



Data Analytics and Business Analysis: How Business Analysts Can Drive Data-Driven Decision-Making in Organizations

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ABSTRACT

With the rise of Information systems there is an explosion of data produced every minute in the organizations across various sectors. The systems help gather data, analyze complex information, and help manage outcomes and decrease costs, thereby improving the customer experience. Healthcare data is complex with much unstructured data like clinical notes and images. With the increased use of electronic health data and growing needs for information sharing across domains, good understanding of the systems including integrations and data both structured and unstructured is crucial for effective data driven decisions to improve patient care[1]. Same holds true for all other sectors as well thus making data-driven decision making a crucial organizational strategy for continuous growth, With the help of data analytics processes, business analysts can enable organizations to make informed data driven decisions given their expertise in the data.

Keywords: Business analysis, data analytics, key performance indicators, data visualization, trends

INTRODUCTION

Effective data analysis is critical for an organization's growth to make data driven decisions and stay competitive in the market. Data driven decision-making helps organizations perform what-if analysis to identify potential impacts of their decisions based on both internal and external factors. For an organization to become data-driven and lead decisions based on data insights it is important to ensure there is cultural acceptance and the needed technology and resources to support that process. This paper aims to review how business analysts play a critical role in enabling data driven decision making across the organizations, some key advantages of implementing data driven decision making and identify how different sectors can implement the data driven decision making.

DISCUSSION

Some of the ways business analysts can help with the business data driven decision making are.

Business analysts help in data gathering from multiple sources such as databases, external files etc. to synthesize meaningful information from the data collected to enable strategic data driven decisions. The analysts also help perform historical trending and forecast analysis using tools like control charts, scatter diagrams etc., as needed for tactical needs. The analysts employ techniques such as qualitative or quantitative analysis on the data collected to perform the analysis. Qualitative, also called as naturalistic method seeks an in-depth understanding of a phenomena within the natural setting. It focuses on the "why" rather than the "what" of social phenomena. Quantitative, also called as positivistic method, uses a set of strategies, techniques, and assumptions through the exploration of numeric patterns. While the qualitative method helps understand the experiences with health-related phenomena and does not predict or provide any conclusions, quantitative on the other hand predicts an outcome based on the numerical data collected [2]. The business analyst using the data in hand and the right technique when performing data analysis can help drive decisions in the organization

Business analysts play a key role in identifying Key performance indicators (KPIs) that can help forecast ROI. These KPIs are necessary for leadership to determine if they have made a right choice at the preliminary stages of the implementation, track progress over time and thus guide in data driven decisions. The analysts define relevant KPIs with the help of stakeholders and monitor them regularly helping organizations gain critical insights to make informed decisions for continuous improvement across the organizations. By identifying success factors such as operational efficiency, cost reduction or increase in market share etc., the analysts would be able to define quantifiable metrics to track the progress of these success factors. It is important for analysts to ensure there is data quality and lineage, as these are critical for the stakeholders to trust the metrics derived using this data[3]. The well-defined KPIs would enable organizations to align their strategies and target goals.

Business analysts also play a pivotal role in identifying business needs and opportunities by ensuring a thorough understanding of the current state of the business processes, the end roles and objectives and identify the opportunities and pain points when data can be leveraged for improvements. The business analysts by engaging the key stakeholders will be able to prioritize the opportunities of improvements based on a range of factors such as the potential impact, alignment to the organization goals, the return on investment (ROI) and the strategic importance. Thus, with the help of these metrics, the organizations will be able to make better data driven decisions and implement strategies for driving growth and innovation.

Predictive Analytics and Forecasting is another valuable tool that analysts use for data-driven decision-making using machine learning, statistical algorithms, and historical data the business analyst would be able to predict a potential outcome. This would enable proactive decision-making capability on opportunities or help identify and mitigate risks. This can be applied to different industries such as anticipating product demand to increase inventory in retail to assessing risk in financial markets to predicting patient outcomes in healthcare, the analysts are able to provide accurate data and tools to ensure actionable insights.

Scenario Modeling and What-If Analysis is another powerful toolset analyst make use of to understand a range of viable options to make better informed decisions. These aid the organization navigate the uncertainty and the challenges by adapting to potential outcomes based on the different decisions being made. This enhances preparedness for any potential risks and unanticipated outcomes. For conducting the What-If Analysis the analyst can define the objectives that the analysis is focused on, create scenarios to validate the analysis, identify key variables that would have utmost impact on the outcome, build and run the models using different data sets and analyze the outcomes to identify the potential opportunities and risks.

Data visualization and reporting play a significant role in transforming complex data into meaningful insights. This would enable organizations to monitor their performance and adapt to the change and have a competitive edge in the data-driven environment. Business analysts can provide insights with the help of Visual representations and identify opportunities that need immediate attention to. The visualizations make the complex data sets easy to understand, driving quicker decisions[3]. These tools help stakeholders to quickly understand the important data elements from the large data sets, identify trends and variances, and make informed data driven decisions.

