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Application of Business Intelligence for
**Business Yield**

**Abstract**

The manufacturing industry is one industry domain, which has always lagged behind in adopting radical technologies lest the tried-upon conventional models fail, and in case of Business Intelligence (BI), the scenario is no different. As the manufacturing industry continues to consolidate on the face of an unpredictable economy, manufacturers all over the globe have realized the importance of BI in gauging consumer buying behavior as well as driving sales and generating profits. Further, the need for organizations to look at BI seriously and to consider its use as part of the overall strategic plan for success is amplified in today's market. With continued uncertainties, organizations cannot take a chance and overlook the ability to attain a wide-ranging view of their company's performance and identify potential issues proactively.

Manufacturers today are re-evaluating their operational models in order to better understand clients and subsequently meet their increasing and demanding expectations. With such changing market dynamics and an unpredictable economy, the industry has finally recognized the potential of BI and has slowly started to implement it for gaining a competitive edge. This whitepaper focuses on the challenges faced by the manufacturing industry and attempts to understand solutions BI can offer.

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## Introduction

Organizations churn out huge amount of data from their daily sales, accounting and other allied operations. The proper evaluation of such data goes a long way in defining and charting the future growth of an organization. The ability to extract and present information in a meaningful way is vital to business success. Regardless of where they are on their success path, an organization needs the ability to transform data into actionable insight. For gathering, storing, analyzing and evaluating such data, organizations utilize application programs and technologies which help them in making better and informed business decisions. Business Intelligence (BI) is what enables organizations to unite data via technology, analytics, and human knowledge for optimized business decisions and ultimately an enterprise's success.

Gartner defines BI as **"**an umbrella term that includes the applications, infrastructure and tools, and best practices that enables access to and analysis of information to improve and optimize decisions and performance.**"** If we are to break Gartner's definition of BI in to further simpler terms, BI is all about creating value for organizations based on data or, more specifically, facts. More importantly BI refers to the skills, processes, technologies, applications and practices that aid efficient and proactive decision making. In this context BI can also be defined as a tool complementing the decision support system of an organization.

**Understanding BI for the Manufacturing Industry**

## Current State of Affairs

The manufacturing sector is amongst the most varied business spheres. Organizations and enterprises in the manufacturing domain face and overcome numerous business challenges all the time. The industry, which is engaged in manufacturing equipment for simplifying life of others, is itself complicated due to a lot of challenges. The industry is severely impacted by sharp energy and raw material costs, supply and demand imbalances and the requirement for higher-margin product and service bundles. Fluctuating commodity prices as well increasing global competition and ever increasing customer expectations are further complicating the functioning of the manufacturing industry.

In an industry where profit margins are conventional small, the most recurring challenge that organizations face is maintaining sustained profit margins. Manufacturers need to properly evaluate the market and decide on the right product to sell, choose a suitable distributor and simultaneously decide on appropriate pricing, anticipate and forecast stock and inventory needs and manage seasonal shifts in demand.

In light of all these challenges, the industry is shifting its focus from leveraging IT primarily for automation to realize and enhance performance across multiple business functions. The industry is also laying more emphasis on IT investments for stimulating innovation and growth while simultaneously improving efficiencies and cutting costs. In light of this market behavior manufacturing organizations today are giving equal weightage to client preferences, needs, pricing, and buying behavior as well as their own marketing, merchandising, supply chain and order fulfillment operations.

Further, the manufacturing sector is very unpredictable as market trends here change rapidly. Manufacturing as an industry has also been a witness to an explosion of new products and an entry of numerous new players. Add to it the recent economic downturn; the dynamics of the manufacturing industry have all changed completely. In such an unpredictable market, manufacturers and OEMs need to develop complete insight into customer behavior by properly evaluating market trends and analyzing their own in-house data.

## BI in Manufacturing

Manufacturing is a continuously growing industry and is amongst the largest industries on a global scale. Competition in this industry is cut-throat and any idea which can enhance competitiveness is seriously evaluated. Understanding customer buying habits, preferences and tendencies are critical. Having the right mix of merchandise to optimize floor space and the effectiveness of promotional programs is critical to profitability. Additionally, the product portfolios of manufacturing companies are huge and present a challenge in itself for efficient management. Add to it the large number of suppliers a manufacturer needs to negotiate on cost and quality, the overall manufacturing scenario becomes a complex mix of business processes and technologies.

