BI forward: A full view of your business

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Introduction

Imagine that your organization is effectively using a business intelligence (BI) solution that provides everything you need to make better decisions and improve operational efficiency. Imagine users with their fingers on the pulse of markets, customers, channels and operations at all times. And imagine that your programs, plans, services and products are being designed with full and timely insight into all the factors—past, present and future—critical to success. What would it take to make that happen?

What businesses need from BI is a full picture. And that is why it is important to understand that, for now and in the future, BI should help you not only describe and diagnose your past and current performance, but also predict future performance. When your business can do all three, you have a better idea of what your business needs to do to stay competitive. You have reports that show you where you have been, scorecards and real-time monitoring that show what is happening now and predictive analytics to show where your business is headed. This paper explains the advantages of a BI solution that includes predictive analytics.

BI for today and the future

Most business people want meaningful and useful information that they can use to make better decisions. Almost everyone needs insight gleaned from more than dashboards and managed reports. Line-of-business managers want a single, reliable view of information at their fingertips that can help them focus on issues that need attention and action. Analysts need to interpret facts and data and communicate them in ways that go far beyond reporting numbers. Business analysts want to uncover patterns and relationships that are often hidden in data.

Today's BI provides relevant information to the business. It promotes a working environment whereby IT departments collect and distribute information throughout the enterprise with a minimum of cost and effort, and business users can derive timely insight when and where they need it. This form of BI motivates you to action. You can create "what-if" scenarios, analyze them and pick the right one. You can access financial models, contribute your plans and submit them to a larger model. All types of users can turn information into insight and use it to act in ways that drive your business forward. However, BI can offer more.

In a fast-paced, constantly shifting marketplace, business success requires being able to use data to:

- Identify market trends ahead of the competition.
- Understand customer behavior.
- Tackle and solve operational inefficiency.
- Make sound business decisions with confidence.
- Overcome bad decisions that seem obvious in hindsight.
- Make sense of the explosion of data and data sources that are currently clouding the business horizon.

Therefore, supplying historical information is just the start of a BI program. A new focus is moving BI forward. A combination of self service and managed data analysis capabilities is helping users become more efficient and effective when decisions need to be made. Not only does this new focus include reporting, dashboards and analysis for smarter business decisions, but also performance management to drive profitable growth and predictive analytics to optimize business outcomes. In short, it is forward-thinking BI.

With this kind of BI, businesses can tap into all types of information. People in virtually all roles can explore and interact with information and share their insights with others. Decisions, whether they are made by individuals or embedded in automated systems, are optimized with insights derived from analytics that range from historical reporting to real-time analysis to predictive modeling. The result is a panoramic view of your business that strikes the right balance of awareness and confidence to improve business outcomes.

What is the difference between this BI and those solutions that are currently being used today? What takes BI forward? The answer to those questions is the use of predictive analytics to extend the value that BI data currently brings your business operations.

With predictive analytics, BI can enable smarter and more strategic decision-making. Along with historic and current views of business, you have views that can help you determine what is likely to happen next.

Predictive analytics takes BI to a new level

Predictive analytics processes historical data, "learns" what has happened in the past and creates models. These models analyze new sets of data to obtain a "prediction," or the likelihood that a future event or behavior might occur. Most models use a numeric score to express this likelihood. The goal is to learn from past mistakes and successes and from customer comments, options and transactions so you know what to change and what to replicate.

Predictive analytics gives you the glimpse of the future that is needed for a more complete picture of your business. It can help you determine what customers want. You can use it to maximize operational efficiency. It helps you prepare for probable future conditions by flagging potential issues, variances and inconsistencies and then identifying trends in the data that can shed light on them. It shows you potential new sources of revenue, helps you find customer segments you might be missing and shows you other opportunities for growth.

You can get this forward view of your business without advanced algorithms or Ph.D. skills because the predictive information can be accessed from your dashboard, report or scorecard. Because the data is more accessible, your organization can more easily embrace data analysis for a superior understanding of your operations and for timely decision-making. People are empowered to interact with, contribute to and share information with others in a way that is fast, smart and easy. Finance can align resource plans for intelligent growth and profit and comply with confidence. Customer service can reduce customer turnover and increase satisfaction and loyalty. Marketing can improve competitive positioning, prioritize profitable product delivery and drive greater demand. Sales can maximize pipeline effectiveness and customer profitability.

