



IBM Watson

Watson and the New Era of Cognitive Systems in Financial Services

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Watson Transformations

IBM

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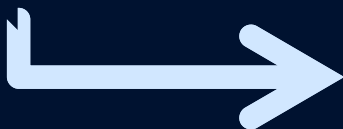
1. What is Watson?
2. Key business challenges and Watson capabilities
3. Use Cases

Watson is creating a new partnership
between people
and computers that **enhances, scales**
and **accelerates** human expertise.

<https://www.youtube.com/watch?v=Xcmh1LQB9I>

IBM

JEOPARDY (“Riziko”) CHALLENGE



1 Understands
natural language
and human
speech



3 Adapts and Learns
from user
selections and
responses



2 Accesses massive
amounts of data
(structured &
unstructured in real-
time)










+
Generates and
evaluates
hypotheses for
better outcomes










Answering questions is not about searching for documents

Search engine

	Has question
	Distills to 2-3 keywords
	Finds documents containing keywords
	Delivers documents based on popularity
	Reads documents
	Finds answers
	Finds and analyzes evidence

vs.

IBM Watson

	Asks a question
	Understands question
	Produces possible answers or outcome
	Analyzes evidence
	Computes confidence
	Delivers response, evidence and confidence
	Considers answers and evidence

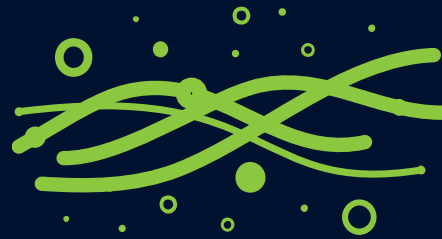


Expertise

Enhancing decision-making in complex environments

Information Access

How do I get the right information to the right person at the right time?



Exploration

Discovering insights in unstructured data

Key Challenges

Understanding data

How do I access and gain insight into 80% of the data I get today (unstructured) in real time to unlock value?



Engagement

Scaling personalized, natural language customer engagements

Engaging clients on their own terms

How do I optimize customer engagements to provide exceptional service, enhance loyalty and access new information that can be monetized?

WHAT DOES THIS MEAN FOR YOUR BANK

Expertise

Enhancing decision-making in complex environments

Leverage internal experts to scale bank expertise

- Wealth Advisor
- Customer Facing Personnel
- Credit Analyst
- Agricultural Banking Staff
- Marketing

Customers can interact with the best of your organization 24/7

Exploration

Discovering insights in unstructured data

Access real time information (structured & unstructured) + insight to create value

- Insight into unstructured data (social, email, chat logs, surveys, blogs, web traffic).
- 360 degree view of customers, products, groups
- Predictive analytics to create next best action: cross sell and up-sell

Engagement

Scaling personalized, natural language customer engagements

- Engaging clients on their own terms
- Mining information from data customers share with you to personalize interactions
- Enhance marketing offers and product development

Over 50 Financial Institutions around the world are engaging with Watson, transforming Insurance and Banking



- *Key Australian Banks and Insurers*
- *A number of the top US Insurers and Banks*
- *Major Canadian Insurer and Banks*
- *Major Latin American Insurers and Banks*
- *Major European Insurers and Banks*
- *Major Japanese Insurers and Banks*