While factory floor automation has significantly improved all areas of processing for manufacturing companies, it has also created a staggering amount of data. Extracting and consolidating this data and delivering only the information that is relevant to the stakeholders is a huge challenge for the IT department. IT departments no doubt leverage upon the latest advancements in hardware to economically store the increased amount of data. However, there never seems to be enough time or resources to meet the needs of factory managers who face the "fact gap" that exists between the data and the usable information required to make real business decisions.

Stakeholders in the manufacturing domain, which include everyone from the company's CEO to the plant manager, need to evaluate data in order to make informed decisions. Everyone in this chain has their priorities and goals set to derive value from the humongous amount of data collected everyday across different business functions. Further, the type and granularity of the data varies greatly depending of the individual's job function. The proper evaluation and availability of such data for each stakeholder can go a long way in aiding an organization achieve its long term goal of sustainability and profit.



### Key Impact Areas

In order to sustain themselves and continue generating profits, manufacturers must have complete insight into how actual results compare to plan numbers, revenue by location, region, product line and other factors. This is where BI can make a marked difference. Traditionally manufacturers carefully manage operational costs to be sure that investments and subsequent expenses are optimized. BI can play a vital role in elevating competiveness of manufacturers.

**In light of these dynamics of the manufacturing industry the following are the key areas, which can be benefitted by BI:**

### Customer Analytics

Efficient BI implementation along with detailed customer analytics ensures manufacturers obtain valuable and profitable insights in their value chain. Customer Analytics offer manufacturers the ability to rank and profile customers by critical dimensions, such as profitability, lifetime customer value and revenue, thereby augmenting customer profitability and aiding identification of new revenue generation opportunities.

### Production, Planning & Control

In the manufacturing domain, if production is to run smoothly, an organization must have complete insight into the management and control of the raw materials necessary for production, work progress, suppliers and shipment information etc. This is where BI can offer manufacturers in the industry insights for making informed decisions so that the production line does not get hampered and the overall business does not suffer.

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## Supply Chain Analytics

Supply chains in manufacturing have become the final frontier for companies to ensure cost reduction and gain a competitive edge over other market players. This trend is predominantly driven by the evolution of manufacturing processes which have reduced the time and cost of the production processes. Customers today want the right product, at the right place and in timely fashion. In such a scenario, BI ensures that a supply chain is devoid of bottlenecks and inefficiencies by diving into transactional data, defining and measuring performance across all segments of a supply chain and benchmarking all stakeholders in a supply chain.

## Inventory Optimization

Inventory is the lone and the largest asset that most manufacturing companies have in common. Regrettably, this asset consumes space, may get damaged and sometimes even become obsolete. In light of such fragility, every organization makes sure that their inventory is organized and optimized so that inventory costs do not bog down the organization. Implementation of BI for Inventory optimization enables organizations to effectively forecast yearly, periodic and other inventory factors while ensuring optimum inventory levels. With Inventory Optimization powered by BI, inventory managers can easily screen performance against targets and take decisions by analyzing strategies and making adjustments to accommodate stock, availability of products etc.

## Workforce Analytics

The effectiveness of a company in the manufacturing domain is predetermined by a number of factors. One such factor which measures effectiveness and is the amongst the most critical performance management objectives is workforce management. In the manufacturing domain, where huge numbers of resources are involved, a strategic insight and analysis of workforce can improve and turn around the performance of an organization. Organizations are yet to achieve full value from their human capital investment due to the lack of technology.

Workforce analytics, which is the amalgamation of BI and human resource processes, enables manufacturers to determine the efficiency of its workforce. The implementation of BI with HR processes further offers manufacturers a complete insight into its recruitment process, number of resources required for a project etc. in a granular level revealing important details and drivers.

## Financial Analytics

Manufacturing companies need to make fast and accurate business decisions on the face of constant uncertainty in economy, fierce competition and rising raw material costs. Driven by such uncertainties and challenges, manufacturers are integrating BI with their financial tools to build a robust and flexible platform, which can act as a catalyst in their decision making process. Financial analytics ensure manufacturing companies that extra bit of edge for developing, managing, and measuring corporate strategies for driving growth. Further, financial analytics help manufacturers in building an understanding of the organization's financial health, which is a fundamental aspect in today's increasingly stringent financial reporting requirements.

## Organizational Alignment

Organizational alignment relates to the alignment of a business organization, its organizational roles, management structures, accountabilities, metrics and other components with new business processes and systems. In manufacturing organizational alignment plays a major role as manufacturers need to constantly reinvent themselves due to a constantly changing business climate. BI helps manufacturers in acclimatizing themselves as per the new business trends and make an informed decision on the implementation of a business process that adds value to the organization. BI facilitates manufacturers in identifying to which degree existing business components are to be arranged optimally in order to support the intent and objectives the organization without disturbing its overall business goal.