US bank increases cross-sell uptake and response rates for big growth in profits

A US bank wanted to attract new customers and encourage existing customers to take advantage of more selective services and products. After implementing a forward-thinking BI solution, the bank was able to analyze and distill every customer's monthly transactions and corresponding behavioral information. They could look at customers and their products to determine if they were high, under or non-performing segments. The result was a 600 percent increase in cross-sell campaign uptake, which improved their top line significantly. They also increased customer response rates and win rates by more than 3 percent, a small change that drove big growth in profits.

The benefits of a forward view of your business

Who benefits from forward-thinking BI? Your entire company. When you use BI to its full potential, your company can:

- Beat the competition. Transform your business from a reactive operation to a proactive market leader by setting and staying ahead of trends with integrated analysis of text, web and survey data.
- Reinforce accuracy and confidence in decisions. Move beyond simply understanding past performance by validating business intuition and existing practices and policies with a view into what is likely to happen next.
- Enrich the data discovery experience. Understand your data better by discovering patterns and trends in your structured and unstructured data.

More specifically, the different roles in your organization benefit as follows:

- Executives can use predictive intelligence in decisions made at all levels of the organization — strategic, operational and tactical.
- Business managers can recognize which factors are influencing outcomes and the relationships therein to pinpoint issues and drive improvements.
- Business analysts can easily attain a very detailed understanding of the relationships hidden in all your data (numerical and text). They can generate focused predictive intelligence that can improve decision outcomes for measureable ROI.
- Analytics professionals can use structured and unstructured data to determine relationships and construct models to predict outcomes and future events.
- System managers can take advantage of non-intrusive integration with operational systems and flexible deployment.

And, underpinning all of these advantages is the fact that users have a more complete perspective of your business and can view descriptive, diagnostic and predictive information.

US Department of Agriculture protects crops and livestock

Animal and Plant Health Inspection Services (APHIS) is an agency in the US Department of Agriculture (USDA) that focuses on safeguarding US agriculture from pests and diseases. To identify ways of enhancing and streamlining its inspection processes, APHIS needed better insight of all its operational systems and data. APHIS chose a BI solution that can automatically generate inspection certificates for product shipments and send various notifications related to operational activities at ports and throughout domestic programs. The agency is also using predictive modeling to improve inspection efficiency. Implementing this solution has reduced agency costs by 30 percent.

How forward-thinking BI works

The value proposition of descriptive, diagnostic and predictive BI is clear. It expands the analytical reach of business and IT roles to improve their decision-making with insights gained from all the information phases—past, present and future. But how does it work? Consider a fictional company, MBI Telecom. MBI is struggling in the marketplace and wants to understand why. Imagine that you are an MBI analyst who has been asked to study company data and come up with a plan to reverse this situation.

In your BI workspace, you combine information about deactivated subscribers, customer segmentation and renewal revenue figures. You then see that revenue targets are being missed and deactivations are on the rise. To begin the process of determining how to curb this trend, you decide to use historical data to help you forecast what would happen if nothing changes. The result is quite disconcerting (Figure 1).
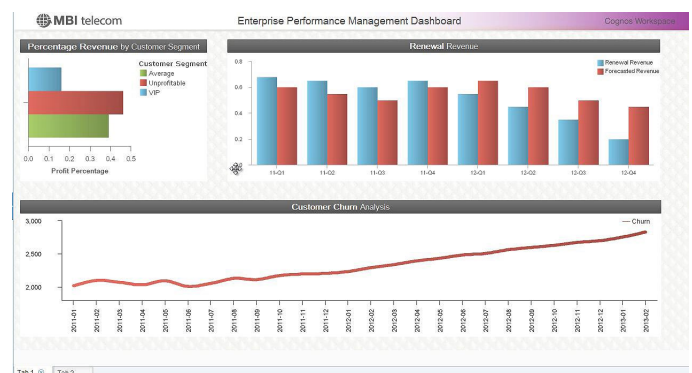

Figure 1: Customer deactivation trends

The deactivation trend is not likely to cease; in fact, the organization will be in a much worse position by the end of the year. To help your company take the appropriate corrective action, you must first understand why your customers are leaving. With forward-thinking BI, it is possible to create a predictive model to discover any relationship between customer deactivation and causes such as gender, marital status, tenure, dropped calls and more. After importing a spreadsheet with information about past and present clients over the last year, you categorize the data. Then, you execute automated modeling techniques to determine which models have performed best. The result of the predictive modeling shows that dropped calls is of high importance as a factor for deactivation (Figure 2). You decide to explore this option as a possible cause for deactivation.

