FUNDAMENTAL OF BUSINESS INTELLIGENCE ASSIGNMENT

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**INTRODUCTION**

Blastrac, a manufacturer of preparation equipment, faced significant challenges in managing and interpreting its business data efficiently. The business used labor-intensive and error-prone manual reporting procedures prior to implementing Tableau as a data visualization tool. This study examines Blastrac’s need for a data visualization solution, the difficulties it encountered, the suggested fix, and the results. The importance of “Information Visualization-as-a-Service (IVaaS)”, the function of the “Balanced Scorecard (BSC)” in business reporting and suggestions for “AI-powered BI solutions” and “Business Intelligence tools” for Blastrac are also covered.

A) Inefficient manual reporting-The company’s reliance on spreadsheets and static reports resulted in inefficient manual reporting, which caused delays in decision making.

Lack of real-time insights-Operational efficiency was hampered by the inaccessibility of crucial business data.

Difficulty in data sharing-The fragmentation of data sources made it difficult for departments to work together. Blastrac was able to automate reporting, improve data accessibility and speed up decision making with the use of a visualization tool such as Tableau.

B) Three major challenges that impacted Blastrac's operating effectiveness were as follows:  
  
Data Silos: Disparities in reporting and inconsistent data formats resulted from various departments maintaining their own data systems.  
  
Inefficiency in Reporting: Compiling reports by hand required a significant investment of time and resources, which resulted in missed opportunities and delayed insights.  
  
Limited Analytical Capability: The company's inability to track performance measures and effectively react to market changes was caused by a lack of real-time analytics tools (Sharda, 2019).

C) The proposed solution was to implement Tableau, a powerful data visualization tool, as part of an Information Visualization-as-a-Service (IVaaS) model. This solution included:

- Creating Real-Time Dashboards and Automated Reports with Tableau  
Because of its sophisticated data visualization features and intuitive user interface, Tableau was selected as the primary business intelligence tool. It made it possible for Blastrac to produce real-time dashboards that presented critical business indicators and performance data in a dynamic, eye-catching manner. This reduced errors and improved report consistency by doing away with the requirement for manual reporting procedures and enabling automated data refreshes. Now, stakeholders can obtain immediate information and react more proactively to changes in performance.

-Using a cloud platform to host the solution will improve accessibility and scalability.  
Blastrac made sure that their data visualization platform was scalable, accessible, and dependable by utilizing cloud infrastructure. Users from various places could see the same dashboards without any delays or compatibility problems because to the cloud-based concept. Additionally, it removed the requirement for significant investments in on-premises IT infrastructure. Cloud hosting enhanced collaboration and data sharing, enabling teams in different offices around the world to make coordinated, data-driven choices.

- Managing the IVaaS Model by Collaborating with Outside Service Providers  
  
Blastrac collaborated with outside service providers who were experts in overseeing Tableau-based IVaaS solutions rather than building up internal knowledge for BI platform management. By taking care of dashboard updates, data integration, and system maintenance, these vendors freed Blastrac to concentrate on applying insights rather than system upkeep. This ensured that the system remained state-of-the-art by reducing the technical burden on Blastrac's internal teams and giving them access to professional help and ongoing upgrades.

D) Results Obtained The implementation of IVaaS delivered significant benefits to Blastrac:

-Cost Savings: The company saved thousands of dollars by eliminating manual processes and streamlining data reporting.

-Improved Operational Efficiency: Staff could access real-time dashboards, reducing reporting time and increasing productivity.

-Better Decision-Making: Executives gained timely insights, enabling more accurate strategic planning and performance management.

E). Benefits of Using Cloud Infrastructure for Blastrac Cloud infrastructure provided several benefits:

- Scalability to Encourage Business Development  
Blastrac serves a diverse clientele and product lines throughout several nations. Because the cloud environment provided scalable resources, the organization was able to expand its analytics capabilities in tandem with its commercial growth. Cloud services offered Blastrac on-demand scalability, which would have been costly and time-consuming with traditional on-premises infrastructure, regardless of whether the company wanted to support new regions, handle higher data volumes, or onboard more users.

