

Based on the continuous collection of data, real visibility or, rather, business intelligence can do more because it provides historical, current and predictive views of business operations

Improving the supply chain through business intelligence

■ Excellence in execution starts in the boardroom



Logistics used to be a fairly straightforward process to fulfil customer orders, a backroom activity. But the days when deliveries could be arranged by phone, fax and a basic system to generate paperwork are long gone. Considering the complexity and the cost of today's supply chain networks, the right systems and IT infrastructure must be in place to connect suppliers, service providers, customs authorities, carriers, distribution centres and customer sites, and to exchange and process the required business transactions between all parties.

Supply chain management today involves comprehensive business strategies and visions to streamline processes from global procurement to fulfilment, automate processes, improve service delivery, increase operational efficiency, reduce stock and waste, optimise customer satisfaction, expand the network and grow the business.

That is why logistics or supply chain management as a whole has become a major focus for board-level decisions and future growth strategies, and a crucial factor in today's annual business plans and vision statements. It also, importantly, represents a key area of cost-cutting opportunities.

Increasing cost-effectiveness in the supply chain is on the agenda of probably every company that is involved in shipping goods, and there is still a lot of room for improvement. On average, 6.8% of a company's turnover is spent on freight costs for procurement and distribution. Up to 10% of this spending could be saved through transport consolidation and optimisation, as well as by an automated selection of the least expensive transport service provider. A further 8% could be saved through a state-of-the-art freight management system.¹

The right IT solutions achieve cost-effectiveness and improve reliability and accuracy in the supply chain by automating manual, ineffective and error-prone processes. IT solutions for logistics execution are deployed at different levels of maturity by most companies. More and more companies using best-in-class systems are realising that, when used in conjunction with a business intelligence solution, the cost reductions achieved through such systems can be even greater. It is no surprise that Gartner's Executive Programs CIO Survey in 2009 ranked business intelligence as the topic most important to CIOs for the fourth consecutive year. Board-level executives have moved to the next stage of continuous improvement of the supply chain.

Next level of continuous improvement

Supply chains are under constant adjustment: on an ad-hoc basis to resolve sudden challenges, on a regular basis to react to changing requirements and as part of a continuous improvement process. But how can we improve something that cannot be seen clearly? Visibility is required, or, even better, business intelligence.

Business intelligence involves more than the tracking and tracing of processes; it is also a bird's-eye view of process parameters, costs and performance indicators, allowing for informed decisions that can structurally improve business. To gather all these data requires excellence in logistics execution. The more advanced the logistics execution and in-depth processing of data, the more detailed and accurate the business intelligence.

The generic improvement cycle for all processes works like this: processes are planned and then executed, the outcome of the execution is checked and – based on the results – the planning is adjusted so that execution is further improved. In this context, it is necessary to add another improvement cycle at a higher level. Excellence in execution provides the increased detail and broader scope that is required for the business intelligence to feed back into improved checking and planning, improving the outcome of these steps. This, and the direct influence of business intelligence, will have a greater positive impact on the improvement of the execution. Optimised execution will in turn enhance the business intelligence.

- Supply Chain
- Transport Planning
- Rail
- Active Travel & Travel Planning
- Bus & Coach
- Ports Maritime Waterways
- Freight Forward
- Aviation

As a result, the inner continuous cycle of improvement can be lifted to the next level: from resolving single failures in the supply chain – fixes in the system – to more reliability, accuracy and cost-effectiveness in the supply chain – fixes to the system.

Improving logistics execution

The first step to achieving this next level of continuous improvement in the supply chain is excellence in logistics execution, comprising all processes and tasks involved in the supply chain, such as order fulfilment, procurement, warehousing and transportation.

But where does excellence in execution come from? Any IT solution should offer features that help to realise cost-saving opportunities and increase accuracy and reliability, such as order management, warehouse management, transport management, and collaboration and visibility. This is the basis for gathering business intelligence that is needed to establish the next level of a self-improving cycle for the supply chain, such as order processing times, number of false or incomplete deliveries from suppliers, turnaround or shelf life of items in the warehouse, freight spending for each transport and number of delayed deliveries for each forwarder.

At this stage the information is pure data. To make it useful, the data needs to be aggregated and converted into key performance indicators (KPIs) that are deemed important for the business. As a key prerequisite, logistics execution solutions must support a vertical expansion of the data collected along the way. In other words, data must be interconnected within an object model in the solutions.

Business intelligence for better visibility

These solutions for excellence in execution help to achieve visibility that provides information on the current state of the supply chain. Based on the continuous collection of data, real visibility or, rather, business intelligence can do more because it provides historical, current and predictive views of business operations.

The goal of business intelligence in the supply chain is to process data for the calculation of KPIs to determine the performance of, for example, processes, departments and/or partners, to detect weak points in the supply chain, and to serve as a foundation for business decision-making. For this purpose, business intelligence provides an overview of the business, consisting of:

- Scorecarding and dashboarding
- Reporting, analysis and advanced predictive analytics
- Planning, budgeting and forecasting

All this information is aggregated in different ways to match the specific needs of various departments – for example, sales, marketing, procurement, finance, manufacturing, operations and IT – as well as external supply chain partners. To serve all these departments, it is necessary to integrate data originating from the enterprise resource planning (ERP). Ultimately, it is all about providing the right information to the right party at the right time. This defines the value of the information.

