

## Implementation of Cross-Functional BI Solutions for Global Consumer Brands

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### ABSTRACT

For the past ten years, consumer brands have heavily relied on traditional Business Intelligence (BI) solutions to enhance the growth and profitability across the organization. As the organization expands the need for enhanced, comprehensive, integrated, and intuitive BI solutions is increasing. To meet the need for such solutions organizations started exploring solutions for solutions. The Traditional BI tools usually cannot see the big picture because of their siloed nature, limiting the capacity of strategic decision making. This is where the Cross-functional BI solutions come into the picture offering critical benefits by bringing the capabilities of integrating data from multiple sources and giving a consolidated perspective on the organization's performance. In this white paper, we present the costs and the benefits of implementing cross functional business intelligence solutions for brands that have a global presence. These solutions will enable decision makers and leaders to view holistic, data- backed insights across the organization. Recent Gartner studies emphasizes the importance and demand to shift towards data supported cross performing BI tools and dashboards. This paper also addresses the challenges in implementing these solutions. The most common problems are data integration issues, cultural resistance, and the need for strong data governance principles and structure. For each challenge there are solutions, especially in data-rich world with enhanced solutions, we will also discuss proven methodologies to overcome challenges, some of these methodologies involve organizational readiness assessment, selecting appropriate BI tools, and implementing effective change management strategies.

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### Introduction

In this fast-changing world of commerce, enterprises operate in a very complex landscape where success depends on the ability to forecast market trends—understand consumer behavior and react with agility to competitive pressure. It is also important to understand performance across multi-functional areas including marketing, sales, operations, finance, supply chain dynamics, etc. so that decisions can be taken properly within that environment [1]. Many traditional BI solutions have focused on generating insights within single departments, creating data silos, producing inconsistent reports that made it difficult to see connections across teams, and limiting collaboration between departments. This approach has made it situationally difficult for organizations to spot opportunities that reign in not just one segment of the business but across tentacles sharp in different regions where they operate [2].

The organizations turn toward cross-functional BI solutions to address these challenges. This new breed of solution enables all organizations to integrate data from disparate sources and across various functions that provide a single truth, giving a full end-to-end view of organizational performance to their decision-makers and leaders. These enable managers with a complete 360-degree view to make informed strategic decisions and drive their teams to operational excellence by dismantling data silos.

### Background

In the last few decades, business intelligence has evolved from simple data reporting tools to quite sophisticated analytics that change raw data into practical insights. First, the BI systems were targeted at supporting decisions only in the scope of individual departments. Shortly, though, the limitations of this approach revealed — organizations are growing, data is becoming more and more important, and the necessity of cross-functional insights is critical [3].

In the world of consumer brands that operate on a global level, the volume as well as the complexity of data has increased exponentially. The latest BI tools make it possible to combine a diverse set of data acquired from various sources, including social media, e-commerce platforms, and business systems within an organization. All these elements are necessary for an overall look at organizational performance and the intake of trends and opportunities that cut across various functional areas [4].

Recent technological changes include enhanced capabilities in BI solutions with cloud computing, big data analytics, and artificial intelligence. These will not only offer the technologies to provide real-time data processing but also provide advanced predictive analytics to empower organizations to act quickly in response to market changes and optimization of operations to act on data-driven insights.

## Challenges in Implementing Cross-Functional BI Solutions

### Data Silos and Integration

Most departments in any company usually work in isolation; accordingly, the associated data sources are also isolated, making them very difficult to integrate with other data sources and systems of different departments. Besides, the integration of various systems and consistency of data is a rather challenging and resource-consuming procedure, as it needs proper ETL procedures and middleware solutions for data harmonization from different platforms [5].