IBM **Watson**

Expertise

Expertise

Exploration

Engagement

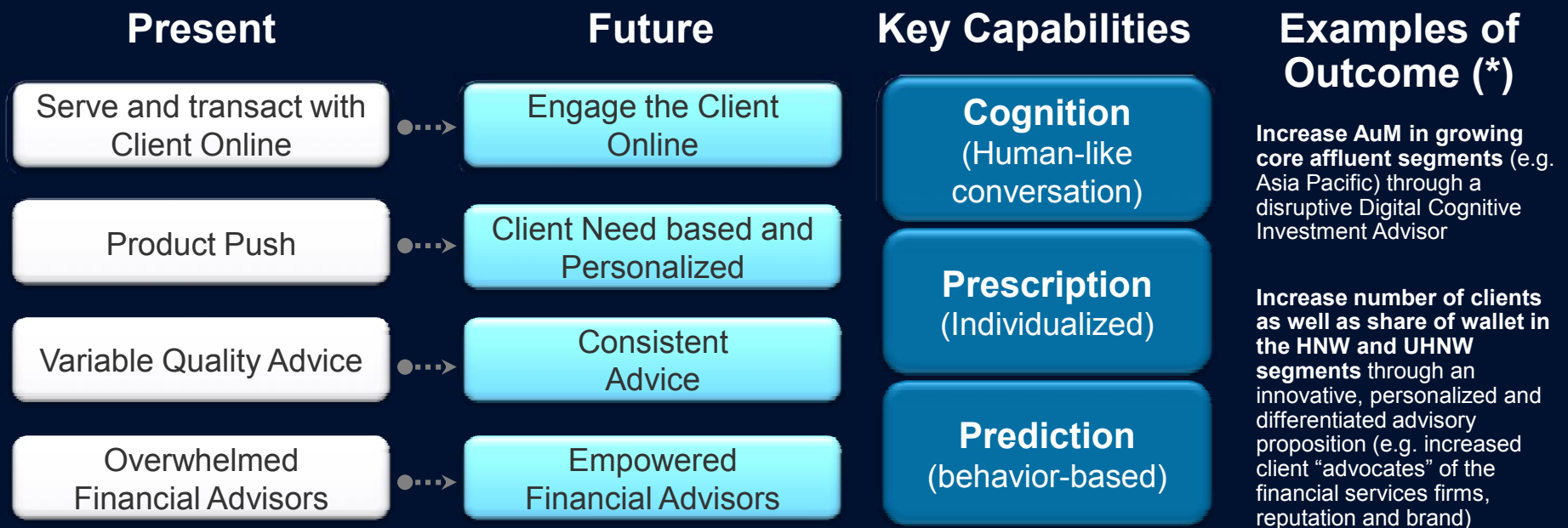
The Opportunity:

**Watson for
Wealth
Management**

- Over 1/3 of the \$32 trillion in US investable assets are ignored by wealth managers because of the inability to scale financial advice.
- 44% of customers have not spoken with their financial services provider in over 18 months.
- Strong correlation between advisors who contact their clients more, generate higher returns

The future of Financial Advice goes far beyond Digitization

Complementing Digital and Analytics with Cognitive is the key differentiator



Reference Case: DBS

Providing personalized, consistent and holistic investment advice

Bank Business need:

- **Relationship Managers** are confronted with **extensive internal and external information** and are facing informed, digitally-enabled clients
- Clients expect **personalized, consistent, fact based and holistic** investment advices

Our Cognitive Solution:

- RM gains **relevant market & client insights** by interacting with Watson in **natural language**.
- By analyzing client as well as market's structured and unstructured data, Watson is able to provide the investment advice that best suits the Client's investment needs

“ DBS will leverage a comprehensive portfolio of IBM solutions which include business consulting, advanced analytics, hardware and IBM Research assets to further augment the power of Watson . By bringing together all of these capabilities, DBS will be uniquely positioned as the first bank in Asia to execute a project of this kind. ”

<https://www.youtube.com/watch?v=PVIUqUTfg5E>



Watson allows a Relationship Manager to quickly gain insights about his clients and the **market to provide educated and personalized advice**



Introducing Watson for Wealth Management



Watson solution: (<https://vimeo.com/ibmwatson/review/126541024/71b579b074>)

Single desktop solution that enables advisors to **understand** investor needs, **engage** with investors based on individual sentiments, personalized events & news and **provide evidence based** advice

Expertise

Exploration

Engagement

Watson for
Wealth
Management

What we can do today:

1. 360 Degree View of Investor

Consolidated instance of structured & unstructured content across emails, CRM and PMS with federated search (WEX)

2. Personality Insight

User modeling from unstructured client text (e.g., email, call log, tweets) (WEX)

3. Product Exploration

Deep Q&A on analyst reports& SEC filings (WEA)
Map external news to investor portfolio (WEX)

4. Personalized News

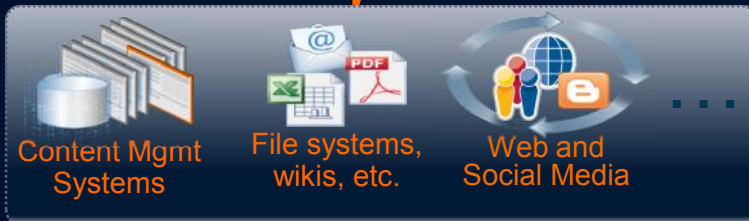
Concept analytics to map explicitly and implicitly related news to clients (WDA)

Exploration

Information access: How to get the secure information and insights to the right personnel, when they need it, at the right time.

Watson Explorer

Watson Explorer makes structured and unstructured data from enterprise and non-enterprise silos easily accessible at “the point of impact” to people when they need it.



