

The new frontier for personalized customer experience

IBM Predictive Customer Intelligence



Contents

- 1 Overview
 - 2 The personal touch
 - 3 Introducing IBM Predictive Customer Intelligence
 - 4 The value of optimized actions at the point of impact
 - 5 The capabilities for keeping your customers and growing your profits
 - 7 The architecture for a personalized, relevant customer experience
 - 9 Putting it all together: How the solution works
 - 11 Getting started
 - 11 Conclusion
 - 11 About Business Analytics
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Overview

Today's customers are well-informed and empowered by information. They use other people and online experts as information sources. They interact with companies by multiple methods and expect a relevant dialogue with each brand. And, they want a superior customer experience. They have social media outlets for venting frustration when they do not get what they want.

To serve these empowered customers, your business must—now more than ever—put customers at the center of everything you do.

This paper introduces the IBM Predictive Customer Intelligence solution, which is designed to help your company create personalized, relevant experiences for individual customers with a focus on driving new revenue. Along with explaining the architecture of the solution, this paper covers how the solution works.



The personal touch

IBM has conducted a number of global C-suite studies over the years. These studies survey business leaders from companies of all sizes and industries to gain a better understanding of C-level priorities. The IBM inaugural CMO study noted that the main CMO priority was enhancing customer loyalty and building customer advocacy of their brands. The follow-on 2014 IBM CMO study indicates that CMOs are struggling with how to execute on that priority in today's much more digital world. To succeed, the CMOs stated that they have three prerequisites:

- Using data analytics to get a much deeper understanding of customers, individually and collectively
- Designing rewarding customer experiences
- Capitalizing on new technologies to provide those experiences smartly and efficiently

In addition, a recent Forbes online post indicated that proactive customer service presents a real and future opportunity for many firms. Even a small, personal touch before a problem occurs can have a huge impact on the customer experience and can help nurture a customer's loyalty toward a brand.¹

To attract, retain and satisfy customers now and into the future, organizations must expand their understanding of each individual customer and use it to provide personalized, relevant experiences. Many organizations are challenged in this area because:

- They are not able to use knowledge of past and present events to increase customer value because this knowledge is not available to them.
- Their view of the customer is incomplete at the time of interaction. They might not know that he or she has been using a mobile app to purchase products or that customer service previously offered a discount because of a complaint. And, even when a great deal of information is there, it is not always available instantly.
- Their services are inconsistent because they do not have critical information about the customer that tells them the right action to take.

Analytics can help by providing businesses with the insights necessary for a full view of customers that they can access right when they need them. They can indicate what the customer might do and suggest ways to either encourage that behavior (the customer likes suggested upsells) or discourage it (the customer is considering a competitor). Customer service and marketing teams can engage with customers at the point of interaction before a decision is made or before a bad experience happens. Armed with this information, they can nurture customer loyalty over time and drive smarter service delivery for greater customer lifetime value.

IBM Predictive Customer Intelligence delivers optimized and relevant actions at the point of impact to enhance customer experiences and help drive revenue growth.

Introducing IBM Predictive Customer Intelligence

IBM Predictive Customer Intelligence transforms the customer experience by making the most appropriate recommendation for action at the point of impact. It gathers relevant customer information from internal and external sources and uses advanced analytics and scoring to make automated, optimized real-time action recommendations.

This IBM solution goes beyond upselling and cross-selling. Customers grow weary of repetitive, untimely or irrelevant offers. IBM Predictive Customer Intelligence enables you to draw and analyze information about your customers from all areas of your business. You can then use the insights to take personalized actions that can maximize customer satisfaction, loyalty and retention. These personalized interactions are enabled by:

- A comprehensive view of the customer
- Almost instant analytics to anticipate customer behavior and respond with precision
- Cross channel delivery of the best way to address customer needs, thereby nurturing the customer and fostering customer loyalty

What makes all this possible? The answer might surprise you. IBM Predictive Customer Intelligence capitalizes on the IT systems that your organization already has in place to support channels and define customers, products and services. It takes all the insight gathered by predictive analytics and embeds it into an operational system for automated, optimized actions. It then offers the software you need to extract a wealth of insights and predictions hidden in customer data.

