Essential Components of a Successful BI Strategy

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This article continues the discussion from parts 1 and 2.

Essential Components of BI Strategy

There is often disagreement regarding the constituent components of the BI strategy, but some topics are widely agreed upon as essential. What you ultimately include will be largely driven by the overall business goals, scope and objectives of your BI initiatives. You should describe core components when drafting your BI strategy to make it successful.

Business Context

The BI strategy should address how it will help enterprises achieve business objectives, how it will enable improved decision-making to enable increased business performance and how it will lead to better process management in the enterprise. Keep in mind a successful BI strategy aligns with the enterprise goals, improves knowledge management and advances business by making the best use of information. It also enables BI penetration into the business processes.

Always remember the BI strategy and everything about it hinges completely upon business requirements. It is essential that the BI strategy is aligned with the business strategy and goals.

Driving BI strategy based on the inputs from business context ensures the successful alignment of business objectives, goals and processes with BI initiatives as well as the successful adoption of BI solutions.

You should determine what business values are being delivered and what business needs are being addressed. Some examples of business objectives include how to increase customer loyalty, improve the number of customers, gain market share, plan product promotions, decide product and service bundles, analyze customer demographics to align business goals and determine customer profitability patterns. These are the end goals of BI strategy and not the BI tools and technologies being implemented. Keeping business context in the driver seat ensures that we don’t start confusing tool with solution as we build the BI strategy.

Key Performance Indicators

As part of BI, KPIs are extensively used to evaluate the state of business. KPIs provide insight into the critical success factors of the enterprise and help the enterprise measure progress.

You should include KPIs in the BI strategy because they are high level, well-defined, quantifiable measurements based on pre-established criteria. KPIs are not performance targets but rather should be designed to measure the performance against the targets. As such, they are a mechanism to assist you in moving the enterprise to the desired state.

KPIs are used to measure and improve performance. They communicate to all what is important and where the focus should be, thus indirectly helping to in motivate people. KPIs differ for business units and businesses, but in all enterprises, they align with the overall goals of the business. KPIs include vital statistical information such as sales trends, profit values, customer satisfaction measurements, relative departmental performances, real-time inventory statistics, or anything that is deemed critical for the success of the enterprise.

KPIs are an integral part of a BI solution and provide enterprise users with key performance information within very little time. Without the use of KPIs, it will take significant time and effort to collect and process the data to get the overall performance information causing further delay in addressing the business issues. At the BI strategy level, it is a good idea to highlight essential KPIs as these help in achieving the primary goals of the business. BI uses KPIs to gauge the current state of the business and relate it to the enterprise objective to help business come up with a course of action to get to the target state of business.
BI Platforms and Tools Selection

Considering the importance of BI initiatives for the enterprise, executives are spending larger portions of IT budgets on BI. This increase in spending is due to urgent requirements to deliver consistent, accurate and trusted information to all stakeholders to meet the business goals. Often the tools selection process is launched without a methodology and guidance to realize later that the process is in a state of chaos. Industry best practices for tools selection enable you to meet your schedule and budget as well as help mitigate business risk and manage effort. Following are some of the best practices for BI platform and tools selection.

- Define and classify business, functional and technical requirements.
- Categorize requirements as essential, important and desired.
- Evaluate the functionality, features and the fit.
- Assess vendor capabilities, framework, stability and support.
- Evaluate professional services, including consulting and education.
- Leverage research from Gartner, Forrester and The Data Warehousing Institute (TDWI).
- Assess licensing and support cost models.
- Go through the vendor selection process to make an informed business decision.

BI tools selection has less to do with the features and more to do with whether the selected tools can deliver on the specific BI requirements of business. BI broadly refers to concepts and technologies used to analyze the information in the enterprise. Existence of multiple disparate data sources and systems complicates the BI environment. The selection process should also take into account the existing infrastructure of the enterprise to enable the best use of existing capabilities.