Unstructured content (Internal & External)



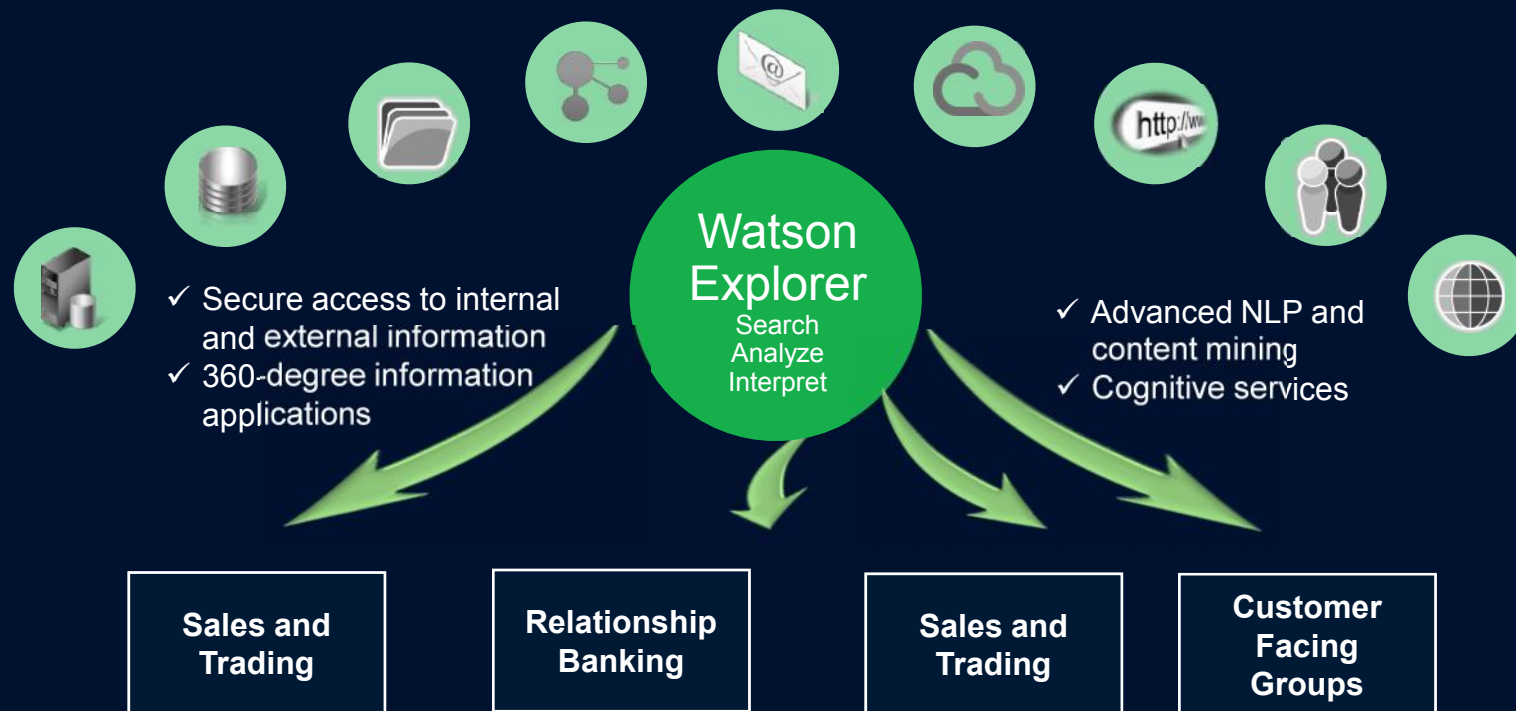
Structured data

Expertise

Exploration

Engagement

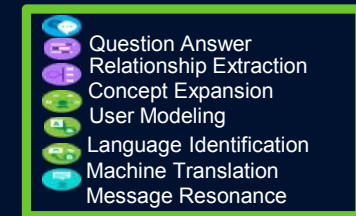
Information Access and Unstructured Data Insight



Watson Cognitive Explorer

Watson Developer Cloud

- Interpret information to enhance, scale, and accelerate human expertise through cognitive capabilities



Cognitive Exploration

- ✓ Exploration across many different sources
- ✓ Content analytics
- ✓ Cognitive insights
- ✓ Delivered in a 360-degree information application

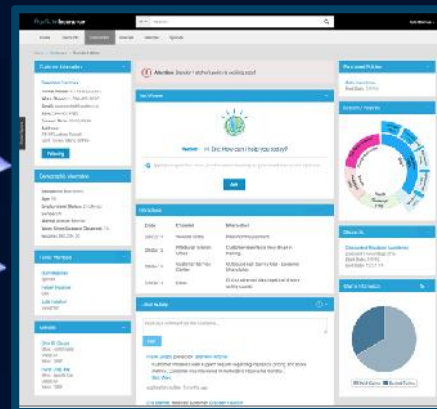
Watson Explorer

- **Explore**, visualize, and explore information from internal and external content (structured and unstructured) through 360-degree information applications

Watson Content Analytics

- **Analyze**, visualize, and discover insight in unstructured data through NLP and text analytics

Watson Explorer V10



IBM Watson Watson Developer Cloud



Available today



Personality Insights

Personality analysis to help engage users on their own terms.