With this solution, you work with a single, centralized view of information rather than trying to hunt up the data you need from organizational silos. You use predictive analytics to find hidden patterns and trends in structured (transactions), textual (surveys) and unstructured data (social media) that can help predict what your customers might do next. Real-time data analysis combined with predictive models enables you to fine-tune marketing and sales activities during an interaction or on demand. And, your customer-facing teams have what they need to interact in the channels each customer prefers, whether that is on a mobile device, website or in a call center.

Customer success story: C Spire Wireless connects more closely to customers

With customers expecting more and mass marketing techniques losing their impact, C Spire, a privately held US wireless communications company, felt that the key to success lay in getting to know its customers better. In addition, it wanted this information in the hands of front-line employees. C Spire used IBM business analytics software to analyze past feedback and preferences from customers and applied predictive modeling techniques to identify retention risks and sales opportunities. The company enhanced customer satisfaction levels and improved the effectiveness of retention campaigns by 50 percent. The solution has enabled the company to boost cross-selling and upselling, with sales of select accessories rising by 270 percent.

The value of optimized actions at the point of impact

IBM Predictive Customer Intelligence delivers optimized actions at the point of impact to enhance the customer experience and help drive revenue growth. It enables you to analyze interactional, attitudinal, descriptive and behavioral data for multiple customer perspectives so you can create personalized cross-channel experiences for your customers. These experiences enable you to interact with the customer in a way and with the information that is most relevant to them. They also enable your customer service, marketing and other teams to go the extra mile to resolve lingering issues.

With IBM Predictive Customer Intelligence, you can understand when customers are starting to become interested in your competition and take action. You can recommend a change to a customer's account or configuration with a complete view of all their transactions so they are better served and even saving money. You can even match each customer with the appropriate customer service representative who is tuned to address specific needs.

The solution has a very short learning curve and it was designed so users who are not statisticians, data scientists or analysts can use it. It was also designed to be deployed to all relevant touch points and frontline staff and systems. Marketing executives, customer service, demand-generation, sales and others can use the solution to recognize trends and gain customer insights quickly and effectively. The result is the kind of experience that attracts customers, keeps them loyal, increases their lifetime value and drives profitability.

The capabilities for keeping your customers and growing your profits

IBM Predictive Customer Intelligence provides the capabilities that enable you to confidently recommend an action that you know is relevant and appropriate given the very latest circumstances. Figure 1 shows the workflow.

