

## **Q&A: Seven Questions Every Business Intelligence Leader Must Answer**

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Every business intelligence leader must answer seven key questions, including how to make BI actionable and strategic, how to pick the right performance metrics, and how to select the right vendors. This note provides advice and guidance on how to answer them.

## ANALYSIS

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Better decisions and faster. That was the top reason for investing in business intelligence (BI), according to user surveys conducted around the world at various Gartner BI summits in 2007. Our annual CIO survey showed that BI applications remain the highest technology priority for CIOs today. Yet the biggest problem the IT organization faces is how to make BI more pervasive and how to increase adoption among business users. BI applications are not reaching key business users and helping them better measure and manage their performance. At the same time, consolidation in the BI market and other trends threatens to disrupt the BI strategies of CIOs. CIOs and BI leaders should start addressing the BI challenge by defining performance metrics properly and tapping wider sources of data within the organization. Gartner's 2008 North American BI summit addressed most of the big issues, and we summarize the advice in the seven questions below.

### **How do I choose the right business performance metrics for my company?**

Business metrics should link directly to the financial health of the company. Therefore, BI leaders should work with their business counterparts to link operational measures that run the business to the financial metrics that measure the health of the business. These metrics may already exist somewhere in the company, and even if they don't exist, they're worth the effort to define.

BI leaders then need to define the key performance metrics, a subset of business metrics that monitor performance over time (see Figure 1). They should provide a complete view of performance across the functional areas and be leading indicators of financial results. Make sure you can trace a clear relationship between financial and business metrics. For a thorough explanation of how to define business performance metrics, see "Toolkit Tactical Guideline: How to Use Performance Metrics to Align Business Process With Strategy."

**Figure 1. The Gartner Business Value Model**

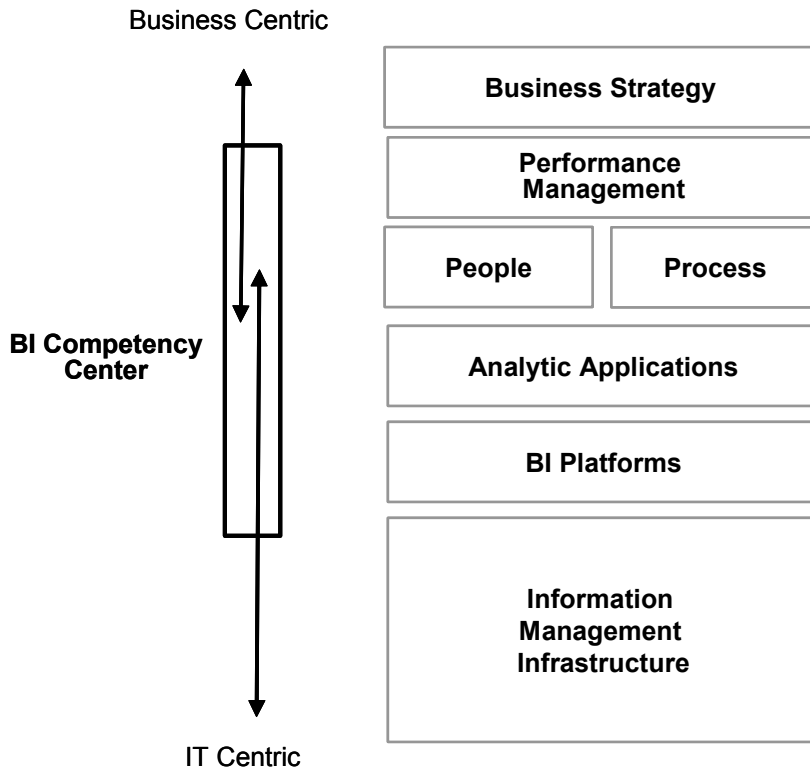
Business Aspect	Aggregates	Primes			
Demand Management	Market Responsiveness	Target Market Index	Market Coverage Index	Market Share Index	Opportunity/Threat Index
		Product Portfolio Index	Channel Profitability Index	Configurability Index	
	Sales Effectiveness	Sales Opportunity Index	Sales Cycle Index	Sales Close Index	Sales Price Index
		Cost of Sales Index	Forecast Accuracy	Customer Retention Index	
	Product Development Effectiveness	New Products Index	Feature Function Index	Time to Market Index	R&D Success Index
Supply Management	Customer Responsiveness	On-Time Delivery	Order Fill Rate	Material Quality	Service Accuracy
		Service Performance	Customer Care Performance	Agreement Effectiveness	Transformation Ratio
	Supplier Effectiveness	Supplier On-Time Delivery	Supplier Order Fill Rate	Supplier Material Quality	Supplier Service Accuracy
		Supplier Service Performance	Supplier Care Performance	Supplier Agreement Effectiveness	Supplier Transformation Ratio
	Operational Efficiency	Cash-to-Cash Cycle Time	Conversion Cost	Asset Utilization	Sigma Value
Support Services	Human Resources Responsiveness	Recruitment Effectiveness Index	Benefits Administration Index	Skills Inventory Index	Employee Training Index
		HR Advisory Index	HR Total Cost Index		
	IT Responsiveness	System Performance	IT Support Performance	Partnership Ratio	Service-Level Effectiveness
		New Projects Index	IT Total Cost Index		
	Finance & Regulatory Responsiveness	Compliance Index	Accuracy Index	Advisory Index	Cost of Service Index