You direct the dropped calls and deactivation model results to a table, where you add columns that suggest which active customers are likely to deactivate and the probability or likelihood that they will do so. By including the forecast and predictor information back into your enterprise dashboard, you can compare planned versus predicted turnover for the next 12 months and review your preferred reason for why. You are now ready to search for a solution to the problem. You consider the possibility that faulting cell towers are causing dropped calls. Quick what-if analysis determines the impact on capital cost expenditures if faulting cell towers received more maintenance. Based on the predictive model, data on your dashboard and the what-if scenarios, you determine that maintaining cell towers is likely to decrease the number of dropped calls without a significant negative impact on your bottom line.
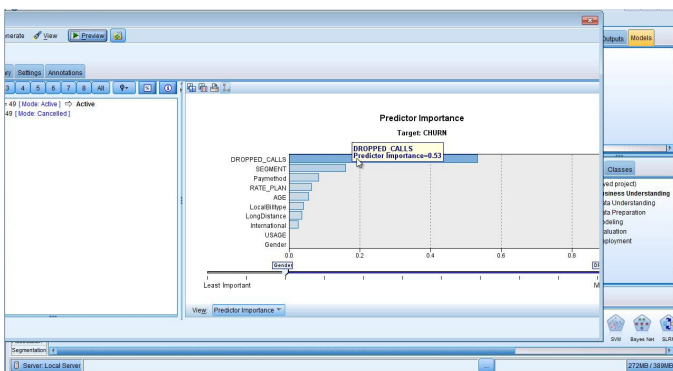

Figure 2: Model shows relationship between customer deactivation and dropped calls

Originally "planned" or "targeted" deactivation quotas are budgeted to be 10 percent below the forecasted turnover results. You see that, by improving the cell tower infrastructure, MBI should expect a decrease of "planned" turnover by an additional 5 percent per month. By committing these changes to the plan, your dashboard is updated accordingly (Figure 3) and MBI can begin creating a campaign to target those specific customers who are predicted to deactivate.
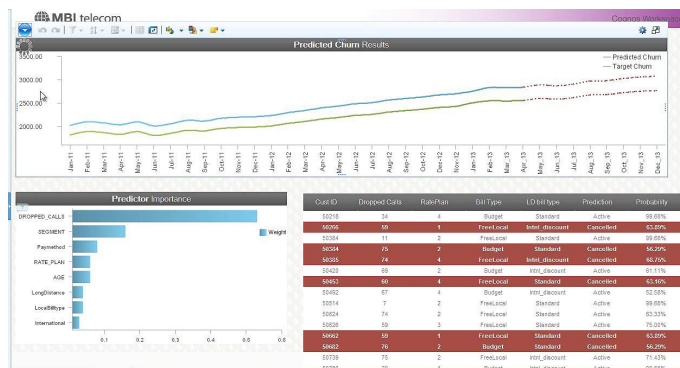

Figure 3: Committing to a new plan to reduce churn

The right BI
All BI is not created equal. For a solution to deliver a forward view of your business, it must offer a breadth of solutions that can handle reporting, dashboards, scorecards, modeling and planning. Self-service options should be included so users do not have to rely on IT every time they want to explore data. In addition, advanced visualization should turn columns and rows of data into comprehensible graphics.

Unified workspace
For true forward-thinking BI, you must have a unified workspace that is capable of displaying descriptive, diagnostic and predictive information. Moreover, this workspace should enable users to interact progressively with their information without needing technical support from IT. Users must be able to quickly test hypotheses and bring in additional key information that will support decisions by simply moving from viewing information to easily modifying or creating new views and reports.

Agility and accessibility

Users should not be hampered by excessive implementation, deployment, management and maintenance tasks. Instead, their solution should be scalable and open. It should be able to scale from hundreds to thousands of users, and it should be accessible from smartphones, tablets and notebook computers. In short, the right BI arms every user with what they need to act, supports the way users want to work and meets the needs of both the business and IT.

Hypothesis testing

The right BI supports hypothesis testing with sophisticated mathematics to help researchers validate assumptions. In addition, it can efficiently use the right statistical capability at the right time, provide flexible access to a host of statistical analysis power and handle the simplest initiative to the most widespread endeavor. The goal is to make you confident in the results and the final outcomes of decisions you make.