The idea is not to implement BI software with cutting-edge features but to provide a collaborative environment enabling all users to work toward the common goals of the enterprise. Instead of comparing products for the rich technology features, the focus should be to evaluate the tools and technologies to see how effectively the tools can deliver to achieve the enterprise goals.

Data Governance

Data governance as part of a BI strategy ensures that you achieve the goals of increasing confidence in decision-making, making the data universally visible throughout the enterprise and instilling confidence in users across the enterprise that the data is accurate. Data governance provides for an enterprise-wide data governance body, a policy, a set of processes, standards, controls and an execution plan for managing the data. It promotes data quality, integrity, consistency, timeliness, security and information privacy and thus increases the information usability and reliability. It provides a framework to create a consistent and methodical approach toward managing the data across the enterprise.

"Anytime data crosses an organizational boundary, it should be governed, whether you’re sharing data among business units internally or publishing data to customers, partners, auditors, and regulatory bodies externally. Organizations are under renewed pressure to ensure that compliance and accountability requirements are met as the scope of data integration broadens," according to TDWI.

Data governance should include identification of data stakeholders such as data owners and data stewards as well as their roles in handling enterprise data assets. These individuals in the data governance council provide for how the data is created, collected, processed, manipulated, stored, made available for use or retired. Data governance comes into play because these activities require stakeholders from various functional areas to make decisions according to a set of defined processes. A data governance program encourages the understanding and management of the data from both business and technical perspectives, plus it promotes the importance of the data as a valuable resource, allowing the enterprise to use the data confidently to satisfy business needs.

Effective data governance can lead to new business opportunities and help in retaining existing customers by improving information reliability. Other business benefits include reduction in data redundancy, improved business decisions due to accurate data from the defined source of record, shorter time to compile information for better
decision-making and increased user trust in the data. Governance plays a fundamental role in BI strategy. When crafting BI strategy, you should take into account the fact that instituting a data governance program along with a master data management initiative will provide the enterprise with a central focus for identifying and controlling the collection, storage and disposition of information resources. To support the volume and variety of enterprise data, your governance program should be built on a robust and flexible technology infrastructure. Governance models should be comprehensive and provide for governance of both structured and unstructured content.

The realization that the data is a valuable and manageable enterprise asset is one of the main business benefits of a data governance initiative. Most enterprises carefully manage other assets such as financial, physical and human capital but overlook the immense value inherent in their data.

In addition to focusing on traditional aspects of governance, the enterprise should get a true handle on the data to go beyond just managing the data and use it as a vital asset for growth. You need governance models to protect and share the data on different levels across the enterprise. You must remember that data governance is an essential part of successful BI strategy as it improves information quality and confidence in decision-making, lowers the costs of managing the data, designates accountability for data quality and makes the best use of the data to achieve the overall enterprise objectives. By including effective data governance program as part of a BI strategy, you are ensuring that the data is defined, enriched, protected and managed as a valued enterprise asset.

Data Architecture

A BI strategy should incorporate data architecture as it transforms abstract data models to logical business entities and subsequently leads to implementation of physical data models. Data architecture provides for detailing the subjects into atomic-level data and then composing the desired form using them during the definition phase. Data models for the subject areas of the core functions of the enterprise should be defined. Conceptual, logical and physical data models should be drawn to provide the foundation for overall data architecture goals. A conceptual data model lays out business entities and their relationships. A logical data model defines detailed attributes of business entities. A physical data model provides for the actual implementation of logical model.

Understanding and laying out a comprehensive enterprise data architecture map is an essential prerequisite to building an effective BI strategy. Enterprises mostly have complicated data, which is commonly held in large legacy or packaged systems, custom databases and spreadsheets.

Data may reside in external systems maintained by service providers or business partners. Across a number of systems, data will have significant variations in quality, format and meaning. It is important to create powerful, simple and effective models of the data structure from the enterprise viewpoint, a set of models known as the enterprise data architecture. You should define and document the data architecture goals, assumptions and constraints surrounding it. Document the guidelines detailing usage of the data modeling techniques, establishment of atomic level of the data, significant components of the data architecture and appropriate security measures as part of the BI strategy.