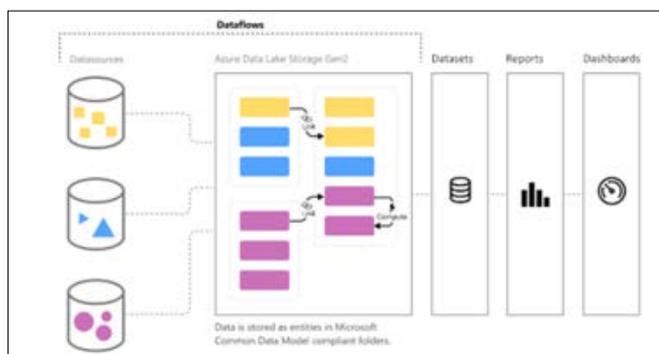


Figure 1: A dataflow diagram in Power BI [6]

### Cultural and Organizational Resistance

While this clearly explains the requirement for change management, realize that it is a fact that most staff may be resistant to new BI initiatives for several reasons. These range from unfamiliar approaches to business operations or just the fear of redundancy. To mitigate this resistance, firms should develop robust leadership support supplemented by inclusive planning processes and leading communication mechanisms. Early involvement of all stakeholders and taking them along the process—eliciting their buy-in, working on their feedback for the change process, and detailed training on any new processes—can be quite useful in mitigating the risk and resistance to change [7].

### Data Quality and Consistency

High quality, consistent data across all the functions is a must, so it feeds good results in BI systems; otherwise, inaccurate insight often results in poor decision making. That means that proper data governance, data stewardship roles with set metrics for data quality, and frequent audits should take place to assure data integrity.

### Technology Constraints and Scalability

The developed BI solutions should be in a position to scale, thus adapting to changes and growth in data volumes. The runoff calls for infrastructure investment in scalable solutions, including cloud-based ones, in talent, and assurance that BI tools can be effective with big data and complex queries.

### Security and Compliance

Data security for sensitive information must be ensured in compliance with various regulations, such as GDPR and CCPA. Inculcation of good tight security for data has to be carried out through encryption, access control, and frequent assessment of data security in order to ensure data protection and compliance with regulatory requirements.

## Methodologies for Successful Implementation

To implementing cross-functional BI solutions, one requires strategic approaches that bring together technical expertise with management of organizational change; we shall discuss the methodologies which organisations can implement effectively.

### Assessing Organizational Readiness

It is important to perform a comprehensive assessment of readiness to determine areas requiring enhancement and readiness for BI implementation. This consists of evaluating the current data infrastructure, identifying key stakeholders, and understanding organizational goals. A readiness assessment helps to develop a tailored implementation strategy that aligns with organizational capabilities and objectives. The organizational readiness-value matrix is most used for strategic planning and decision making. The matrix views potential projects or initiatives against two dimensions: value to the organization; and organizational readiness to implement. The vertical axis can be represented by the financial return, customer satisfaction, market share, or strategic alignment. The horizontal axis represents 'Readiness', which refers to the capability of the organization to perform the initiative, meaning available resources, expertise, infrastructure, and organizational culture. This helps in expectations setting and identifying gaps in capabilities or resources, as well as guiding strategic planning for organizational changes.



Figure 2: Organizational readiness value matrix [8]

### Selecting Suitable BI Tools and Technologies

The organization must assess and select the Business intelligence solutions that fit the needs and capability. Ease of incorporation, scalability, easiness in use, and support for complex analytics must be considered. Organizations must run proof-of-concept tests and arrange vendor evaluation to select the most appropriate BI solution [9].



Figure 3: Gartner's 2018 Magic Quadrant for Analytics and Business Intelligence Platforms [10]

### **Data Integration Strategies**

Build robust strategies around how the data from all sources will be integrated. This could be achieved through a blend of data warehousing, data lakes, and even real-time data streaming. Design ETL processes to support various heterogeneous data formats and data cleansing to ensure data accuracy [11].

### **Change Management and Training Programs**

There should be complete training programs and change management plans that will guide the transition. The change management process should involve communication, stakeholder engagement, and support. Training should be developed for the different categories of users but with more emphasis on technical knowledge and the strategic use of BI tools [12].

