

Business Intelligence for Construction Industry

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Construction industry today has undergone lots of transformation in their operational methodologies and processes. It is becoming ever more competitive and complex. More businesses now need to rely on fact-based decision making and analytics to get ahead.

Companies in construction can succeed based on their ability to achieve constant yield from each project. There is tremendous value in turning operational and transactional 'data' into tactical 'information' in an industry where profit can be so severely influenced by exceptions. BI can be used to analyze past performance for planning, identify exceptions for action and trend current performance for forecasting.

Many construction executives often make decisions based on their gut feeling, supported by years of experience and expertise. However, today's fierce competition requires precision and process improvements to avoid any, if not all, risks associated with construction financial and project management.

One of the key challenges is data inflow. Data in this industry comes from multiple applications and databases. The cost and risk of making an incorrect decision can be considerable and can impact a company over the course of several years.

A construction firm is faced with unprecedented

number of external pressures such as eroding profit margins, higher owner expectations, rapidly changing technology, and a dwindling workforce, but a company which implements BI can leverage data and drive better visibility across projects and businesses by providing insights and measures.

Mr. Mayank Gandhi, Director, LOK Housing & Constructions Ltd. says *"There's more to construction than pouring concrete. We opted for 1KEY BI which connected to the data warehouse & gave gamut information delivery – in terms of reporting & analysis against transaction application's financial data."*

A means of gathering information into a single interface for comparison, analysis and decision support is required. There are several technologies readily available in the market today that will accomplish this goal of unified, consistent and coherent data presentation that will support all aspects of operation.

With BI, Construction companies can:

- Analyze utilization, project profitability, WIP, AR aging, and business development effectiveness
- Analyze firm-wide data and then instantly drill down by organization, department, project manager, project phase, and task—right down to the employee



- Perform a “What If” analysis to determine the potential revenue, profit, and cash flow impact of changes in orders, job profit, changes in general conditions, and overhead
- Eliminate off-line Excel spreadsheets and inflexible, expensive, and environmentally unfriendly paper reports
- Integrate data from multiple applications like SAP, Tally and /or any other financial and operating systems for analysis—giving you a complete view of the business

CountryWiseSalesKPI

Hide Common Parameters
Common Parameter :
Country : USA
Apply

CountryWiseSales REPORT

Parameters :
Product : Chai
Apply

CustomerID	UnitPrice	OrderDate	City	Country	Salesperson	OrderID	Quantity	Discount	Prod		
RATT	223.00	30/08/1996	Albuquerque	USA	Margaret Peacock	10294	18	18.00	Chai		
LONEP	275.00	30/09/1996	Portland	USA	Michael Suyama	10317	20	20.00	Chai		
THECK	19.00	06/04/1998	Butte	USA	Janet Levering	11003	4	4.00	Chai		
SAVEA	19.00	10/10/1997	Boise	USA	Janet Levering	10700	5	5.00	Chai		
SAVEA	19.00	22/01/1998	Boise	USA	Margaret Peacock	10847	80	80.00	Chai		
GREAL	19.00	07/04/1998	Eugene	USA	Janet Levering	11006	8	8.00	Chai		
SAVEA	19.00	17/04/1998	Boise	USA	Michael Suyama	11031	46	46.00	Chai		
SUM = 388.00						SUM = 75,198.00		SUM = 180.00		SUM = 180.00	

UnitPrice : ● Not Applicable ● Bad ● Average ● Good ● Bad

Key Performance Indicators (KPIs) for Construction Industry

The responsibility of managing growth and economic challenges requires leaders to devise a disciplined business strategy. This must efficiently address potential opportunities and problems as they arise by providing reliable, timely information to support decision-making. Often public sector clients prefer working with companies that implement KPI systems. From the client perspective, KPIs provide a useful way to demonstrate wider project requirements, beyond time and cost issues.

Purpose of the KPIs

All clients want their projects completed with minimum obstructions. Management and stakeholders of the construction companies expect continuous improvement from their construction team to achieve year-on-year reductions in project costs and reductions in project times.