It is critical to address the data architecture issues for all BI initiatives. However, it's nearly impossible to have the complete data architecture for the whole enterprise defined at any point in time. The idea is to have enough information to enable a context for modeling activities. You should model the current state of the data architecture and then build upon it to mature the data architecture state.

Always remember that modeling is just one way of looking at it, to make the data architecture comprehensive technical and nontechnical issues surrounding better data collection, usage and governance must be addressed. Data architecture helps you to get a handle on the data as it is really used by the business. Data architecture acts as a key artifact to help you in developing and implementing processes to support a data management strategy leading to effective BI governance.

Data Integration

Data integration is a major component of the BI strategy as it refers to data assets, processes, methodologies, tools and philosophies of the enterprise by which fragmented data in multiple disparate systems is integrated to support business goals. You can optimize the data integration process by documenting it, making it repeatable, easy to define and easy to use. Data is integrated to deliver useful information to enable better business decisions. You can adopt several strategies to achieve data integration for a given business purpose. Broadly, the strategies can be termed as using virtual data federation, virtual data marts, virtual operational data stores, Web data services, relational views, physical data warehouses, physical data marts and physical operational data stores.

The most common of the data integration approaches use extract, transform and load, enterprise application integration and enterprise information integration. ETL solutions read the data from a set of data sources, transform the data to the target form, and subsequently move that data to a target data store. EAI is sharing the data and processes among the various applications in the enterprise while keeping the changes to the existing applications at a minimum. In other words, ETL uses data abstraction to present a single integrated view of the business. EAI makes the data from multiple disparate data sources appear as if it is coming from a single data source. Keep in
mind that many enterprises also use MDM along with these approaches to deliver consistent data, enabling a single version of the truth.

Data integration primarily uses middleware which integrates the data through connectors and adaptors. There is a big push in the enterprises for adopting the philosophy of service-oriented architecture using enterprise service busses, which promotes the use of the data, platform and software as a service. When addressing the component of the data integration in the overall BI strategy, you should keep in mind the current data integration trends and also the coming wave of forward-looking approaches.

**Metadata**

A metadata roadmap is an essential part of a BI strategy because metadata explains how, why and where the data can be found, retrieved, stored and used in an information management system. An effective metadata strategy enables productivity improvements by helping with the data lineage, reduction in data redundancy, better understanding of how the information is used in the enterprise, impact analysis, better use of the data in the enterprise, information sharing, knowledge transfer, navigation of the corporate data assets, inventory of all corporate data assets, and identification of data discrepancies and overlap.

Technical metadata provides for the data lineage and impact analysis. It should include the data for all data integration, data modeling, data profiling, data quality, database, reporting, analysis, usage and monitoring processes. It should include source system information, entity and attribute definitions, system usage information and an understanding of what information is fed from BI to other systems. Business metadata provides context to the data, and thus it makes the meaning of the data explicit and provides definitions of data elements in business terms from the business point of view.

The metadata repository is where all the metadata information about source, target, transformations, mappings, workflows, sessions and business terms is stored. Metadata can be manipulated, queried and retrieved from the repository. In any enterprise, metadata stored in the repository can be a useful knowledge resource. Architecture of a metadata repository could be centralized, distributed or hybrid. In centralized architecture, metadata from all sources is stored in a central repository, and all users access it from here. In distributed architecture, users access metadata from all metadata repositories in real time. Federated or hybrid architecture leverages the strengths and minimizes the weaknesses of both centralized and distributed architectures.

You should be able to trace the data as it flows from data entry, transactional systems, data staging environments, data warehouses and data marts to the means of information delivery used for business analysis. Metadata enables the tracking and monitoring of the data through the entire data flow. You must ensure that the business definitions are correctly incorporated in the metadata across the enterprise. It is common for each functional area in the enterprise to have different business definitions and attributes for data elements. You can overcome these anomalies by designing an effective metadata strategy as part of BI vision.