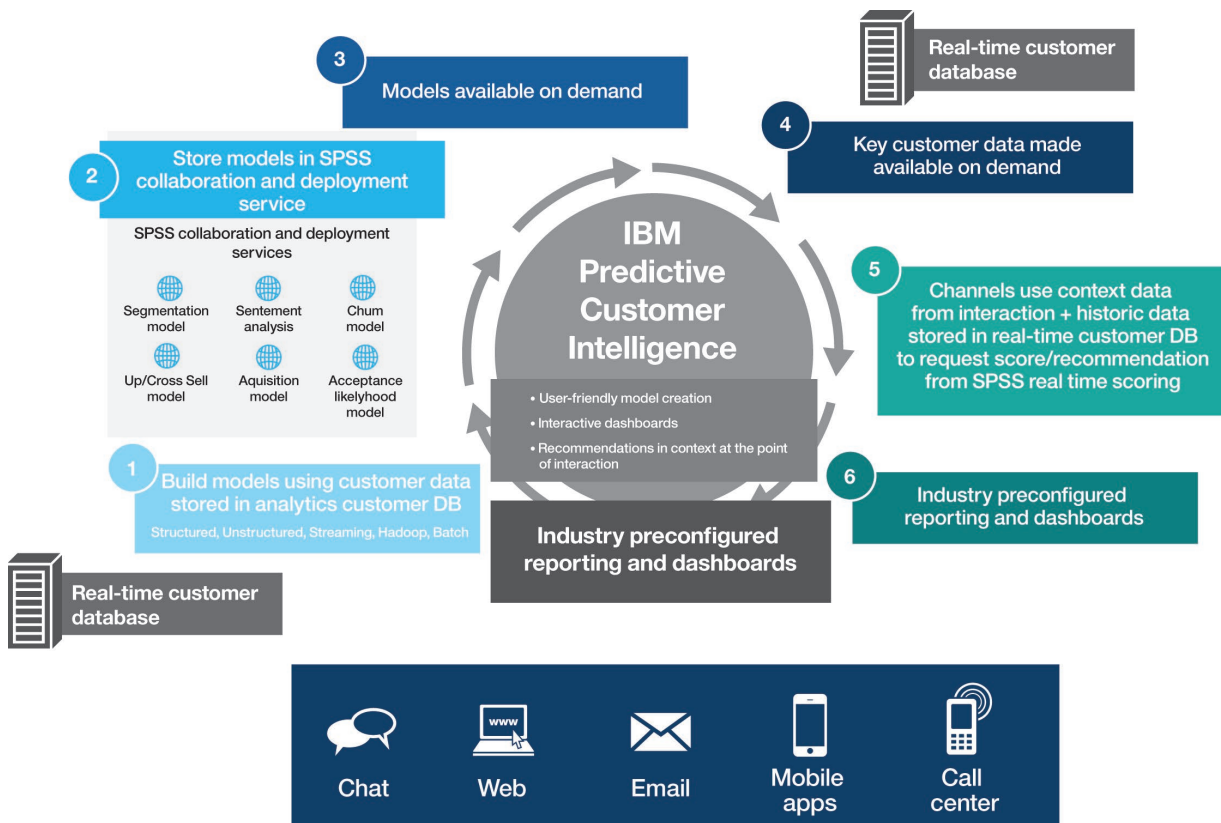


Figure 1: IBM Predictive Customer Intelligence workflow

Predictive analytics

Predictive analytics helps organizations predict with confidence what might happen next so they can make smarter decisions and improve business outcomes. IBM Predictive Customer Intelligence uses predictive analytics techniques to transform data into insights that help you anticipate what individual customers are likely to want or do next. These insights can be used to guide front-line customer interactions and experiences. As a result, you can spend your time and resources where they are precisely proven to provide desired outcomes rather than using guesswork or intuition. In addition, you can combine predictions to make the best possible decisions.

Decision management

Decision management creates an analytical foundation for your organization's entire decision-making ecosystem. A combination of predictive analytics, local rules, scoring and optimization provides recommended actions in near real time to your workers or systems so they provide personalized and relevant offers to customers each time. IBM Predictive Customer Intelligence uses decision management capabilities to provide you with the control to convert predictive scores into the most appropriate business action.

Real-time scoring

Real-time scoring enables you to continuously score against transactional data such as high volume sales, customer service and claims transactions. As a result, the timeliness of the score is increased. With real-time scoring, IBM Predictive Customer Intelligence delivers predictions that are generated and reregenerated on demand, instead of being precalculated and static. As a result, your customer-facing teams can act on predictions while they are interacting with the customer and immediately react to new information as they learn it.

Customer lifetime value segmentation

Traditional customer segmentation classifies customers into groups. These groups can be used for targeting promotional campaigns to retain customers, cross-sell, and upsell. IBM Predictive Customer Intelligence takes that one step further by segmenting customers by lifetime value and then providing recommendations for retaining the customers. A scalable data analytics and optimization engine automatically generates an action allocation policy that is optimized for long-term expected reward, subject to resource, legal and business constraints.