## Strategy Management

Challenges of the manufacturing industry are unique and unlike other industry verticals. Manufacturers need to carefully evaluate options and lay out strategic plans in order to sustain themselves in a vertical, which is choc-a-bloc with competitors. Strategic planning and management enables manufacturers to determine how the agenda laid out in the previous stage will be executed and how the desired results can and would be attained as a result.

The main purpose of strategic management is to offer insights into potential strategies, methods, tools and techniques which could ultimately facilitate competitiveness via innovation, agility and partnership. BI with its forecasting capabilities and insightfulness can Support manufacturers in strategic planning and goal-setting, tracking of issues impacting progress, enhancing employee accountability and team goals etc.

## Enterprise Data Integration

In order to cope with the dynamic nature of the manufacturing industry, businesses constantly vary their production capacities, change business processes, develop novel methods and shift their supplier and vendor mix. Due to this huge amounts of data are generated. Add to this a constant stream of customer and product data, the amount of data becomes unfathomable. In such scenarios, businesses are likely to suffer the consequences of risks and excess cost involved in data integration.

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## Benefits of BI in Manufacturing

The need of the hour for the Manufacturing Industry in the today's market scenario is a solution that can help them lower lead time, reduce production costs, enhance product quality, efficiently track and improve customer satisfaction. The Industry also needs a support mechanism so that it can respond quickly to changing market dynamics. Further, delivering the key information to the key people has gained extra importance that can help plan for production, reduce hidden costs, keep optimum level of inventory, and maximize profits. True BI can support, grow and ensure the success of both manufacturers and clients in the manufacturing domain.

BI helps improve visibility and communication across increasingly complex manufacturing supply chains, while satisfying customer demands for new products and product enhancements. In short, BI helps companies in the manufacturing industry to:

- **Enhance the value of customer relationships**
- **Respond quickly to changing market dynamics and company sensitivities**
- **Fast-track product time-to-market**
- **Shrink inventory investment**
- **Improve planning, scheduling, and the procurement schedule**
- **Maintain and develop quality assurance**

## Considerations for Manufacturers

BI can help manufacturers monitor a wide range of parameters and plan for future initiatives. However, manufacturers implementing BI for the first time should evaluate their options and take into account the type of BI to be used in addition to the types of features and functions required. Further, Organizations considering BI or looking to expand the ambit of BI within the organization should properly evaluate what kind of data collection is required. For instance, organizations looking to evaluate consumer behavior and conversion rates may want different functionality than manufacturers looking at supplier data and the types of products being sold based on demographics or geography.

## Conclusion

The global scale economic downturn changed the business dynamics of many industries and the manufacturing industry was no exception. However, the slump down drove manufacturing companies to operate in a leaner and smarter manner. Today, manufacturing companies are shifting their focus to a more demand-centric and custom made business models. In light of these along with other existing challenges, manufacturers are implementing solutions that help them respond rapidly to demand changes, supply chain risks and fluctuating energy, commodity and transport costs and subsequently enable new product innovation.

BI is very effective for all types of manufacturing be it process, discrete, or automotive. BI can close the "fact gap" by improving the availability and delivery of actionable data with minimal IT involvement. BI for manufacturing industry leverages all the sources of data available throughout the manufacturing process to deliver a holistic view.

Manufacturers should keep in mind that BI can be used strategically only when it is implemented with utmost care and complete support from the top management.

**The business understanding, gathered by evaluating huge amount of data, should add value to every business function and reach every part of the organization as the end objective of BI is to convert this business understanding into effective action.**

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# About Xavient Digital, powered by TELUS International

- Headquartered in Simi Valley, CA, Xavient Digital, powered by TELUS International (Formerly Xavient Information Systems),is a leading provider of global IT and engineering services and solutions. Since its inception in 2002, Xavient has grown to be a tier-one IT Professional Services and Solutions provider for telecommunication, broadcasting, manufacturing, retail, and healthcare companies.

- It is the preferred transformation partner across product and vendor evaluation; business process re-engineering; outsourcing and off-shoring; product implementation; custom solution development and IT professional services for several Fortune 1000 companies.

- Xavient leverages its proven expertise in Global Delivery Models with centers of excellence in Application Development, QA & Testing, Managed IT Infrastructure services and IT Application & Production environment.

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