**Data Quality**

A Gartner survey of more than 600 BI users, “Gartner Says Organizations Must Establish Data Stewardship Roles to Improve Data Quality,” found that more than 35 percent of users identified data quality as one of the top three BI problems facing their organization in the next 12 to 18 months, making it the second biggest challenge overall. Data quality often dictates the success of a BI project. The impact of poor data quality is far-reaching, and the effects are both tangible and intangible. Poor data quality leads users to abandon the system and creates considerable rework in deploying the BI solution. Ensuring complete and consistent data lays the true foundation of successful BI environment.

The ideal BI strategy makes data quality the cornerstone of its success. A BI strategy should emphasize data quality, and this emphasis should continue throughout the entire lifecycle and through all iterations. In order to address the data quality issues, first you have to define it properly. It is a common blunder that addressing bad data addresses the data quality issue. Remember that data quality is not about the bad data. A data quality initiative includes setting up a data governance council, defining the roles of people in the enterprise to handle data, building consensus on definitions of data and establishing a framework to deal with and resolve the issues with data. Data quality is defined as providing complete, consistent and accurate data.

The data quality approach should be holistic and it should have enterprise perspective, otherwise the data delivered against different data stores will deliver different information, leading to inconsistent BI solutions. Data should be managed all the way from inception to the state of consumption, and data quality issues should be addressed in a holistic manner. Data quality initiatives should not be put on the back seat just to comply with the schedule or budget targets.
Keep in mind, disregarding the data quality issues results in limited acceptance or rejection at a later stage because the information delivered at the end can’t be trusted. You should analyze the data issues to validate the ability of the data to meet the needs of the business.

Data quality should be a joint effort by business and IT to ensure the success of the initiative. IT can enable the processes to manage the data through technology, but business has to define it.

Any gaps in the data should be documented, and the results should be discussed and addressed by business and IT as a team. Data quality enables the users across the enterprise with a better decision-making ability to achieve the common goals of the enterprise. Data is a corporate asset and has to be consistent across the enterprise. You should establish common data definitions for providing the consistent information to business to enable a single version of the truth across the enterprise.

End User Information Delivery - A Collaborative Approach

Use of knowledge management, content management and portals is the key to sharing information in a collaborative environment. Your purpose should be to bring everyone together to work toward the common goals of the enterprise. The BI strategy should emphasize the integration of BI with the overall knowledge management environment of the enterprise. All components of end user information delivery should be addressed in this section of BI strategy.

To name a few, it could be the use of standard reporting, ad hoc analysis, OLAP cubes, dashboards, scorecards, notifications and use of semantic layer, budgeting, planning and forecasting technologies. The purpose is to provide users with action-oriented information and analysis capabilities in a collaborative environment.

BI should be integrated with business operations to associate the results of BI with business activities. In this sense, BI should attempt to be both process-centric and data-centric. This involves integrating performance improvement and process management technologies.

Traditionally the operational data store, enterprise data warehouse and data marts that supply the integrated, consistent data are the core of the BI system. As BI is integrated with the business environment to achieve the broader business goals, the traditional architecture must evolve to provide for collaborative use of user-friendly technologies to enable better decision-making along with process and performance improvement.

BI Strategy – A Living Artifact

A BI strategy should be designed to be agile and adaptive. It should be treated as a living artifact, which can be continuously refined to meet the enterprise objectives. The BI strategy must focus on communicating what you are planning to build, how you plan to build it and when users can expect their requirements to be met. It should start with broad policy statements, general guidelines and high-level diagrams. As the BI environment matures, so will the formal documentation and depth of details identified in BI strategy. It should be your intent to evolve your BI strategy as part of the enterprise vision as you implement iterations and more details become available. Plan to continually assess and reinvent BI according to changing business needs. Consider the current BI trends and also the coming wave of forward-looking approaches for building the successful BI strategy.

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