

Drive automotive operations in the fast lane with business intelligence



Sanjay Mehta

Maximise insight for better decision making — better information drives better business outcomes: Business Intelligence (BI) helps automotive companies move into overdrive with improved financial visibility in the business performance and increased efficiency of the business users.

The automotive industry today demands more than just the blending of iron and steel into a car. Given the fiercely competitive nature of an industry working to balance demand in new markets with overcapacity in others, effective use of information is vital to success. Business users have to be given access to actionable piece of information in forms that support the long term goals and needs of such companies.

Intense competition and economic downturn has put

downward pressure on automotive profit margins and tightened the windows of opportunity for new product introductions. Automotive companies continue to respond by globalising their supply chains in search of lower costs. These longer and more complex supply chains present a number of substantial business and financial challenges, including:

- o Design-centre-to-dealer time-to-market performance
- o Demand for more innovative products from increasingly sophisticated customers
- o Excess inventory and an incorrect inventory mix in the distribution channels (which can lead to further margin-eroding sales incentives)
- o Long and inflexible lead times for critical parts
- o Warranty and aftermarket demands

Automotive companies need the ability to continuously move manufacturing capabilities

between different locations and suppliers, while increasing quality, innovation, and productivity. They need a proven combination of shared services, logistics and outsourcing, so that they can reduce costs, cope with volatile markets and still deliver profits.

BI gives meaning to data: Having a solution geared to overcome local business challenges brings many benefits — like accelerating time to market for new products to stimulate continuous demand.

Successful automotive company requires a continuous stream of real-time updates of customers, suppliers and competitive information. Decision related to sales and quality management, product development, and production planning and manufacturing are dependent on timely and accurate information. BI in the hands of business users enables them to create an environment that produces proactive and actionable business insights. Capturing and sharing actionable BI is critical to achieving desired automotive business outcomes, specifically improved product innovation, quality, and overall customer experiences.

BI solutions enable automotive companies to optimise business outcomes by:

- o Speeding product innovation
- o Improving the quality and timeliness of business decisions
- o Expanding the use of information and improving collaboration across a global supply chain
- o Improving supply chain visibility and minimising production disruptions
- o Reducing supply chain and other operational costs
- o Increasing customer revenues, satisfaction and retention
- o Managing risk and maintaining regulatory compliance
- o Reducing excessive warranty costs and helping to improve product quality

BI improves business performance: BI helps automotive companies achieve a number of important business performance improvements, including:

- o Reducing waste and costs
- o Driving product innovation
- o Improving customer satisfaction

- o Adapting to change
- o Using data to identify business and process improvements
- o Increasing knowledge management

BI is highly sought after in most organisations. Business leaders want to obtain real metrics in near-real-time, linked directly to the business processes, system data and insights from people. The insights derived can be continually optimised, driven by business users and their increasingly rich knowledge of how to derive more intelligence and more value from the silos of data available to them. The resulting visibility and business insight helps all aspects of the business, whether by driving improved product development from field and warranty data, improving manufacturing operations by highlighting waste and the reasons for lost production, or increasing efficiency in complex global supply chains.

Outsourcing and cutting edge technology can eliminate waste, across both supply and manufacturing chains. They help capture a greater share of the aftersales market to build customer loyalty and operate efficiently. With BI,

automotive business can be more profitable than ever.

Key Performance Indicators (KPI)

Automotive industry is involved in the design, development, manufacture, marketing, and sale of motor vehicles. BI creates analytical reports that work backwards from KPIs that are directly linked with business objectives. KPIs could be associated with virtually any kind of performance objective, including improving delivery performance given optimised inventory levels, creating a leaner supply chain, reducing spare part inventory levels, shortening the new product design process, and improving collaboration with suppliers. The typical KPI in automotive industry could be:

- A) Efficiency of SCM operations
 - Inventory Turns
 - Total costs
 - Use of Technology
 - Document issues
 - Supply chain disruptions
 - Supply/demand imbalances

Asia Motor Works Uses BI to Cut Costs

Take an example of Asia Motor Works (AMW) using SAP for various business processes like planning, purchase, production, sales, and finance on Oracle 9i database. However, the SAP standard reports used were not sufficient, especially for the senior management, who required data for comparing two different horizons on the same data set, for example, warranty cost of products vis-à-vis sales, purchasing trends vis-à-vis sales, sales vis-à-vis product costing.