Message Resonance

Communicate with people with a style and words that suits them



Concept Expansion

Maps euphemisms to more commonly understood phrases



Relationship Extraction

Intelligently finds relationships between sentences components



Machine Translation

Translate text from one language to another.



Question and Answer

Direct responses to users inquiries fueled by primary document sources



Visualization Rendering

Graphical representations of data analysis for easier understanding



Language Identification

Identifies the language in which text is written

Newly released

SPEECH
TO TEXT



Employs low latency speech recognition capabilities to convert English speech to text

TEXT TO
SPEECH



Synthesizes natural-sounding speech from text in English and Spanish

VISUAL
RECOGNITION



Analyzes the visual content of images and videos to understand their content

CONCEPT
INSIGHTS



Explores the concepts behind your input, identifying associations beyond traditional text matching

TRADEOFF
ANALYTICS



Helps users make better choices by weighing multiple and often conflicting goals

Newly Acquired

Now part of IBM and the
Watson Developer Cloud



AlchemyAPI

Integrate advanced text mining and computer vision into your application.

IBM Watson 360-degree information application



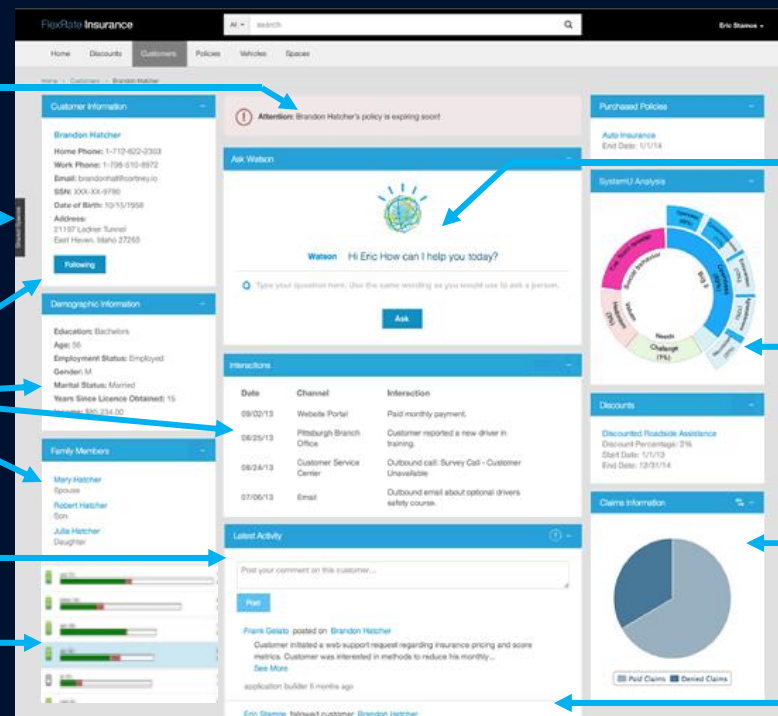
Cognitive Exploration example – information, analytics and cognitive insights presented in context

Data-driven alerts

Collaboration and information sharing

Data from enterprise systems such as CRM, DBMS, CMS and SCM

Content analytics to reveal insights from unstructured data



Question & Answer service enables the user to ask natural language

User Modeling service provides the user with a more detailed profile of the client

Analytics, in context

Activity feed for up-to-the-moment information

Watson Explorer 360-degree information application

The screenshot displays the Welch Allyn user interface for Janet Robertson. The interface includes a header with the Welch Allyn logo, a search bar, and a login status for Frank Gelato. The main content area is divided into several sections:

- Personal Information:** Janet Robertson, Distributor / Purchaser, Department: Purchasing, Office: Syracuse, Email: jrobertson@galisano.com, Phone: 315.555.1212 x555.
- Associated Accounts:** Golisano-Strong, Strong Memorial.
- LinkedIn History:** Golisano Children's Hospital, Strong Memorial Hospital.
- Purchase History:** A table showing past purchases.
- Free Thermometry Device:** A promotional banner for a free device when purchasing a 767 Integrated Diagnostic System.
- Recommended product:** A list of recommended products.
- Past purchase history consolidated across systems:** A section showing consolidated purchase history.
- Real-time Activity Feed shows updates from many sources:** A feed showing updates from various sources.
- Recent conversations:** A section showing recent conversations.

