To effectively compete in this industry, organizations must improve operations, distribution, and fleet management to better react to changes in costs, market consolidation, and global competition.

The way you tackle the data management issue will enable your company to manage all the moving parts with unimaginable levels of optimization. You can do this by employing a comprehensive analytics & BI solution, allowing your company to meet and surpass their KPIs, thus improving every measurable facet of the company’s operations.

This same solution can present and share relevant information to internal corporate shareholders with self-service views of their business with you, whether it be delivery services, manufacturing, or supply chain management, allowing everyone the transparency needed for a brighter future.
The Pain of Information Management

"Data preparation is one of the most difficult and time-consuming challenges facing business users of BI and data discovery tools, as well as advanced analytics platforms.

Rita Sallam,
Research Vice President at Gartner"
As a logistics management professional, you are undoubtedly faced with a daily deluge of information that you need to deal with. This is in addition to maintaining smooth operations. Your work is multilayered and includes auditing and validating route maps, approving fuel expenses, securing the safety of fleet staff, as well as fleet loading.

Without the operational aspect of the logistics professional, data management alone can be quite a chore. A chore that is too often mismanaged, not due to personnel as much as lack of a necessary analytics solution.

Market dynamics present you with a wall of ever-mounting challenges, most of those challenges grounded in the management, or as in many cases, the mismanagement of data.

Manual processes leave management with no option but to labor in time-consuming, mundane, and repetitive tasks that often take your focus off the details.

In industries such as transportation and logistics which operate in a dynamic market, shippers expect only the best customer service coupled with constant visibility. Thus, the sharing of relevant information with clients is also imperative to maintain the smooth delivery of goods. In a crowded market, logistics companies must maintain that data edge.

Companies in the logistics space need to invest in a data management solution that delivers timely information on-demand to those who need it most. A solution should deliver easily digestible visual analytical reporting, graphing, mapping, drill-down, modeling and benchmarking tools necessary to achieve ongoing business process optimization.

A comprehensive BI solution needs to help industry players retain and grow their client and supplier relationships by a large percentage, constantly building upon that percentage. Only a solution that helps them uncover insights in their supply chain in minutes, rather than weeks or months, can achieve this.

In a 3PL Survey, 70% of respondents stated that “improving logistics optimization” proved to be the best use of data analytics in the logistics arena. 

THERE IS NO DOUBT THAT OPTIMIZATION IS TOP OF MIND.
THE CHALLENGES

Having a sound data management/BI solution in place is imperative to focus on those KPIs that mean the most to your business.
Effective KPI Measurement

Every business in the world has KPIs. They might not know about them or how to address them, but there are so many indicators to measure the health of a business, it is mind-boggling. Being able to uncover timely and granular data insights is imperative to focus on those KPIs that mean the most to your business.

One of the main difficulties with this KPI challenge, especially when using Excel spreadsheets and lesser means of analyzing data, is that KPIs are unable to be measured efficiently and presented in a comprehensible manner.

Companies feel the pain when ignoring KPIs in both the financial and/or operational areas. They feel this pain when KPIs suddenly rear their sorrowful heads at the most inopportune moments, like the annual board meeting. This can indeed be the scenario when an effective BI solution is not a part of your business improvement philosophy/environment.

Such vital KPIs as Total Delivered Cost and Customer Service are vital as they help determine overall profitability for a company.

Say, for example, your fuel costs for a given route are rising, even as the price of petrol has dropped. Why explain it to upper management when you can avert it by monitoring the correct KPIs. Instead you could optimize fuel costs and be dubbed the KPI hero!

Below are just a few of the KPIs that can be monitored and tracked in a business analytics solution for the logistics/transportation space:
**Total Delivered Cost**

This is one of the two enterprise-level KPIs (the other being Customer Service) that helps determine overall profitability for a company. Factored into this high-level metric are operating costs, demand variability, supply variability, and inventory. One of the ways to support total delivered cost measurements is with a complementary metric on total cycle time, which measures the total amount of time it takes for a product to pass through the supply chain.