- Enhanced Collaboration and Real-Time Accessibility  
Data fragmentation across several sites was one of Blastrac's biggest problems. Tableau's cloud-hosted dashboards and reporting tools allowed all users, regardless of location, to view the same real-time data. By ensuring synchronization across international teams and removing the delays brought on by emailing reports back and forth, this enhanced departmental communication and decision-making consistency.

- Reduced Capital and Operating Expenses  
Physical server implementation and upkeep are costly, particularly for multinational corporations. Blastrac's cost model changed from capital expenditure (CapEx) to operational expenditure (OpEx) as a result of cloud services. Blastrac just paid for the resources it used rather than buying hardware or employing a large IT staff. Because the business didn't have to overinvest in infrastructure for future expansion, the deployment of IVaaS was both economical and waste-free.

F) Yes, **IVaaS (Information Visualization-as-a-Service)** would benefit Blastrac because:

-It resolved Data Fragmentation in Multiple Global Sites  
Prior to IVaaS, Blastrac's data was dispersed among several nations and divisions and frequently kept in disjointed systems. This resulted in reporting delays and irregularities, which made it challenging for management to have a comprehensive, current picture of company performance.  
All of this data was consolidated into a single cloud platform with IVaaS, and Tableau dashboards were used to visualise it. This made it possible for decision-makers and staff in Asia, the U.S., or Europe to access the same real-time data. It cleared up misunderstandings and contributed to uniform reporting throughout the multinational corporation.

- Significantly Enhanced Reporting Quality and Speed  
Manual reporting procedures were laborious and prone to mistakes made by people. Executives found it difficult to make prompt choices since reports were frequently based on out-of-date or insufficient data.  
  
Tableau may be implemented via IVaaS, allowing Blastrac to create real-time, automated dashboards. These dashboards rapidly retrieved data from several systems and presented it in an understandable, visual manner. Managers could now view daily or even hourly updates on performance measures, which significantly improved the speed and precision of their decision-making.

-Lessened the workload for internal IT departments  
Blastrac decided to hire a third party to handle the IVaaS platform's implementation and administration. This was a wise decision because it spared the business from having to pay for complex infrastructure management or the hire of specialized IT personnel.  
  
Instead, Blastrac was able to concentrate solely on analyzing the data and acting upon insights while the external partner managed the technical implementation, system updates, and maintenance. As a result, the entire process became more economical and efficient.

G)- Analytics on Demand for Seasonal Business Requirements   
Blastrac encounters cyclical variations in demand within the construction equipment sector. Without having to make long-term infrastructure investments, IVaaS would enable businesses to quickly scale up visualization capabilities during busy times. For example, marketing teams might temporarily access sophisticated campaign analytics dashboards to monitor regional performance and real-time lead conversions during their high-volume Q2-Q3 sales cycle, then scale down during slower months. Their analytics spending would be optimized with this pay-as-you-go strategy, which would also preserve full functionality when it was most needed.

-Safe Inter-Enterprise Data Exchange   
Since Blastrac collaborates with international suppliers and distributors, IVaaS may be able to provide various partners personalized visualization sites. Through safe, role-based IVaaS portals, a Brazilian supplier could examine production schedule visualizations, while a German distributor could access real-time inventory dashboards displaying available equipment configurations. This improves supply chain coordination without sacrificing data security by doing away with the need to share raw data files and guaranteeing that all stakeholders are working from the same visualized information.

-Quick Prototyping for Important Projects   
The management of Blastrac needs easy access to scenario assessments that are visualized when assessing new product lines or market expansions. Specialized visualization tools such as these could be temporarily accessible through IVaaS platforms:

Dashboards for interactive financial modelling that project ROI   
  
Potential distribution networks mapped using geospatial analytics   
  
Visualizations of competitive intelligence in real time   
These features would lower the cost and implementation schedules for special efforts by enabling data-driven decision making on strategic projects without the need for lengthy IT installs or permanent software licenses (Software, 2023).