Annotations highlight key features:

- Recommended product:** Points to the 'Free Thermometry Device' banner.
- Past purchase history consolidated across systems:** Points to the 'Purchase History' table.
- Contact information:** Points to the 'Personal Information' section.
- View external information with internal information on a single screen:** Points to the 'LinkedIn History' section.
- Real-time Activity Feed shows updates from many sources:** Points to the 'Real-time Activity Feed' section.
- Recent conversations:** Points to the 'Recent conversations' section.

Date	Amount	Product
2011-04	23k	767 Integrated Wall System
2011-01	25k	Connex Integrated Wall System

Recent conversations:

- Frank Gelato commented to Janet Robertson:** "Scheduled a meeting with Janet for next week. I'll let everyone know how..."
- Chelle Kroll added the email contact Janet Robertson.** - 2 days ago
- Idd Williams updated the history Golisano.** - 3 hours ago
- mbolin updated the document Golisano Contact Information.** - 1 days ago

IBM Watson Quickly identifying customer satisfaction trends

Customer Reference



The need

A company needed to better understand customer feedback to adapt its business accordingly. Most of its valuable information was trapped inside free-form customer feedback surveys and the company's staff was required to read each customer comment submitted via email or phone and then manually categorized it.

The solution

The company created a “Voice of the Customer” analytics system to automatically capture customer experiences

- Customer comments are captured in real time to be transformed into actionable intelligence
- Linguistic rules automatically analyze and tag unstructured content into meaningful service reporting categories

The benefits

- Improved accuracy and speed of the customer feedback analysis process
- Quick identification of trends or issues and adjustment operational service levels accordingly
- Focused attention by field managers to perform deep-dive analysis of customer comments

Verizon Wireless

Improving contact center efficiency

The need

- Call center agents could not find precise information to resolve customer issues - Multiple search systems and interfaces e.g. Omniture Drupal (built-in search), Oracle UCM, & Google
- High cost of preparing content for use by contact/call center agents - 6 FTEs, \$1.1M cost per year
- Saving 1 second per call in the contact center worth millions based on 30,000 agents time searching for answers

The solution

- Solution deployed in approximately 3 months
- Verizon transformed call centers with real-time access to customer and product data
- Access to info in one w/space rather than multiple siloed apps. Created knowledge management application for 30,000 call center agents with highly relevant results from multiple sources
- Delivery of relevant information to call center agent regardless of where it is stored or managed
- Unified disparate systems across the corporation between Verizon Wireless and Wireline

The benefits

- Watson Explorer reduced the Average Handling Time (AHT) for customer calls by providing single integrated UI for the call center agents, providing relevant information faster
- Verizon estimated that every second shaved off the AHT results in millions of dollars in cost savings for call center operations!
- Verizon has realized cost savings as they re-deploy edsix FTEs previously focused on manually segmenting large device manuals



Verizon Use Case

<https://www.youtube.com/watch?v=9lsE0rQPIJE>

Exploration

Gaining insights from unstructured content: How do I get valuable information from emails, surveys, unstructured information in databases, social media, chat logs, notes etc

Content Analytics

- Transform information into **business insight quickly** without building models or deploying complex systems
- Derive insight in **hours or** days – not weeks or months
- Easier to use **for knowledge workers** to discover **and** analyze **content**
- Flexible **and** extensible **for deeper insights**

Unique Insights



Aggregate, Analyze
and Visualize data
from external and
internal content
sources, social media
and more

What is Content Analytics?



Traditional analytics gives us the WHO, WHAT, WHERE and WHEN

Content Analytics give us, context, root-cause, and **HOW & WHY**

Watson Content Analytics provides the “why” behind the “what”

What is happening?

Mortgage fees and revenue missed target even though rates are lower than competitors

10 percent decrease in applications for credit cards

20% increase in customer dropped calls

%15 increase in loan loss rate



Why is it happening?

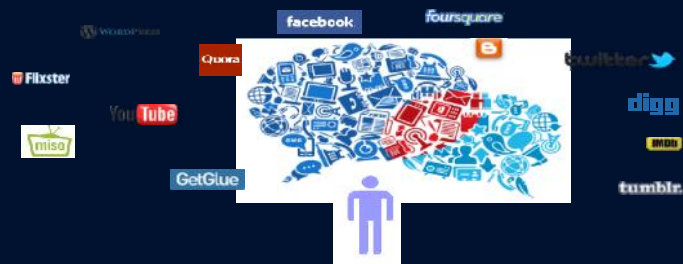
Customers checked mortgage rates online, emailed to his banker, spoke to a call center agent and posted tweets about intent of buying a house – bank missed insight

Customers found competitor's travelling credit card to better fit their needs. Competition mined customer needs and developed products based on unstructured information.