By collaboration with Cross-Functional teams across the organization the business analyst can integrate insights to achieve a common goal, share knowledge and achieve better results. This interdisciplinary collaboration will help bring different perspectives leading to more comprehensive approach to data driven solutions as the data from different teams would be integrated to align to the business objectives and foster a culture of data-driven decision-making.

Continuous improvement and optimization are vital concepts in data-driven decision-making that focus on actively improving processes, applications, and services using data analysis to improve quality and gain efficiency. These concepts in data-driven decision-making helps organizations to not only retrospect and react to past outcomes but proactively create strategies for future strategies. There are various tools that analysts can use to drive continuous improvement such as the Six sigma that focuses on improvement through DMAIC (Define, Measure, Analyze, Improve, Control) approach, Statistical Process control (SPC) uses statistical methods to monitor a process for improvements. Using DMAIC process business analysts along with stakeholders identifies business processes and systems to find ways for continuous improvement[4]. The DMAIC is a data-driven process and can be applied to various sectors. The business analyst is responsible for collaborating with stakeholders and gathering feedback for implementing ongoing improvements and defining measurable metrics that can track whether changes are leading to improvements.

In short, business Analysts can perform data-driven decision making using six steps as shown in figure 1 below – Define KPIs, collecting data, perform forecast analysis, create data visualizations, derive insights for decision making, and monitor progress for continuous improvement.

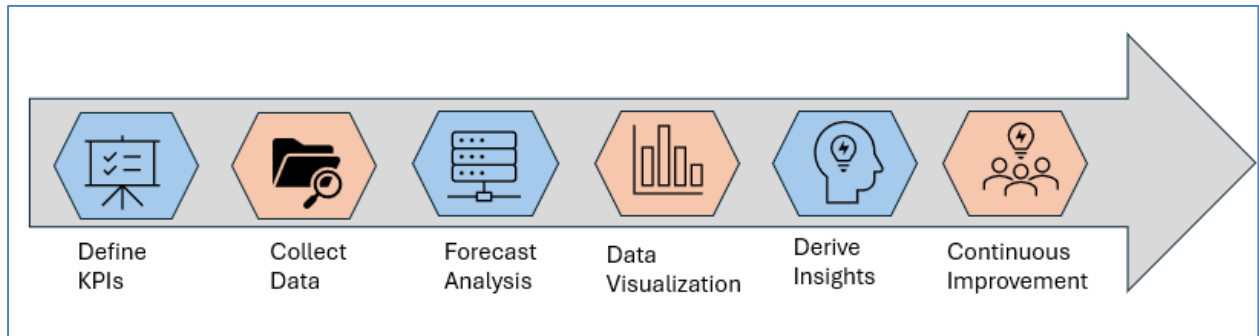


Figure 1: Six steps in data driven decision making.

BENEFITS OF DATA-DRIVEN DECISION-MAKING

A survey conducted by Salesforce shows how data driven decision making is finding its way in every process across the organization as shown in figure 2 [5]below.