KPIs enable measurement of project and organizational performance throughout the construction industry. This information can then be used for benchmarking purposes, and will be a key component of any organization’s move towards efficiency.

Clients, for instance, assess the suitability of potential suppliers for a project, by questioning them against a range of indicators. Some information will also be available through the industry’s benchmarking initiatives, so clients can measure potential suppliers with the rest of the industry.

Implementing unified, completely integrated (not just interfaced) software solutions enable construction firms to maintain the reliable, timely information necessary to generate KPI figures on demand.

Construction firms should monitor KPIs like:

- Cash flow: Understand if projects are generating or consuming cash. Attention to cash flow also helps to promote timely billing and collections.
- Liquidity: Determine cash generation or consumption, by maintaining current asset and liability balance sheets.
- Labor productivity: Labor productivity important, as productivity problems can break labor budgets and erode profit margins. This information helps managers and field supervisors forecast cost-to-complete, establish daily performance goals, address

- current problems, and improve future estimating and bidding accuracy.
- Schedule variance: Project owners demand clear reports on project progress and timely completion. You should be in a position to adapt to specific changes in the project. Understanding the factors that cause schedule variance, will allow you to properly plan, communicate, and coordinate, to ensure higher quality output, improved safety, and better resource utilization.
- Margin variance: Investigate the gross margins on particular projects, relative to the project estimate, to determine whether the project is achieving expected profitability. With constant attention to margin variance, supervisors can make the changes necessary to keep individual project margin variance to a minimum and the overall gross margin stable.
- Unapproved change orders: Construction firms face an increasing economic threat from risk transfer provisions in standard contract types. Reduce your firm's financial exposure by identifying and diligently pursuing unapproved change orders.
- Committed cost: In order to limit financial exposure due to contractually un-committed suppliers and subcontractors, it is imperative for your firm to track committed costs.
- Backlog—Properly tracking backlog—and the expected gross margins on backlogged work—allows construction firms to make strategically sound decisions about which projects to pursue.
- Customer satisfaction: To have the edge, compile and analyze your firm's projects. This examination of past projects gives potential deficiencies, enabling you to address issues of the current and future projects.
- Cost and Time - Time for Construction, Time to Rectify Defects
- Cost for Construction - Design, Construction, Operational, Client Diagnostic Change Orders, Project Diagnostic, Leader Change Orders - Purpose of this KPI is to see how projects are delivered cheaper and quicker on a year by year basis. This is only really useful when there are a number of comparable projects with identical or very closely comparable units.

- Cost Predictability – Design, Construction, Operational, Client Diagnostic Change Orders, Project Diagnostic Leader Change Orders
- Cost of Rectifying Defects
- Cost In Use
- Quality - Defects, Quality Issues at Available for Use, Quality Issues at End of Defect Rectification Period

Construction companies need MIS for all activities – Profitability, Productivity, Return on Capital Employed, Return on Value Added, Interest cover, Return on Investment, Profit Predictability, Ratio of Value Added, Repeat business, Outstanding Money, Time taken to reach final project.



BI not only enables such MIS, but also helps monitor KPIs to maintain financial discipline and make the necessary adjustments to comply with their business plans. Through this type of management, they can act rapidly in pursuing opportunities or solving problems because they have an accurate understanding of your past performance, present needs, and the steps to be taken to ensure future success.

With access to such business-critical information, executives can make informed decisions instantly. BI grants access to consistent, appropriate and accurate information from multiple sources of data and applications. BI reflects key performance indicators, desired goals and actual performance.

Author's Bio

Sanjay Mehta, a Microsoft Certified Professional is the CEO of MAIA Intelligence Pvt. Ltd., a Software Product Company in Business Intelligence (BI), which is one of India's indigenous BI tools. MAIA Intelligence has been selected as the NASSCOM Top IT INNOVATORS in 2007. Sanjay had already created various software brands like Udyog Excise which has more than 10000+ users in India.