**Demand Variability**

Demand variability is comprised of measurements for inventory, lead times, adherence to process capability, improvement to process capability, conformance to plan, actual demand versus forecast demand, forecast accuracy, and forecast error.

**Operating costs**

All departmental costs are rolled up in this metric, including distribution costs, procurement costs, warehousing costs, transportation costs, and manufacturing costs. From these, it is possible to calculate the cost of goods sold, cost per unit, or cost per kilogram, which are all useful KPIs relative to total cost.

**Supply Variability**

Supply variability KPIs measure the status of inventory against conformance to lead times and promise dates. Included are metrics for performance to the production plan, schedule attainment, asset utilization, capacity utilization, vendor deliveries, and item availability at all stocking locations (including the customer’s location).

**Customer Service**

This KPI is also monitored at the enterprise level and is comprised of demand variability, supply variability, and performance to plan. The favored approach to measuring customer service in its broadest sense is with metrics for on-time full deliveries or line item fill rate, which are the most meaningful aspects of customer service. The overall goal of the two enterprise-level KPIs is to manage Total Delivered Cost and Customer Service against the strategic goals of the company.

**Inventory**

Metrics which support the inventory KPI are in the areas of total inventory: inventory turns, record accuracy, obsolete inventory, working inventory, non-working inventory (along with working inventory which measures the quality of your inventory), and item availability.

**Performance-to-Plan**

Within this KPI are measurements for how well the company has adhered to the procurement schedule, the distribution schedule, the warehousing schedule, the transportation schedule, and the manufacturing schedule.
**SECURELY SHARE DATA WITH CUSTOMERS**

There is lots of data to be shared. Ensuring that relevant data gets delivered to those who are privy to that data and need it in a timely and comprehensible visual manner is key. Being able to glean data insights instantly to make critical business decisions is paramount.

Any piece of client data - such as carriers, contracts, routing guides, locations, orders, inventory, shipping, event management, invoice details, cost center coding & logic, audit logic, payment data, or payment status - can be very valuable for your customers to analyze and find insights in. Clients designate which users have access to each application and dataset by specifications such as region, division or department.

Here are just a few examples of what can be shared in each category:

<table>
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<th>BUSINESS PLANNING</th>
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<td>• Supply planning</td>
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<tr>
<th>MANUFACTURING OPTIMIZATION</th>
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<td>• Manufacturing system optimization</td>
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<td>• Carrier sourcing analytics</td>
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<td></td>
<td>• Logistics command center</td>
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**SECURELY SHARING DATA IS A TWO-WAY STREET**

*By creating transparency and data sharing with all the stakeholders in the process, you can improve efficiencies and reduce costs even further. This will also make your customers and clients great enthusiasts of your platform and allow you to improve your customer service.*
Timely Data Access

Sometimes there is more data than what is immediately needed, or needed at all. However, most businesses know which datasets need to be viewed as soon as that data enters the system.

Real-time analytics empowers businesses to react instantly. Problems can be averted, opportunities can be seized. Immediately.

Be wary of analytics performed in batches that take hours or days for processing and delivery in a comprehensible format. The after-the-fact insights derived from lagging batch data can produce incorrect indicators.

Real-time analytics, or near real-time analytics, is where you want to be. It gives businesses intelligent insights, at the exact moment, allowing you to react quickly and efficiently. The way you harness this data can lead to never before reached levels of optimization in manufacturing, warehousing, and logistics.

A real-time analytics solution can empower businesses to react immediately. Problems can be averted; opportunities can be seized.

IMMEDIATELY.
THE VALUE OF A FULL-STACK ANALYTICS & BI SOLUTION

“Broader supply chain visibility and timely, fact-based decisions increase market share and growth opportunities.”

Gartner
For companies that provide transportation and logistics solutions using both LTL (Less Than Truckload) and Dedicated (larger cargo that requires dedicated capacity), a single, full stack analytics solution will prove the most beneficial.