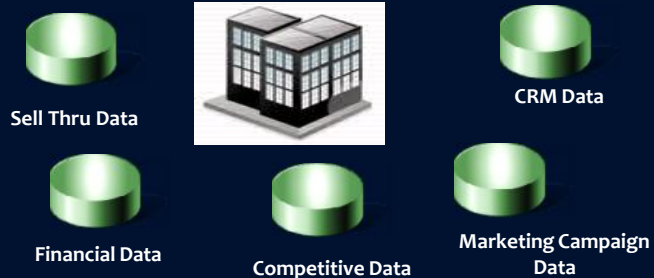
Client dissatisfied with lack of customer agent knowledge around specific products. This customer feedback present in unused call log data.

Inability to leverage external customer data to enhance 360 view and identify risks for credit assessment and pricing

Social Media Unstructured Data



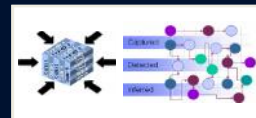
Traditional Enterprise “Structured” Data & Unstructured fields



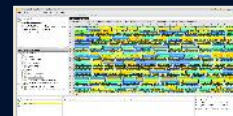
Watson



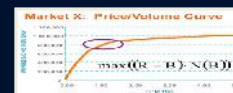
Sentiment Analysis



Segmentation



Text Analytics



Cognitive

Use-Cases

- Predict Customer behaviors individually based on profiling
- Listen to Voice of Customer in banking landscape, recognize sentiments around services and campaigns
- Improve and develop products and services based on insight into customer preferences, needs and trends
- Optimize interactions with customers through multiple channels
- Improve call center productivity by allowing agents to see 360 customer view
- Churn reduction by mining customer logs and other data
- Enhance risk scoring of individuals by enhancing CRM data with Social Media Data