Predictive analytics

The right BI solution helps you uncover key insights in your corporate data by integrating predictive analytics as a core activity for making business decisions. Predictive analytics is the new time horizon for complete visibility into your business. It brings added perspective to your BI because you can mine BI data to discover new patterns and insights. You can model your existing historical data to give you a guideline for future business behaviors and acquire predictive measures of all processes.

Desktop analytics

Business users today need more than authored reports or static views of enterprise data. They need detailed analysis of specific data sets that span multiple data stores and provide insights into the operations that are relevant to their business roles. Therefore, the right BI solution includes desktop data analysis and planning for business users who have a lot of questions that need to be answered and cannot easily find the answers in large data warehouses. Desktop analytics delivers self-service data analytics to the line of business without compromising IT values.

Putting it all together: Forward-thinking BI from IBM

Business intelligence from IBM transforms data into meaningful and useful information. Interactive reports, dashboards, scorecards and predictive analytics provide historical, current and predictive views of business operations. The data-driven insights that result enable smarter and more strategic decision-making. By validating intuition, you can understand what is likely to happen next.

IBM provides analytics solutions that look forward to help you reduce the risk of bad decisions, reach business goals faster and contribute to the overall success of your organization. You can use IBM analytics to:

- **Understand what happened.** Descriptive analytics enable you to look at past information for new insights about what is happening in your business. You can understand how current product lines are performing, identify top key sales teams and track company achievements with key performance indicators.
- **Explore why it happened.** Diagnostic analytics enable you to quantify relationships in data to understand why something has happened. For example, you can associate service margins by engagement, region and project team. You can analyze individual transactions to identify purchase patterns and you can determine new store location based on customer sentiment.
- **Predict what is likely to happen next.** With predictive analytics, you can determine the probability of a future outcome. You can foresee expected sales revenue by region in the coming months. You can project annual product manufacturing requirements by factory. You can even anticipate customer turnover based on price fluctuations.

With this broad business analytics software portfolio, IBM is uniquely positioned to provide forward-thinking BI. You get what you need from a single vendor who has integrated world-class capabilities for BI and predictive analytics. The latest predictive technologies automatically uncover key insights and predictive drivers in data without the need for programming or advanced statistical knowledge. Intuitive visual interfaces provide business analysts with a non-programmatic approach for creating models of their customers and operations. And, big data support with graphical tools enables organizations to access and analyze both data in motion and data at rest.

Conclusion

Forward-thinking BI can support your business decisions, help you use the past to understand the future and provide you and your users with what you need to drive your business forward. You can include critical drivers in your reports that identify patterns, trends and predictive scores. You can make better decisions and improve operational efficiency to reach goals faster. You can identify risks and new opportunities in advance to achieve business success. Predictive analytics enhances the value of deploying BI reports, dashboards and scorecard capabilities throughout your enterprise with visibility into your past, present and future.

The IBM business analytics portfolio is the right choice for enabling your organization to take advantage of all the capabilities needed to move your BI forward. You can tap into all types of information for deeper insight. People in virtually all roles can explore and interact with information and share their insights with others. Decisions are optimized with insights derived from analytics. The result is a forward view of your business that strikes the right balance of awareness and confidence to improve business outcomes.

If you are seeking a starting point, try taking a short quiz that tests your Analytics Quotient, or AQ, to measure how your company is engaged with business analytics. For more information, visit: **ibm.com**/software/analytics/aq/

Or, if you would like to understand how to use business analytics in a way that will bring measurable success to your operations, consider an Analytics Center of Excellence, or ACE. An ACE involves a group of people in the business that can forge a meaningful and program and strategy to embrace business analytics in a corporate setting. To learn more, visit the ACE community on AnalyticsZone.com

About IBM Business Analytics

IBM Business Analytics software delivers data-driven insights that help organizations work smarter and outperform their peers. This comprehensive portfolio includes solutions for business intelligence, predictive analytics and decision management, performance management and risk management.

Business Analytics solutions enable companies to identify and visualize trends and patterns in such areas as customer analytics that can have a profound effect on business performance. They can compare scenarios; anticipate potential threats and opportunities; better plan, budget and forecast resources; balance risks against expected returns and work to meet regulatory requirements. By making analytics widely available, organizations can align tactical and strategic decision making to achieve business goals. For more information, see **ibm.com**/business-analytics.

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