Categories of KPIs in the supply chain

The first step to introducing business intelligence is to define its goals. What information is important to the business and what information can help improve performance and/or reduce costs? The top five categories for KPIs in the supply chain are:

- Reliability of the supply chain
- Flexibility of the supply chain
- Ability of the supply chain to respond
- Costs of the supply chain
- Efficiency of asset management in the supply chain

These categories are fed from various source systems, each representing important characteristics of how the supply chain is performing. With increasingly long supply chains, lower buffer stocks, shorter product cycles



Boardrooms have traditionally been empty of representatives of logistics functions. Developing complex global supply chains means it's now essential for successful companies to have a higher level of contact with the logistics team.



As the strategic dimension of the supply chain becomes evident, decision-makers require business intelligence solutions to provide full visibility, with accurate and complete input from execution systems, to meet global challenges and achieve a competitive advantage



and the accompanying importance of reaching the points-of-sale at the right time, the reliability of the supply chain is becoming a top challenge for organisations.

Challenges

Business intelligence is about pooling data from various systems and partners. To get this organised, some challenges must be addressed before and during the introduction of a business intelligence solution. They can be divided into three main areas:

1. Data procurement

- Different partner and source systems: ERP system and execution systems, finance and controlling (FICO), Excel, relational database management systems (RDBMS) – the greater the number of different systems involved, the greater the requirement for data conversion
- Different understanding of key figures – for example, are the costs for transporting goods to overseas customers only the costs for the pure transport or do they also include components like import duties?
- Co-operation of all parties in getting the right data: some parties might not be supportive in disclosing the real process data and may put a gloss on it first
- Data volume: depending on the depth of business intelligence data capture, the amount of data gathered can be large – the IT structure must be set in a way to handle the data volume

2. Data transformation

- Transformation of data from a record view to an analytical view – that is, allocating freight costs to transports, products or business units, for example

- Aggregation of data into various levels – that is, consolidating data according to the specific needs, on product level, country level or business unit-level, for example
- Making the aggregation levels graphically visible so they can be easily understood by the users – a multi-dimensional perspective
- Online calculation of KPIs from basic input parameters

3. Data quality

- Merging different master data derived from different source systems – alias concept; the same master data might sometimes follow different naming conventions and different values
- Different data formats – for example, time and date
- Removal of duplicate data: unfortunately, most system landscapes that have grown organically contain a lot of duplicate master data or customer data, etc
- Filling of data gaps: sometimes there are information gaps for certain time periods, particularly before such systems are introduced
- Plausibility check, elimination of outliers in data: before data capture processes run smoothly, outliers in data are more likely to be present – often the root causes are errors due to real-life exceptions, different formats or single misinterpretations

Resolving these challenges requires a high level of management attention, a trained project team and, most likely, support from the solution vendor.

Benefits

After introducing a business intelligence solution that is based on excellence in logistics execution and after resolving the above-mentioned challenges, full visibility of supply chain operations can be expected. This means a better level of control over KPIs for the different areas of execution – for example:

1. Warehouse management system (WMS)

- Stock turnover: this can be examined at product level – handling of identified fast-moving goods can be optimised within the warehouse operation
- Cash-to-cash cycle time: products with cash-to-cash cycle times above average can be identified – individual times for subprocesses can be examined in detail for possible improvements to the cash flow
- Inventory aging: product shelf time is made visible and helps optimising stock and avoiding loss of value
- Out of stock situations: WMS by itself helps keeping minimum stock levels – order management (OM) helps forecast for optimised stock levels

2. Transport management system (TMS)

- Export ratio: major markets can be clearly identified
- Forwarders volume per month/per year: freight spending on each forwarder are provided – this can be drilled down to specific trade lanes and clients, which will support the business during new tenders for transportation services
- Freight simulation: new quotes from forwarders provided during a tender for transportation services can be checked using shipment data – for example, comparison with the previous year in order to determine cost differentials precisely
- Accrual of freight budget: based on historical freight spending and actual and forecasted orders the expected freight spending can be calculated and accrued
- Determination of landed cost at product level: improves the transparency of overall costs for the procurement or sale of goods

3. Collaboration

- Delivery in full, on time (DIFOT): to assess delivery quality in terms of, for example, correctness and timeliness, split by products, forwarders and business units

- Shipped on time (SOT): the shipping performance of own operations can be measured and bottlenecks identified – for example, broken up in products and business units
- Fulfilment rate by forwarder: to determine and compare the service levels of different forwarders
- Fulfilment rate by lane: to identify quality issues on certain trade lanes

4. Order Management (OM)

- A cross-divisional solution that accompanies the processes throughout the three solution areas listed above

Conclusion

The risks involved in today's supply chain and the potential cost they represent mean that excellence in logistics execution and business intelligence are now highly interconnected. As the strategic dimension of the supply chain becomes evident, decision-makers require business intelligence solutions to provide full visibility, with accurate and complete input from execution systems, to meet global challenges and achieve a competitive advantage. Conversely, only excellent logistics execution systems are able to implement fully the profound and sustainable decisions made with the help of business intelligence. Together, these two areas give access to a new level of continuous improvement to the supply chain and thus help companies to achieve sustainable growth and a competitive edge.



Welcoming the head of supply chain to the board room ensures better business intelligence

ESSENTIALS

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Further information

For more information about the issues raised in this article, why not join our Data Capture & Information Management Forum or our Supply Chain Integration Technology Forum? See our website www.ciltuk.org.uk for more details.

Reference

1. Sources: Aberdeen Group, 2007; Gartner Research, 2010