1. Sold two houses,
huge EFT's to Bank X.



2. 2 visits to Bank X
website to check
mortgage loans



3. 2 calls with the RM on
mortgage rates



4. 3 emails with the RM
on payment plan



5. 2 SWIFT's to XXX
Construction as the
down payment



6. 39 age with family and
kids, investing



7. 2 Twitter posts on
investing in real estate



8. New USD account

MEHMET WAS LOOKING FOR A MORTGAGE LOAN

190K interest and commission LOST TO

Competition

Unstructured information

Geolocation



Web click
streams



Social media posts



Correspondence



Contact center notes
and chats



Channel usage



Structured information

Customer
demographics



Account
information



Credit data



Transaction
details



Bank X has the **insight** but did not use

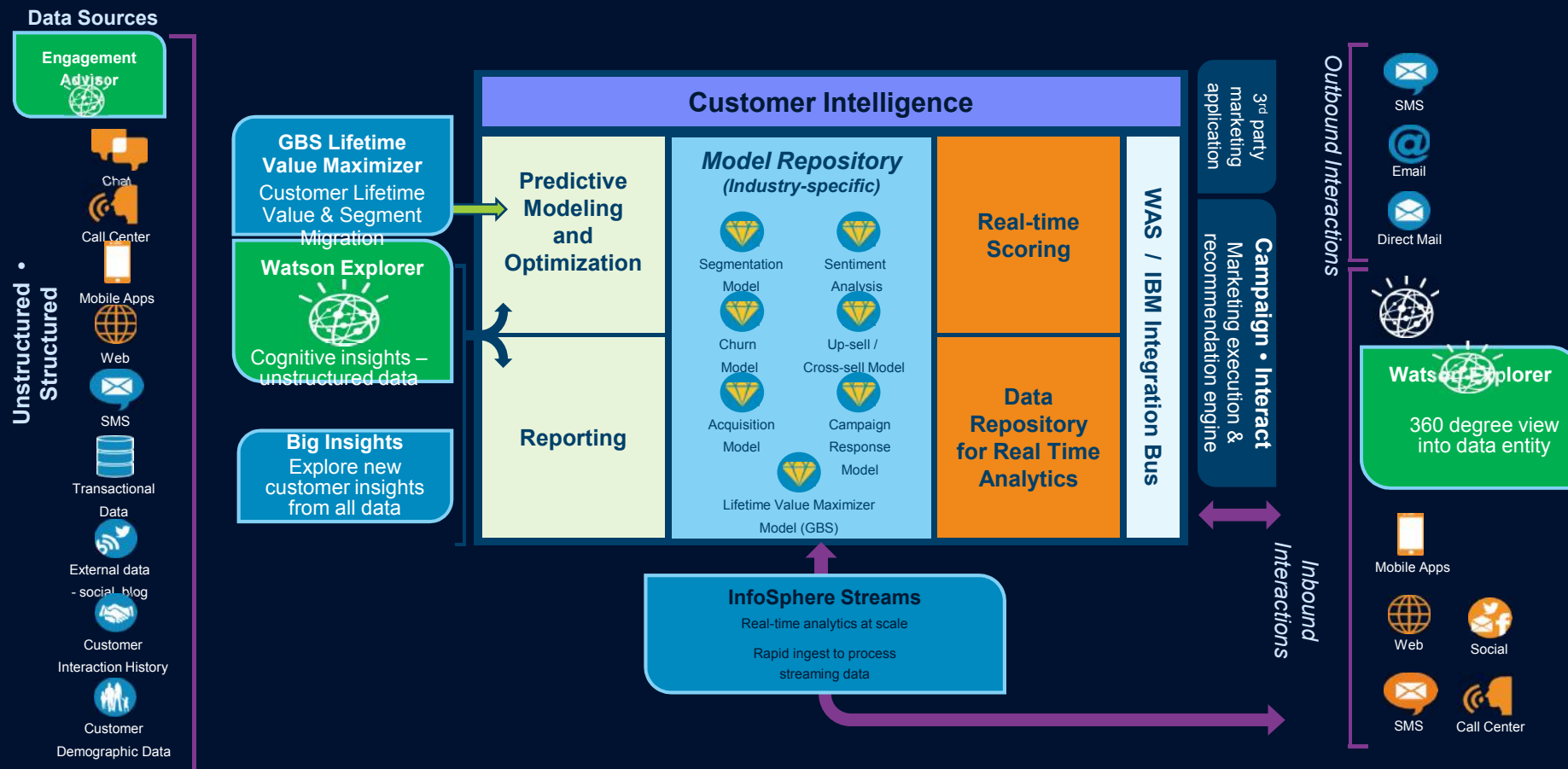


Bank X does not have the **data**



Bank X has the **data** but did not transform to insight

IBM Watson THE SOLUTION COMPONENT VIEW



Use Case

A bank in China uses customer insights to provide more personalized service to its customers

85% decrease

in campaign development time by eliminating IT-intensive, manual processes

Analyzes results

to help marketers improve campaign execution

Minimizes churn

by using attrition-probability analysis to identify and market to at-risk customers



SEE MORE

- Analyzing all available data can result in more relevant, personalized interactions



Business challenge: To survive in today's increasingly digital financial services market, traditional banks must work harder than ever to retain customers through personalized services. This Beijing-based bank wanted to create marketing campaigns to help it retain high-value customers and those it risked losing but lacked insight into how to target customers with relevant offers.

The smarter solution: Using analytical customer segmentation and predictive modeling capabilities, the bank can identify customers for promotional campaigns, quickly creating and automatically delivering product and service offers to the right customer at the right time. For example, based on analysis of her banking purchases, a potential premier customer would receive an offer for an account upgrade upon her next interaction with her branch or the bank's call center.

Precision marketing not only increases the offer acceptance rate but also reduces the possibility that the bank will market products to ineligible customers.

Use Case

A bank uses cognitive analytics to derive predictive insights from unstructured data to anticipate and meet customer needs

10% increase

in the acceptance rate of online credit offers

Shortened call times

by providing contextual customer information to representatives

Reduced costs

of operations by multiplying the number of calls that representatives complete



KNOW MORE

- Insight into data Bank collects today to drive value



Business challenge: Bank tellers and call center representatives often create an electronic record of their customer interactions, but the records' typical lack of structure makes it difficult for banks to capitalize on this relevant information. This bank in Israel envisioned combining this unstructured information with other customer data to gain greater customer insight and create more timely and targeted offers.

The smarter solution: The bank now uses cognitive analytics to identify customers' key life and financial events and then apply predictive analytics to project their timing. For instance, the bank can now capture and analyze a teller's conversation with a parent who talks about a new teenage driver in the family to generate a competitively priced insurance quote now, and a month later contact the customer about a new car loan.

Data-driven product offers create a more personalized customer relationship, improving customer satisfaction and reducing churn.