Source: Gartner (April 2008)

**How can I push BI past reporting to make it both strategic and actionable?**

Users do not view most BI projects as strategic to the business, nor do the IT-centric reports they produce link to results that users can act on. The typical BI framework consists of a data warehouse with reports, but the answers to some questions will always lie outside that data warehouse. Users need access to broader sources of data through data integration and federation; therefore, BI leaders should create a much broader framework (see Figure 2).

**Figure 2. The Layers of the Gartner Business Intelligence and Performance Management Framework**



BI = business intelligence

Source: Gartner (April 2008)

In addition to reports, BI platforms need analytic applications tied to people and processes. Analytic applications come in three styles:

- *Strategy-driven* applications measure and manage performance.
- *Analyst-driven* applications provide in-depth analysis and delivery of information (using combinations of capabilities, including ad hoc queries, online analytical processing (OLAP) cubes, data mining, statistics and dashboards/reporting and portals) across multiple information sources and processes to multiple user types.
- *Process-driven* applications analyze information within the context of a specific process or event. They provide operational managers and users insight at the point of work.

Most BI projects have focused on analyst-driven applications, but making BI more strategic and actionable requires the other two styles as well.

### **How can I reach the 80% of users that aren't engaged with BI now?**

Anecdotal evidence suggests that no more than 20% of users in most organizations regularly use reporting, ad hoc query and OLAP tools. Making BI strategic and actionable (as discussed in the previous question) is the best way to drive adoption. However, BI leaders must recognize that BI is too hard for most users. We need to make it easier. Emerging technologies, like interactive visualization, in-memory analytics, BI-integrated search, software as a service (SaaS) and service-oriented architecture, will make BI accessible to more users. However, these

technologies will also make it easy for rogue business units, and even individual users, to create their own analytical applications that scale bigger and look better than anything the IT organization is building today. The IT organization has little power to prevent independent business units (and users) from adopting these technologies. The answer is not prohibition. Instead, it should incorporate these technologies into the standard BI architecture, and promote self-service BI as a means of delivering analytical requirements more quickly and with less centralized effort (for more information, see "Emerging Technologies Will Drive Self-Service Business Intelligence").

### **How can I justify a major investment in BI?**

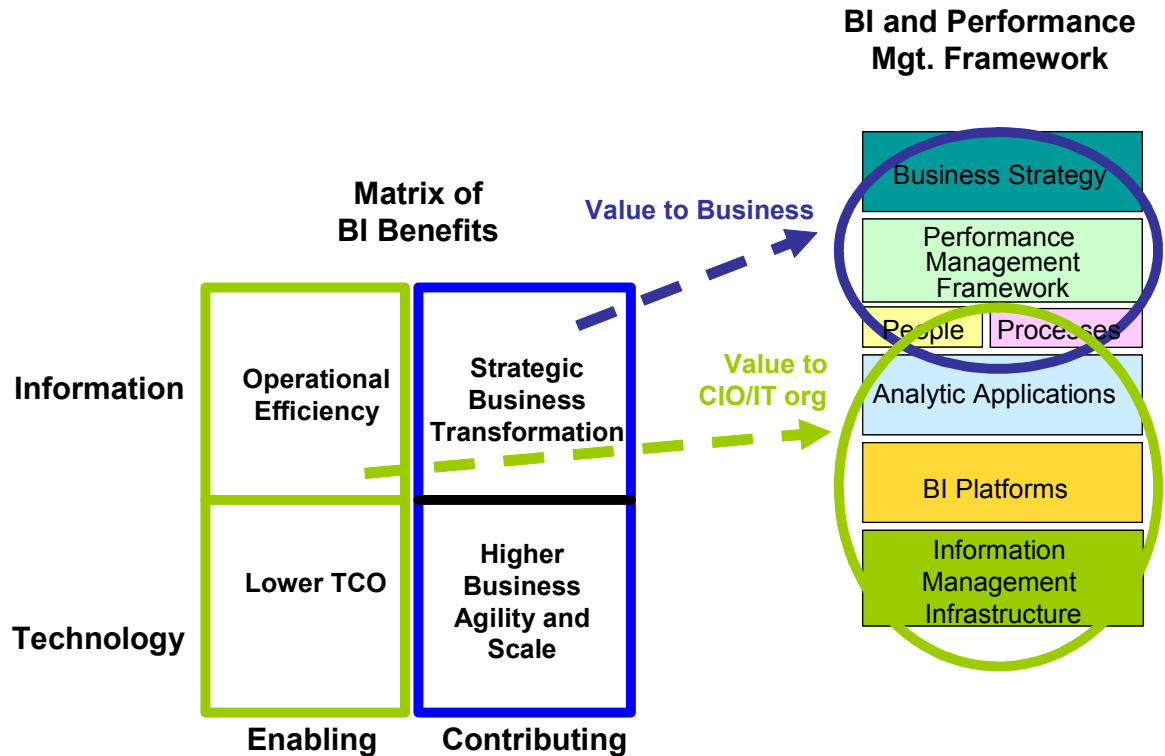
A BI strategy that transforms a company's performance requires major investments, and organizational, cultural and technological change. Most companies lose enormous amounts of money as hundreds, even thousands, of employees spend too much time accessing, formatting and presenting data — not to mention debating its validity. All this time could easily justify BI investment (for more information, see "Take These Steps to Develop Successful BI Business Cases").