This emphasized the need for the availability of user friendly MIS reports. Even operational users required ad-hoc analysis capability with slice and dice, drill-down, drill-through like functionalities. Insufficient data access slowed down collaboration and dragged down AMW's users' efficiency in turn making business processes more expensive. And with the recession casting its spell, led AMW to adopt IKEY BI.

The benefits that BI brings are hard to miss. With improved visibility into business performance, AMW expects to grow by 10 percent year on year and also increase

its market share. 'IKEY BI's access to SAP and non-SAP information fulfils every department's needs, aiding quick decision-making. Costs have reduced by 20 percent and employee productivity has increased by 25 to 30 percent,' said VP-IT, Asia Motor Works, Umesh Mehta.

With BI, AMW can now clearly correlate low sales volumes with high warranty cost in certain products and spot trends quickly, predict risk more accurately and manage inventory more efficiently, giving them a definite competitive edge.

AMW has noticed significant improvements in the bottom line including increased productivity, material cost savings, and a more agile strategy development process with immediate insight into business performance metrics that will help drive future success. IKEY BI has improved the quality of information as now it was easier to notice clear trends by linking two data sets. Sophisticated information management of the company's data helps spot trends more quickly, predict risk more accurately and manage inventory more efficiently.

- Operating environment
- Outsourcing and off-shoring production
- Manufacturing cycle time
- B) Productivity and Competitiveness
 - Production equal to demand (supply vs demand curve)
 - Velocity and flexibility
 - On-time delivery
- C) Costs
 - Logistics wage
 - Inventory Carrying Costs
 - Outsourced logistics cost
 - Internal logistics cost as a percentage of GDP (gross domestic product)
 - Cost per unit
 - Opportunity costs
 - Shrinkage
 - Insurance and taxes
 - Total obsolescence
 - Distribution costs (warehousing)
- D) Monitor Business Operations
 - Percentage of logistics outsourcing
 - Eliminate /reduction of waste
 - Project time frame
- E) Effectiveness of Business Control
 - Fill rate
 - Forecasting
 - Gross margin
 - Total operating revenue
 - Cost of goods sold
 - Hub (logistics network)
 - Just-in-Time
 - Lean logistics
 - Radio frequency identification (RFID)
 - Lead time
- F) Inventory Management
 - Inventory turns ratio
 - Raw materials availability
 - Finished goods in hand
 - Total costs

Economic downturn has further tested the ability of automotive companies to accommodate abrupt and steep demand fluctuations. As the spotlight increasingly turns toward supply chain performance to enhance profitability and competitiveness, automotive supply chains

are being hit by a relentless stream of disruptions, including:

- Mergers, acquisitions, and divestitures
- Dramatic changes in demand
- Changing partnerships
- Supplier restructurings
- Frequent footprint modifications that break existing supply chain linkages
- Tighter budgets due to financial and economic pressures

These disruptions affect the entire organisation, not just supply organisations. Due to industry globalisation, demand fluctuations can jeopardise a company's profitability or even its survival. Existing supply chain processes and systems, while relatively sophisticated, are too functionally isolated: manufacturing data is separate from design data, which is separate from sales data, and so on. These systems are also too sluggish because they operate using largely historic (often month-old or longer) data.

Important BI capabilities for an automotive company

BI is a breakthrough technology for collecting and sharing data. While BI does exploit technology advances, it is primarily a powerful analytical framework for using information to establish a much more adaptable, dynamic supply chain. The following BI capabilities can be of particular importance for automotive companies:

- Enhancing visibility to data and data-sharing capabilities
- Creating information-empowered end users
- Improving planning efficiency by using real-time versus after-the-fact data

Enhancing visibility to data and data-sharing capabilities

Large automotive companies typically have one or more enterprise resource planning (ERP) environments. BI helps such

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companies provide information from different perspectives. BI is superior to ERP reporting capabilities because it uses advanced analytic capabilities focused on empowering managers to make more effective decisions over time. BI reports differ from ERP reports because they utilise data from functional areas across the supply and demand chains, including suppliers. Reports from ERP tend to be very function-specific and siloed. BI's approach enhances collaboration and spreads responsibility.