Cross-campaign optimization

By combining the logic of business rules with the insight gained from predictive modeling, the cross-campaign optimization capability identifies the most profitable decision for each customer. This mathematical optimization enables IBM Predictive Customer Intelligence to scan multiple campaigns and business constraints to find the best assignment of customer to campaigns. Finding the best offer for every customer can increase campaign results by as much as 20 percent in addition to the benefits of optimizing individual campaigns.

Closed loop analysis

IBM Predictive Customer Intelligence uses closed-loop analysis, which captures recommended actions, actual outcomes and new business experiments to feed them back into the analytical process. As a result, you can continuously improve predictions and recommendations. In addition, your customer-facing teams can confidently try out and validate new approaches.

Analytical process automation

Predictive and advanced analytics techniques include repetitive tasks such as updating models and batch scoring. When analysts are responsible for handling these tasks manually, errors can occur or consistency can be affected. IBM Predictive Customer Intelligence automates many of these tasks so you can construct more reliable analytical processes and deliver more consistent results. Your analysts can then use their time to work on higher value activities such as developing new predictive models.

Customer success story: A multichannel Korean retailer

As sales increased for this retailer's online shopping mall, management began having difficulty with ensuring that an appropriate product mix was being presented to its customers. The company adopted sophisticated analytics and marketing automation to understand, predict and act on consumer buying behavior with confidence. Real-time marketing automation delivers personalized content to each shopper, triggered by their interaction history. Delivered at the right place and time, these offers can move the shopper toward a sale and even increase the size of the purchase.

The architecture for a personalized, relevant customer experience

IBM Predictive Customer Intelligence includes software components and connectors to operational systems and industry-specific content. Figure 2 shows the general architecture. Three components of the IBM Enterprise Marketing Management solution, Campaign, Interact and Platform, are installed as hosted applications in IBM® WebSphere® Application Server and use IBM DB2® database software. IBM Campaign has a "listener" service that must remain active for interactions. Connectors enable IBM Predictive Customer Intelligence to communicate with two IBM Interact APIs. For example, when a customer-facing application requests information from the Enterprise Marketing Management solution, IBM Predictive Customer Intelligence is invoked to create a predictive model and returns the result to the requesting solution.