These types of companies benefit from optimizing business aspects that impact a number of different areas:

- Dynamics of weather
- Fuel cost fluctuations
- Vehicle usability due to repairs

The road to optimization flows through your data management solution and gives you the edge you need to overcome these roadblocks. All data - from sensors on your delivery trucks to vehicle maintenance schedules to weather data - can be looked at as soon as the data enters the system. You'll be able to look at current data, compare it to historical data, and make decisions to optimize the business.

For companies that provide 3rd Party Logistics, or 3PL, a full stack analytics and BI solution can integrate with customer systems, standardize business rules, and optimize workflows while managing freight audit, payment, safety, and compliance. Sometimes these companies own their fleets, others have partnerships with different fleet owners, and often companies do a combination of both.

The graph below provides you with a visualization of the most vital facets for companies that provide 3PL.

![Graph showing the most vital facets for companies providing 3PL] 

Source: Capgemini Consulting State of Third-Party Logistics Study
The value of implementing an analytics & BI solution in companies who offer 3PL is two-fold:

- Integration with multiple current systems, legacy systems, and databases
- Provide comprehensive real-time reporting by harnessing data from those data sources

For companies that offer software that manages shipping, transportation, and logistics, or TMS (Transport Management Systems), an analytics & BI solution connects to all aspects of the inbound and outbound transportation network. Take CTSI-Global as an example. CTSI-Global provides the TMS applications to improve visibility and streamline transportation execution from order to payment.

The value to these types of companies is the ability to embed analytics into their applications. This enables customers to access information on demand in order to increase visibility into the effectiveness of their own business operations.
USE CASES

"Embedding Analytics is the future of securely sharing the right data with your customers so they can fully benefit from it."

Innovation Enterprise
Embedding Analytics to Deliver Valuable Insights to Your Customers

One of those customer-centric value-added services that could put a company ahead of the competition is the ability to add analytics into their application that allows customers to access information and analytics 24/7 online. In doing so, companies can provide their customers with a streamlined way to realize maximized visibility into their businesses.

CTSI is the world's largest privately held freight audit and payment services provider, specializing in supply chain management expertise and technology. Each day they process between two and four million freight invoices. Their customers were interested in reporting and analyzing this data that, in effect, represented an important part of their business activities. With the vast amount of data that CTSI was pulling in each day through millions of invoices and bills, they wanted to find a system that could visualize this data for their customers and provide a place where their customers could track key trends in the shipping industry.

CTSI was eager to find a way to visualize the data so customers could pull key information and trends. Using an analytics platform, CTSI easily visualized data to show shipping trends, provide a deep analysis into customer transactions and invoices, and create a system that encouraged team members to login and examine the data. CTSI required a platform that their customers would actively sign into in order to track those trends. Getting the service personnel on board to regularly check the data was a must in order to provide the best analytics and data information.

The ability to access data in real time allows their customers to view data by the hour and regularly determine whether they are on track to hit their daily billing goals. With a test group of around 20 members, CTSI managed to glean a good idea of what data was most important to their clients and figure out more ways to mine this information.
Comprehensive Reporting from a Myriad of Sources

Another challenge for companies is in comprehensive reporting. Utilizing software that collects millions of data points per customer only gives you so much. Being able to report on all this analytical data collected in a timely manner is where most solutions come up short.

Going further, lacking a comprehensive BI solution could frustrate customers who demand intensive visualization and reporting. No manual reporting process can make up for this.

eTT Aviation, specializes in airline crew and flight schedule management solutions. Its two products, SkedFlex and Crew Companion, support tens of thousands of aviation professionals at global, regional, cargo and charter airlines. As eTT’s suite of products evolved, so too did the need for ever more sophisticated reporting. In fact, the need for comprehensive business intelligence rose to become the most requested feature among both existing and potential customers.

But creating sophisticated reports the old-fashioned way was tedious, time-consuming, and brittle. Reporting criteria had to be established, programmers had to manually create each report, and delivering customer requested changes meant more programmers time, effort, and expense.

eTT Aviation chose to share business intelligence with powerful embedded BI while saving scores of development hours per month to build this platform in house. eTT’s new business intelligence platform frees customers to create their own reports to resolve problems in real time and for later analytics. Customizable dashboards allow customers to modify reports to meet their individual needs and lessen the burden on programmers, saving countless hours that are better spent on eTT’s core product development and improvement.
Embedded Analytics in Action

Existing and potential customers were requesting comprehensive business intelligence as a feature of the product.