Create empowered end users

The automotive workforce is increasingly evolving into the knowledge worker model. Critical decisions will no longer be made by an elite group of managers. Instead, skilled workers down to the plant floor level will make important decisions, some of which could even result in shutting down the line; mundane activities will be automated. These kinds of decisions, of course, should not be made arbitrarily. Workers need meaningful and on-time information that is consistent with what others in the enterprise are seeing, including predictive analytics.

BI creates information-empowered users by giving them the tools they need to efficiently meet their performance goals. For example, with BI a sales manager with KPIs to improve sales and dealer satisfaction receives reports on a daily, monthly, and yearly basis that are specifically designed to address these goals and provide insight into what's driving the actual results. The reporting is structured to support productive collaboration across and outside the organisation, and includes dashboard summaries, data drill downs, leading and lagging indicators, and analytical root-cause analysis maps—all focused on helping workers meet their KPIs.

Timely availability of data in the required format to enable decision-making becomes a challenge for the operational users. BI gives innovative tools and an agile infrastructure to generate the kind of business insights managers needed.

Improving planning efficiency by using real-time data

Improved planning efficiency is one of the most significant and quickly realised benefits of BI. An automotive company generates a number of plans based on market forecasts, such as sales, operations, and purchasing plans. However, market changes can render those plans ineffective or obsolete well before the managers realise they're facing significant or minor execution problems, such as an out-of-stock situation, excess inventory, a quality control problem, or a marketing promotion for a product that's unavailable or no longer worth promoting. Relying on month-old or longer, after-the-fact data forces managers to play catch-up instead of solving problems proactively.

BI closes the gap between planning and execution by adding the use of real-time data to the planning and plan revision process. As soon as a plan is complete, BI begins determining whether the actual trend is proceeding according to plan. If it's not, managers learn about the

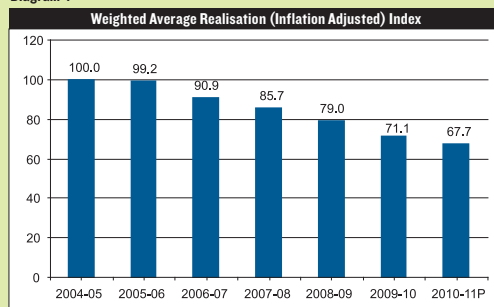
discrepancy immediately, not at the end of the month or quarter, so they can quickly adjust their plans and execution activities.

BI also improves the preparation speed and quality of plans and plan revisions. If an automaker is using an advanced planning engine, then BI helps get the most out of it by improving the input data and enhancing reporting. If the company's not using an advanced planning engine, BI helps improve their planning cycle by quickly and accurately consolidating actual sales, production, and shipment data from various sources and systems. The effectiveness of planning revisions is directly dependent upon the quality of the actual data. **▲**

(The author is CEO, MAIA Intelligence. His views are personal)

Competition intensity...

Diagram 4



Source: CRISIL Research

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over the past few years. Refer to Diagram 2, where the figures are for a leading car manufacturer. For other car manufacturers, cost per unit could vary significantly.

Higher value offerings without commensurate increase in realisation

The competition intensity has prompted players to offer more value added features (such as power windows and high-end

music systems). However, the average realisation (adjusted for inflation) has declined 32 percent over the past five years up to 2009-10 (Ref: Diagram 4).

Players will need to increase sales volumes per model to maintain margins

To maintain their margins, CRISIL Research believes that small car manufacturers would need to increase sales volumes per model rather than introduce more models in the A2 segment, which will diminish the benefits of scale efficiency. **▲**

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