To justify investments, project leaders need to measure BI's business value. Therefore, they should not use IT-centric definitions of value. Rather, they should express BI's value in business terms. Organizations realize business value from BI investments in four ways:

- Operational efficiency
- Strategic transformation
- Lower total cost of ownership
- Higher agility and scale

Figure 3 shows how to communicate the value realized from BI investments by mapping these four categories to the BI and performance management framework.

**Figure 3. Communicating Value from BI**



BI = business intelligence, TCO = total cost of ownership

Source: Gartner (April 2008)

**How do I build an integrated BI architecture?**

BI leaders should take a coordinated approach to the data (stored in data warehouses and marts), metadata and master data management (MDM).

*Data:* Most enterprises store their data in silos, which are slow and difficult to access. Consolidating data marts is key to building an integrated, subject-oriented view of data. But don't just fix "all independent data marts." Independent data marts were built using different sourcing strategies and often have built-in reconciliation rules for inconsistent data. So start by assessing the number and types of data marts. Federation is a viable option on the path toward fixing some complicated issues on the road to a better data warehouse.

*Metadata:* Most BI projects within these silos neglect metadata (for more information, see "Why Metadata Matters to Business Intelligence Initiatives"). When a process cuts across data silos, the project team needs metadata to understand the context of information, including the meaning of terminology, calculations and methodologies — prerequisites for a "single version of the truth." So don't let metadata efforts be cut from the BI project budget. Also, when establishing BI initiatives, take the following approach to metadata:

- Develop an independent "information logical" model that is based on industry operating standards rather than your organization's specific operating model.

- Expand the information logical model with organization-specific value domains first, then attributes as needed, and then entities, but only if they're truly innovative and unique to your operations.
- Build a metadata model that supports multiple contexts by treating ontology as descriptive rows and taxonomy as discrete columns that make up those rows.

*MDM:* MDM is a workflow-driven process in which business units collaborate to harmonize, cleanse, publish and protect common information assets that must be shared enterprisewide (for more information, see "Master Data Management Summit Shows How to Achieve a 'Single Version of the Truth' About Data"). MDM enables the enterprise to access layers of information via a single view of that data across all parts of the enterprise. MDM also can help to reduce data redundancy.

Software alone won't support MDM. Although many vendors address various parts of MDM, no single vendor offers everything needed to implement MDM fully at all levels. Rather, MDM initiatives require constant attention. IT leaders must set up a vigorous governance system to ensure that all parts of the enterprise cooperate and work toward the same goal.

**Should we buy packaged BI applications or build them ourselves?**

Enterprises must make packaged analytic applications a key part of their BI and performance management strategy (for more information, see "Understanding Packaged Analytic Applications"). BI platforms enable organizations to build their own analytic applications but, for many areas, particularly in corporate performance management, the business rules and processes that must be supported are so complex that they are beyond the capabilities of internal developers to build and maintain. For example, complex questions (like what are the most profitable customers?) cannot be answered using only the BI platforms' reporting and analytical functions, because the underlying data must undergo complex business transformations. Packaged analytic applications can address these needs at lower cost than custom-built solutions and offer embedded best practices.

Nevertheless, tactical purchasing can lead to a mix of analytic applications that may use proprietary technologies, are not integrated and do not exploit the underlying information management infrastructure (for more information, see "Deploying Analytic Applications as Part of a BI and Performance Management Strategy"). These simply become new application silos. Therefore, approach analytic applications within an overall BI and performance management strategy. A portfolio will have both packaged and custom analytic applications.