The analytics engine was integrated with the existing PHP platform and PostgreSQL database.

Intuitive viewing dashboards were setup to access personalized customer data.

IT developed a web interface for customers to access their new analytics insights.

Customers create their own reports for analytics and to resolve problems in real time.

The company is now in a more competitive market position, concentrates on it’s core efforts, and gives customers exactly what they need.

eTT Aviation was able to gain powerful embedded BI while slashing the scores of development hours needed to create manual reports each month.
Enabling Data-Driven Decisions with Holistic Views

While many companies provide warehouse floor personnel with data related to customer shipping, they experience challenges in providing visibility in day-to-day performance. What is needed is the ability to provide management with a holistic and analytical way that empowers drill-down capabilities to make those data-driven decisions.

With customer data coming from many disparate sources and formats such as SAP, Oracle, Excel, and proprietary legacy systems, it’s quite challenging to pull the data from so many systems and present it in a real-time holistic fashion.

More so, when data needs to be sent to transportation and customs clearance officials, logistics data flows bidirectionally. This creates a black hole of scattered data between sellers and a plethora of shippers, all of whom have their own unique way of working and storing data.

Creating extensive dashboards that can deliver a holistic view of all this data is imperative. These dashboards need to be created in hours not days, and much of the time they need to be made available for nontechnical personnel, so a solution needs to be super intuitive.
Utilizing Maximum Automation, Transportation, and Organization

A transportation management software company delivers multi-carrier shipping solutions for corporate clients throughout the world. They help large international shipping companies manage the transportation of products through local partners with maximum automation, transparency and organization. They handle over 60 million packages a year through their software, creating over 300 million transactions per year, which means they are processing tens of millions of data records every year. While the quality of the data was very good and useful for facilitating that movement, they had no ability to glean insights from it.

They have been very successful over the years at improving their customers’ shipping execution. They have integration technologies that can enable transportation managers to see if an order has shipped, what’s happening with it, and if there are any issues that need to be attended to. This tactical system has worked great for employees on the warehouse floor. Furthermore, senior management were able to look at the data in a holistic and analytical way in order to drill down and make data-driven business decisions.

However, they wanted to show insights and share data from their information as a service to their clients. It needed to be easy to use and would cover all the clients’ requirements for the vast amount of complex data they needed to gain insights from.

TRANSPORTATION MANAGEMENT COMPANY BOOSTS SALES OFFERING WITH ON-THE-SPOT DASHBOARDS
CONCLUSION

Transportation and logistics companies are one of the most intricate businesses around with complicated processes and multiple data sources. These businesses need to be able to measure their own KPIs, as well as deliver knowledge about all these complicated systems to the different agencies involved and to end users and customers. Those T&L companies that take on a data-driven approach to their business, and provide transparency and self-service analytics, not only improve efficiencies and customer support but take on a competitive edge in the market that helps propel them to be leaders in their field.

How Sisense Single-Stack™ Technology Helps Transportation and Logistics Companies

1. Sisense has helped customers attract, retain and grow their client and supplier relationships by over 50% by helping them uncover insights in their supply chain in minutes, rather than weeks or months.

2. Patent-pending technology helps clients go-to-market 3-4x faster by drastically reducing implementation times and cost for embedded analytics in their supply chain tools.

3. Sisense's solution provides a highly customizable white label product that can be rebranded and rapidly deployed.

4. Sisense helps clients increase their company’s win ratio by 50%, reduce customer churn and create a market differentiator by helping them embed analytics in their offering.

Explore Data in Sample Dashboards

See interactive BI dashboard reports in action on sample data.

Get a Real Feel for Sisense

Interact with live Sisense BI dashboards - drill down, filter and customize your data.

Take the Ultimate Test

Go from data to dashboard with your own data in just 90 minutes.

Interact with Live Dashboards

Start Your Free Trial

Schedule a Custom POC