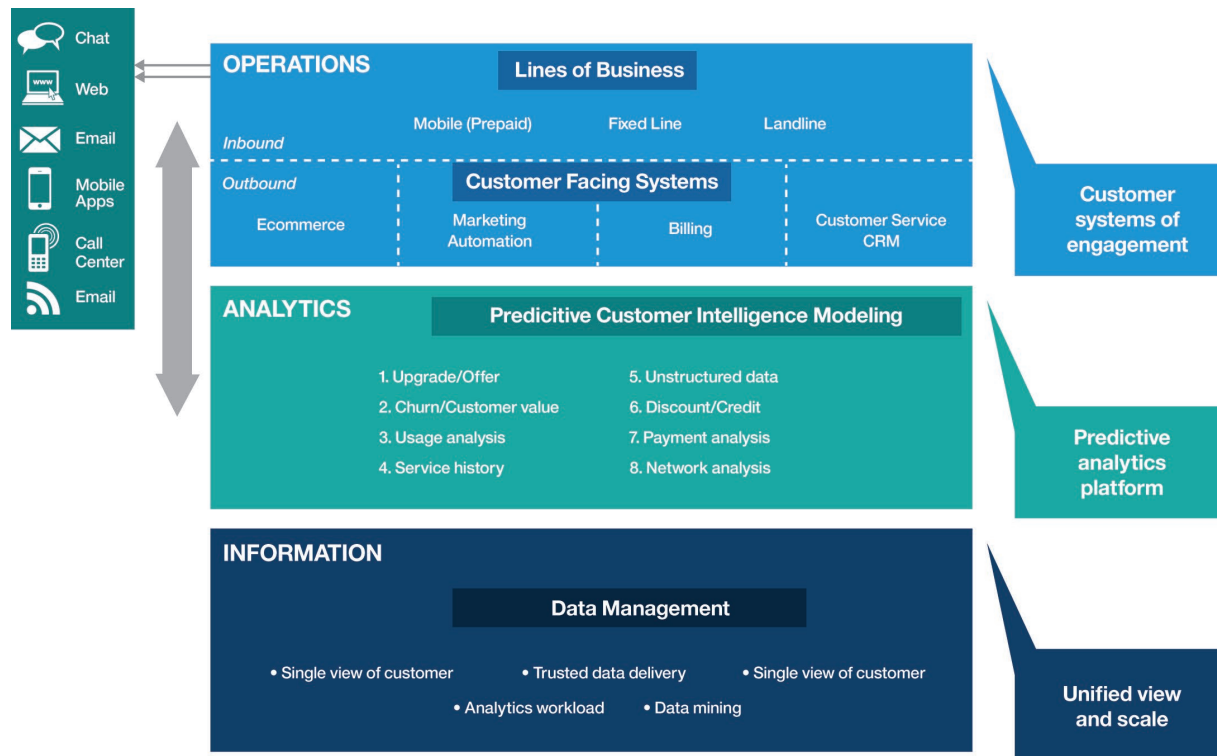


Figure 2: The IBM Predictive Customer Intelligence architecture

An external callout API is used in an advanced campaign rule to override a marketer’s score. Different types of models can be used in a calculation of the marketer’s score, such as those for churn, affinity, market-basket analysis and customer lifetime value. Context data from the real-time interaction can be passed to the real-time scoring service and the model output can be passed back to IBM Interact. An external

learning API can override the solution’s default model to interact with almost any IBM SPSS® Modeler model you choose to implement. As a result, it can optimize and personalize the offers based on analyzing response history in your model. The connectors are a flexible, parameter-based set of Java code that calls the APIs, and the Campaign “listener” is optionally configured to use the connectors.

SPSS Modeler models are used to inform the decision process by calculating relevant information, such as:

- A churn score
- A propensity to respond to a particular channel, such as web, mobile or phone
- A customer segment such as financial sophistication

The models are trained through sample data sets and then deployed for scoring. The deployment process uses SPSS Collaboration and Deployment Services scoring service to expose the models to web services. The Java code that simulates a call center or web app uses a SOAP format called JAX-WS to retrieve the model responses from SPSS Collaboration and Deployment Services. The Java code passes those responses back into the decision maker, which is either IBM Campaign or IBM Analytical Decision Management, to help select and prioritize offers.

IBM predictive analytics and business intelligence components

The following IBM SPSS and IBM Cognos® software are part of Predictive Customer Intelligence:

- SPSS Modeler Premium
 - SPSS Statistics Standard
 - SPSS Collaboration and Deployment Services
 - IBM Analytical Decision Management
 - Cognos Business Intelligence
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Putting it all together: How the solution works

For an understanding of how IBM Predictive Customer Intelligence works, consider a scenario where a telecommunications company interacts with a specific customer, Bill. Bill is a small business owner with one mobile account that he uses for business and personal communications. Bill is a valuable customer who uses large quantities of data and is very active socially. He communicates with a number of friends and is constantly on social networks such as Twitter. He can be indecisive, but in his social network, he is more likely to speak his mind.

The telecommunications company has a range of data about Bill that includes demographics, geographic location, calling patterns, use of the website, survey results, call center conversations and so on. The telecommunications company is also using IBM Predictive Customer Intelligence to continuously monitor Bill's data and extensively analyze it in detail. It has Bill's marketing segment, lifetime value, social influence and churn (attrition) risk. For the most part, Bill appears to be satisfied.