### **Establishing Governance Frameworks**

Governance structures need to be in place to ensure the quality, security, and compliance of data. Data governance implies data ownership, setting data standards, and identifying procedures for data stewardship. Besides, regular audits and adherence inspections should be in place to maintain data honesty and ensure meeting legal standards [13].

### **User-Centric Design and Visualization**

Ensuring the effective representation of data and user-friendly interfaces to BI solutions—for example, integrating intuitive design principles and interactive dashboards that bound to meet the requirements of different groups of users. Good visualization supports understanding and reaction to data of a complex nature [14].

### **Continuous Improvement and Innovation**

Deployment of cross-functional BI solutions is not a one-time initiative; rather, this needs to be an ongoing activity. It also involves periodic changes in the systems with the adoption of new technologies such as AI and machine learning and with periodic innovations and improvements taken up as per the customer's feedback. Staying updated with the latest trends of BI and applying it in the system ensures that relevance and productivity are maintained on an ongoing basis [15].

### **Benefits of Cross-Functional BI Solutions**

#### **Holistic View of Business Performance**

This cross-functional BI solution would consolidate the data from different functionalities so that an all-round view into organizational performance would be obtained. All these holistic perspectives may help the businesses find out the interconnections, discover the hidden patterns which bear good insights but are missed in the case of traditional BI systems.

#### **Better Collaboration and Alignment**

Redefining BI solutions help in having better collaboration and alignment across different groups and teams. One of the problems with siloed data is that synergy of working groups is not possible because the teams have little to no insight about each other; however, a team, armed with an organizational performance shared view, is able to work on shared goals by lining up decisions with business strategy.

### **Advanced Data-driven Decision-Making**

This brings forth a centralized data repository and much more advanced analytics, making cross-functional BI solutions that help decision-makers. It is through such data-backed approaches that the reliance on intuition and subjective evidence is curtailed, thereby rendering the approach of taking any decision more informed and effective.

### **Streamlined Reporting and Analysis**

A cross-functional BI solution that consolidates diverse information sources into one dispenses with the need for manual reporting and analysis, thus saving on the errors and inefficiency that would have been associated with bringing information together from several platforms.

### **Agility and Responsiveness**

Cross-functional business intelligence solutions provide organizations with a complete view of organizational performance, and thus they are alerted more easily to emergent issues, trends, or opportunities. This agility enables global consumer brands to respond in good time to market changes and to thereby stay ahead in competition

### **Implementation Considerations**

While building cross-functional BI solutions, there are certain considerations that organizations must focus on before their implementation: a clear strategy, resources and multi-functional team, scalable technology, robust data infrastructure preparation, and focusing on the change management part. All of these elements interplay to maximize the given value potential of the BI implementation in data-driven decision-making within the organization.

### **Data Integration and Governance**

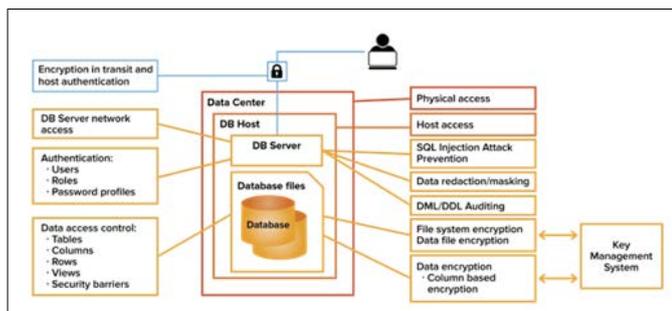
A cross-functional BI solution is supposed to easily incorporate the information from a variety of sources and systems which are there in the operation. These should include practices such as data governance, which gives assurance of the quality of data and its metadata through management, CDM/common data model practices, and security protocols over data, all of which will maintain the integrity and reliability of that data.