Organizations considering implementing analytic applications should first consider the potential integration benefits. Any investment in analytic applications should be measured against these criteria to help identify the right approach (see Table 1 and "Analytic Applications: Buy vs. Build vs. Customize").

**Table 1. Criteria for Deciding How to Implement Analytic Applications**

	<b>Use Packaged Applications</b>	<b>Customize Packaged Applications</b>	<b>Build Using BI Platform</b>
Business Requirements	Requirements fit out-of-the-box features.	Requirements can be met by modifying or augmenting the application with custom development.	Requirements cannot be matched to any available packaged application.

	<b>Use Packaged Applications</b>	<b>Customize Packaged Applications</b>	<b>Build Using BI Platform</b>
Organizational Culture	Is risk-averse, using mainstream technologies.	Recognizes unique benefits of customization.	Is a pioneer, prepared to invest and expects some failures.
Speed of Implementation	Wants quick, easy implementation.	Expects a quick win but is prepared to phase-in or extend initial rollout.	Prepared to wait months, maybe years, for the right solution.
Cost of Ownership	The commercial benefits of quick deployments, easy upgrades and lower resource demands outweigh functional limitations.	Customization may hinder upgrades. Services will cost more than license fees.	Development tools are already owned. Major enhancements or upgrades could be a rewrite. Staff turnover could affect support.
Skill Availability	Has few IT resources. Often lets departments make their own decisions.	Needs in-house training and resources for the long term, often uses external resources to implement.	Has extensive internal resources with business and application development skills.
Data and Application Integration	Prebuilt connectors or lightweight integration is available. Links to fewer data sources are needed.	Prebuilt connectors or in-depth integration in the offering is available. Some complexity is avoided using flat-file import/export routines.	The solution can integrate other custom-made or legacy applications. It's flexible but can be complex.

Source: Gartner (April 2008)

### Which vendors will survive, and which ones are right for our BI needs?

2008 marks the tipping point at which the BI platform market moves away from being led by independent BI vendors like Business Objects and Cognos, to one where the megavendors rule (for more information, see "Magic Quadrant for Business Intelligence Platforms, 2008"). In less than a year, Microsoft, Oracle, SAP and IBM have gone from owning a quarter of the market to two-thirds. Future BI investment decisions will reflect strategic sourcing and software stacks much more. Relationships with application and infrastructure vendors will also influence them more.

The rise of the megavendors does not mean that companies have to restrict their purchases to the big four. There are still plenty of choices of independents across the spectrum of BI technologies. No doubt more acquisitions will occur among these vendors too. When looking at independents for best-of-breed functions, focus on those with a demonstrable technical advantage and a long set of customers to use as references.

But organizations should not fall into the trap of tying themselves to a single vendor for all layers of the stack. Indeed, they should push their vendors toward interoperability and even portability between the layers of the infrastructure stack (see Figure 4). For example, one should be able to use a BI platform capability with any database, portal or application server. Be wary when the stack vendors are overly proprietary.



**Figure 4. BI Technology Areas**

<b>Infrastructure</b>	<b>Data Integration</b>	<b>BI Platform</b>	<b>CPM</b>	<b>BPM</b>
<b>Development</b>	<b>ETL</b>	<b>Reporting</b>	<b>Planning</b>	<b>Orchestration</b>
<b>Portal</b>	<b>EII</b>	<b>Ad-Hoc Query</b>	<b>Consolidation</b>	<b>Simulation</b>
<b>App Server</b>	<b>EAI</b>	<b>Dashboards</b>	<b>Financial Reporting</b>	<b>Workflow</b>
<b>Database</b>	<b>Data Quality</b>	<b>OLAP</b>	<b>Scorecards</b>	<b>Rules Engine</b>
<b>OS</b>	<b>Metadata</b>	<b>Data Mining</b>	<b>Profitability</b>	<b>Content</b>
<b>Hardware</b>	<b>Master Data</b>	<b>Visualization</b>	<b>Budgeting/ Forecasting</b>	<b>Event Processing</b>

BI = business intelligence, BPM = business process management, CPM = corporate performance management, EAI = enterprise application integration, EII = enterprise information integration, ETL = extraction, transformation and loading, OLAP = online analytical processing, OS = operating system

**Source: Gartner (April 2008)**

*Additional research contribution and review: Nigel Rayner, Andy Bitterer, Michael Smith, Mark Beyer, Andrew White and Neil Chandler*

## **RECOMMENDED READING**

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"Performance Management Success Hinges on Four Base Elements"

"Q&A: Issues in Performance Management"

"Toolkit: Defining a BICC in Performance Management Initiatives"

"Toolkit: Gartner's Business Intelligence and Performance Management Maturity Model"

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