Then, one day, the solution alerts the telecommunications company to two issues: Bill has had his third dropped call of the day while on the phone with a new client. He has also been on the phone with a competitor and on the competitor's website. IBM Predictive Customer Intelligence determines that the company should proactively reach out to Bill by means of Bill's preferred method of interaction.

Multiple models are running in the background and the team at the telecommunications company is able to determine that the focus of the interaction with Bill should be based on decreasing churn and increasing customer lifetime value. So, the telecommunications company uses Bill's smartphone to make an offer for an upgrade of Bill's phone. The solution has determined that such an offer is preferable to other alternative actions. If Bill ignores the offer, a phone call will be necessary, but it turns out that Bill is interested in the upgrade. Of the three phones offered, he researches the Nanophone and his indicators are updated as he interacts with the mobile site.

The product-education model and likelihood-to-purchase model increase but he remains a high risk for churn. Rather than viewing the offer, Bill decides to do a video chat and is routed to one of the top representatives because he is a valued customer. She asks Bill a few questions.

Meanwhile, at her fingertips she has access to a wealth of information. For example, she knows his churn score is still high, that he has a high customer lifetime value score and that he has a strong sphere of influence as indicated by his social network score. She discovers during the conversation that Bill will be travelling to Tokyo soon. This information is entered into the call center notes and the solution updates the product recommendation from the Nanophone to the Globephone. Bill can use the Globephone in Japan and still get the same set of features as the Nanophone. He accepts and decides to collect his phone from the local store that afternoon. The churn risk is reduced significantly.

IBM Predictive Customer Intelligence is able to determine when Bill is close to the store. Because his data indicates that he is not very tech savvy, the solution recommends that the store manager set the phone up for Bill when he arrives and provide a brief tutorial. The information on Bill is updated; his churn risk is now low, he has a new phone with a new plan and the next upgrade is not until two years from now.

In this scenario, SPSS Modeler was used to uncover the patterns and anomalies in Bill's behavior and score him on his propensity to churn. To determine Bill's sentiment, the company used text analytics to understand the context of what was being said with natural language processing techniques. Sentiment analysis was then applied to determine if the text was positive, negative, neutral or ambivalent.

As for how the representative knew the Globephone would work best for Bill, the business rules dictated that because he is a high value customer, he should get a premium phone upgrade. Optimization took constraints into the equation, such as would offering Bill a premium phone be profitable to the company. She could also type into the interface his comments to refine the satisfaction scores.

Getting started

The goal of IBM Predictive Customer Intelligence is to ensure that each customer receives a personalized, relevant experience, regardless of who they talk to and which channel they use. Achieving this goal is an ongoing effort or program. It typically starts small. It then grows to incorporate a broader set of channels to the customer and services that are offered by the organization and adopted by all lines of business. Your starting point depends on a combination of the following factors:

- Where the highest impact can be achieved based on business objectives
- The current level of customer service through each channel
- The current state of your IT systems that support the channels, including their availability and the quality of the data they support

To achieve the highest value, a customer point of view, not an internal line of business view, should drive your solution roadmap. When the decision is driven from the customer's perspective, it helps link the established division of customer support across the lines of business in your organization.

Conclusion

IBM Predictive Customer Intelligence is designed to deliver the most appropriate action at the right time over multiple channels to increase customer loyalty and drive revenue. When action is the focus, the chance of providing a personalized, relevant customer experience increases. IBM Predictive Customer Intelligence can help you weave business modeling and predictive intelligence into cross-enterprise performance management processes. Your organization gains a comprehensive performance management system that provides a line of sight to improve outcomes. Your workers are able to recognize trends and gain insights faster than ever.

About 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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1 Adrian Swinscoe, "A Story About The Benefits Of Proactive Customer Service." *Forbes* online, 13 Sept. 2013, <http://www.forbes.com/sites/adrianswinscoe/2013/09/13/a-story-about-the-benefits-of-proactive-customer-service/>



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