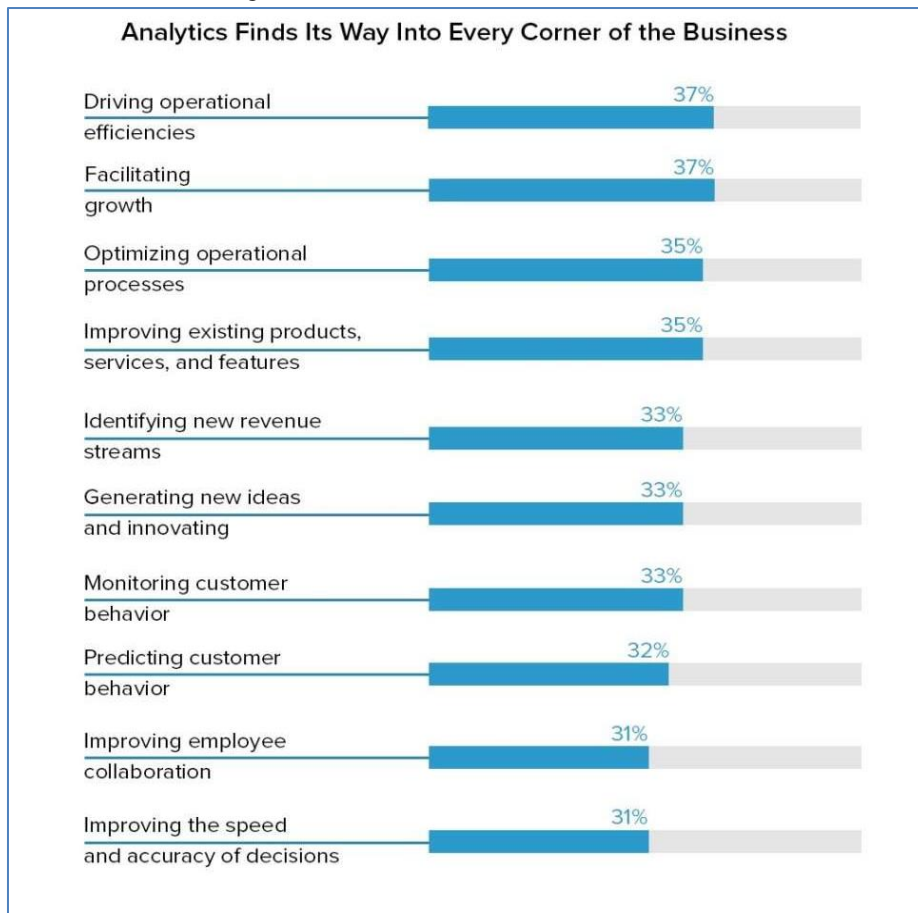


Figure 2: Source: Salesforce.com

Increased Accuracy: Data-driven insights provide a more accurate and objective basis for decision-making compared to perceptions or subjective opinions. By analyzing data, organizations can derive objective insights into trends, patterns, and correlations, reducing the influence of biases and personal preferences that may skew decision-making. With the help of metrics and KPIs, analysts can assess the effectiveness of the strategies with increased precision resulting in more accurate understanding of the outcomes.

Improved Efficiency: Another significant benefit of data-driven decision making is improved efficiency by enabling quicker decision making to the access to the right data at the right time prompting organizations to

implement processes based on market conditions or customer preferences. Data-driven insights help identify the inefficiencies in the existing systems and any mis-utilization thus ensuring the organization makes changes for reallocating resources to areas with higher ROI.

Enhanced Strategic Planning: Data-driven decision-making improves strategic planning with the help of useful insights, determining the risks and opportunities, defining priorities, conducting what-if analysis, and continuously monitoring the progress. By integrating strategic planning and data-driven decision making can place themselves in a competitive advantage and achieve long-term sustainable growth.

Better Risk Management: Data-driven decision-making enables organizations in better risk management by leverage various data and predictive analytics tools that can forecast and predict potential risks even before they occur using historical data, trends, and correlations the organizations are able to implement controls in place to manage the risks efficiently. By modelling various scenarios and evaluating the outcomes helps understand the likelihood and the severity of the risk and aid in preparedness of cost-effective risk mitigation strategies.

Enhanced Innovation: Data-driven decision-making enhances innovation in the organization with the help of valuable data-driven insights and identify the opportunities for growth and unmet needs of the stakeholders. Analyzing data from various areas of the organization will help identify the areas of process improvements, foster innovation and tailor solutions based on individual preferences. By monitoring the impact of the innovation using the metrics, the organizations will be able to optimize and refine the processes leading to continuous improvement and innovation thus helping them to stay ahead in the competitive markets.

APPLICATIONS OF DATA-DRIVEN DECISION-MAKING IN VARIOUS SECTORS

Data-driven decision-making helps transform different sectors by creating solutions that help improve customer experience, foster innovation, and gain operational efficiencies. Organizations are increasingly making use of data to gain insights and make decisions to stay ahead in competition.

Healthcare:

- [1]. Data driven analytics for chronic disease detection, risk identification, prevention of hospital readmissions and custom treatment plans.
- [2]. Telehealth to improve access to healthcare and remote patient monitoring.
- [3]. Monitor Pandemics and disease control and improve population health management.

Retail and E-commerce:

- [1]. Personalized product recommendations based on purchase history and market segments.
- [2]. Targeted advertising based on socio economic factors.
- [3]. Inventory tracking and demand forecast to ensure product availability.
- [4]. Competitive pricing and product strategy based on real-time market data

Finance and Banking:

- [1]. Fraud detection using machine learning and historical data.
- [2]. Customized financial products and tools based on the customer segmentation.
- [3]. Investment portfolio identification using predictive analytics and market trends.

Manufacturing and Supply Chain:

- [1]. Optimize Supply chain and decrease downtime using historical data.
- [2]. Improve inventory availability, supplier relationships and coordination.
- [3]. Real time monitoring for quality control and defect detection using sensors.

Transportation and Logistics:

- [1]. Predictive analytics to determine the infrastructure cost for maintenance and minimize downtime.
- [2]. Forecast demand for resource planning and allocation.
- [3]. Improve delivery efficiency by optimizing route.

Energy and Utilities:

- [1]. Tracking energy utilization for household and commercial consumption.
- [2]. Smart technologies for grid reliability and demand optimization.
- [3]. Infrastructure management and asset maintenance using predictive analytics.

Education:

- [1]. Adaptive learning experiences using student performance data.
- [2]. Early intervention to tackle student dropout using predictive analytics and improve student retention.

- [3]. Customized course recommendations using student preference data and part learning capabilities.

SUMMARY

In summary, business analysts play a pivotal role in driving data-driven decision-making by collecting and analyzing data, defining KPIs, identifying business needs and opportunities, leveraging predictive analytics, facilitating cross-functional collaboration, and continuously optimizing processes based on data-driven insights. Their expertise in data analytics and business analysis enables organizations to make informed decisions that drive growth, efficiency, and set a stage for competitive advantage.

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