### **Stakeholder Engagement and Change Management**

Proper support and involvement of stakeholders from various functional departments are the key features of effectively implemented cross-functional BI solutions. A well-defined change management plan, encompassing training, communication, and user adoption, is critical to effectively transition and realize the advantage of the BI solution. Effective Change Management makes certain involvement with the best practices of engaging business and IT stakeholders.

### **Scalability and Flexibility**

The BI solutions of big consumer brands into the global market require the capability to scale and flex to changes in data volume as well as business needs with respect to their growth or diversification. Success for a BI initiative from the long-term perspective requires one to have a modular architecture and an extensible one that can easily integrate with new data sources and analytical tools. The following image shows the multi-layer security architecture at databases layer.



**Figure 4:** Multi-layered security architecture for your databases [16]

### Data Visualization and User Experience

Effective data representation and user-centric interfaces are preconditions for obtaining acceptance and actual usage of business intelligence solutions in a cross-functional environment. Proper and user-friendly data visualization, through intuitive and aesthetic data presentations, enhances the understanding and use of the collected insights among various users.

### Continuous Improvement and Innovation

Cross-functional business intelligence solutions should be envisaged as an ongoing journey, rather than as a single project. Continuous improvement and innovation through the regular updating of systems and the adoption of new technologies, such as AI and ML, with feedbacks from users, will remain very crucial to remain relevant and effective.

### Future Trends and Innovations

#### Predictive analytics and AI integration

The fusion of predictive analytics and AI is talked to revolutionize the ways of making decisions. Much better ML algorithms have already been developed to now sift through humongous amounts of data to predict the trends effectively. Retail giants like Amazon and Alibaba harnessing them to understand consumer behavior and optimize their inventories. Even in healthcare, predictive analytics is used to forecast patient outcomes and streamline resource management. In the future, this could be expanded into climate science and financial forecasting.

#### Realtime BI solutions

The demand for instant insights promotes real-time Business Intelligence solutions in the data discovery arena. Capable of running data as it comes in, this will make minute-by-minute analytics possible to support very fast decision-making. This area is being leveraged by ride-hailing companies like Lyft and Uber for dynamic pricing and perfect allocation of drivers. In the manufacturing industry, it enables predictive maintenance that emplaces a great reduction in downtime. In the future, edge computing is something that will likely be more adapted, since faster processing will be needed in highly data-intensive environments.

#### Advanced Data Visualization Techniques

The field of data visualization has already advanced beyond the traditional charts into immersive environments with augmented and virtual realities. Financial institutions visualize 3D market data, and AR overlays such data into the real world for urban planning. Such technologies make complex information accessible and intuitive, enhancing decision-making throughout industries.

### Enhanced Data Security Measures

As the intrinsic value of data continues to grow, so are security measures. Homomorphic encryption methods now enable operations on encrypted data without the need for decryption, enhancing the privacy surrounding cloud computing. Blockchain and differential privacy methods are used together to effectively ensure safety. AI-driven security adapts dynamically in real-time against ever-changing cyber threats. Endangered are audit trails and data sharing in DAGs (Directed acyclic graph).

### Edge Analytics and IOT Integration

IoT proliferation drives edge analytics, processing data closer to its source to reduce latency and bandwidth usage. Microsoft and Google are pouring investment into edge computing for applications like autonomous vehicles and smart cities. The spread of 5G networks is going to boost real-time apps and data-driven decisions in remote areas.

### Conclusion

Cross-functional BI solutions provide a cutting edge to consumer brand companies in the fluid global market space in today's world. They allow organizations to work together, support data-driven decision-making, and provide a single view across enterprise performance. Most importantly, these solutions will help to break free from silos, give businesses an edge in operational excellence, make strategic decisions, and respond quickly to changes in the marketplace. This will become a critical enabler of success as multinational consumer brands navigate an increasingly convoluted environment rich in data, even with today's challenges—data integration, stakeholder participation, scaling, and cross-functional business intelligence solutions are going to be the difference makers.

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