H) a) Business Process Perspective

The business process perspective focusses on the internal procedures that must run well in order for the company to achieve its financial and customer objectives. The following benefits are provided to Blastrac by incorporating this viewpoint into its business intelligence and reporting procedures:

-Improved Monitoring and Operational Efficiency

Blastrac can manage and analyze internal operations in real-time by putting visualization technologies like Tableau dashboards into practice. These consist of scheduling maintenance, logistics, equipment use, and customer service procedures. Management may make proactive changes and simplify processes by identifying inefficiencies, bottlenecks, or recurring delays with real-time information. This immediately promotes quicker problem solving and ongoing progress.

-Data-Informed Choice Using Process KPIs

It is possible to visualize and monitor Key Performance Indicators (KPIs) like average service time, customer assistance resolution rates, or inventory turnover. Stakeholders can evaluate if internal procedures are supporting the overall strategy with the use of these KPIs. For instance, operational adjustments can be made quickly to address the underlying cause if dashboards show a decline in customer satisfaction because of delayed equipment delivery. This fosters a culture of prompt, well-informed decision-making and guarantees that all departments collaborate to achieve strategic objectives.

b) Financial Perspective

The contribution of strategic execution to financial performance and shareholder value is evaluated by the Financial Perspective. Data visualization tools and the wider application of business intelligence (BI) solutions provide quantifiable advantages for Blastrac.

-Reduction in Operational Costs and Enhanced Allocation of Resources

One of the main results of Tableau's deployment was the considerable cost reductions brought about by better reporting procedures. Before visualization, manually compiling reports took a lot of time and effort. Following deployment, automation decreased reliance on human labor, resulting in labor cost savings of thousands of dollars. Additionally, Blastrac can more effectively allocate resources by visualizing spending trends, such as moving investments from underperforming regions or channels to those with higher ROI.

-Increasing Revenue with Better Strategic Understanding

Blastrac may now analyze revenue streams, customer segmentation, and product performance more effectively thanks to improved financial dashboards. This enables the company to pinpoint the most lucrative market niches or geographical areas and adjust its sales tactics appropriately. Marketing and inventory resources can be reallocated to take advantage of an opportunity, for example, if data indicates that a particular product category routinely outperforms others in a given location. Long-term profitability and sustained expansion are facilitated by this accuracy.

I)a) AI-powered BI solutions

-AI Predictive analytics: Use AI-powered models to predict maintenance needs with 85-90% accuracy, potentially reducing unplanned downtime by an additional 40% beyond current improvements.

-By enabling consumers to communicate with BI platforms through basic queries, Natural Language Processing (NLP) makes analytics understandable to non-technical users.

-Personalized Insights: Give AI programs the ability to provide tailored warnings and suggestions according to the roles and responsibilities of users.

-AI can be used for anomaly detection which identifies odd financial operational trends that need to be addressed.

b) Business Intelligence Tools

-Power BI: For real-time reporting, smooth Office 365 integration, and sophisticated visualization, integrate Microsoft Power BI.  
  
-Qlik Sense: Make use of Qlik for interactive dashboards that facilitate in-depth investigation and associative data modelling.  
  
-Tableau Enhancements: Add more sophisticated filters, drill-down capabilities, and narrative elements to Tableau dashboards.  
  
-ERP Integration: For a unified data environment that improves data governance and accuracy, make sure all BI tools are linked to Blastrac's ERP and CRM systems.

CONCLUSION

Blastrac's problems with fragmented data, ineffective manual reporting, and a lack of real-time insights were effectively resolved by using Tableau as a data visualization tool. This led to considerable cost savings, quicker decision-making, and enhanced operational performance. While the possible integration of IVaaS provides future flexibility for on-demand analytics demands, the implementation of cloud infrastructure further improved accessibility and scalability. Blastrac has built a solid foundation for data-driven decision-making and long-term competitive advantage in today's fast-paced business environment by utilizing the Balanced Scorecard framework to match data insights with business objectives and investigating cutting-edge BI tools and AI-powered solutions like predictive analytics.