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Use Case

A major bank in Mexico builds a new customer-centric business model on a foundation of analytics and personalized engagement

USD200 million

in combined cost savings and revenue increases anticipated in the first two years

40% increase

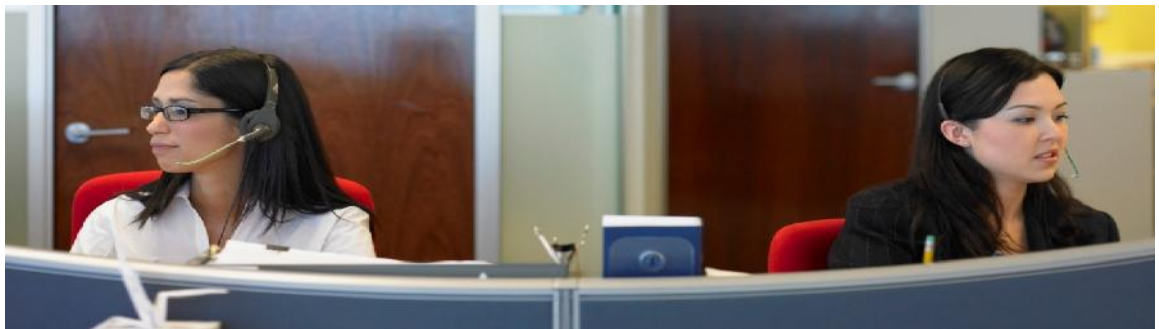
in operating efficiency expected

Increases retention rates and revenue per customer through more informed interactions and tailored product suggestions



DO MORE

- Increasing cross sell & upsell opportunities



Business challenge: When banks grow fast, especially through acquisitions, it's easy to lose the personal connections with customers that are essential to growth, customer retention and fending off competitors. To strengthen that connection, this bank sought to infuse all of its frontline processes with deep insights into the customer to drive a more engaging multichannel experience.

The smarter solution: The bank is delivering precise personalized customer interaction on a very large scale. It's using models to extract insights into how its customers' lives are changing—whether it's time for a new car, college tuition or a different kind of checking account—and using those insights to craft highly targeted cross-selling offers that hit the mark. The company is using “next best action” decision optimization algorithms to guide local branch and call-center representatives in their direct dealings with customers.

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Engagement

Expertise

Exploration

Engagement

The Opportunity:

**Watson
Engagement
Advisor** for
Banking &
Insurance

- 44% of customers have not interacted with their FS provider in over 18 months
- In a recent survey, 75% of customers believed that there was no differentiation between products
- E&Y's most recent FS customer survey shows that customer experience is the leading cited reason for switching companies – ahead of cost and convenience

Expertise

Exploration

Engagement

Watson Engagement Advisor for Banking & Insurance

What we can do:

- Watson can provide **relevant, contextual answers to natural language questions**, without compromising on quality or churn risks.
- Watson currently knows English, with Portuguese, Spanish, French, and Italian under development
- Watson Content Analytics + Next Best Action is available in English, French, Arabic, Turkish

Natural Language:

- Watson uses natural language processing and DeepQA technology to break down and understand a customer's question
- There may be 100 ways to phrase the same question – Watson can learn them all

Context:

- Watson understands that dialog is iterative
- Questions may only make sense if you understand the context of the previous questions
- Based on your CLV and profile, take relevant action like up-sell

Action:

- Watson is able to integrate business processes into customer conversations
- At the appropriate time and within context, Watson can trigger processes from within the Watson instance
- Can integrate into Next Best Action to maximize Customer Lifetime Value

Expertise

Exploration

Engagement

**Watson
Engagement
Advisor** for
Banking &
Insurance

What does this enable:



Personalize all interactions

- » Possess context
- » Offer insight-driven recommendations
- » Learn and adapt



Conduct conversations

- » Creation of new, engaging touch-points
- » Develop a more comprehensive profile



Provide assurance

- » Improve financial literacy
- » Seamlessly handle processes and transactions

Expertise

Exploration

Engagement

Watson in action at ANZ

**Watson
Engagement
Advisor** for
Banking &
Insurance

Needs

- The bank was looking for a solution that would allow financial advisors educate customers as well as about portfolio products.
- They want to help educate people in how to get started with savings and insurance.
- The Firm trying to connect with members who don't are just getting started in the real world

Solutions

- ANZ has Growth center opening up around Australia with an iPad-optimized application which incorporated the power of IBM Watson to enable financial advisors as well as clients ask questions about products
- Watson ingested a high volume of product data to help answer question around banking products correctly and confidently.
-

Benefits

- Created a new application to train the next generation of Australians
- Create bite size relevant advice instead of less specific documentation that needs additional manipulation
- Provide more dynamic, interactive experience
- Increase customer satisfaction

Watson Engagement Advisor For Financial Services

Watson transforming the overall customer experience

Understands Natural Language

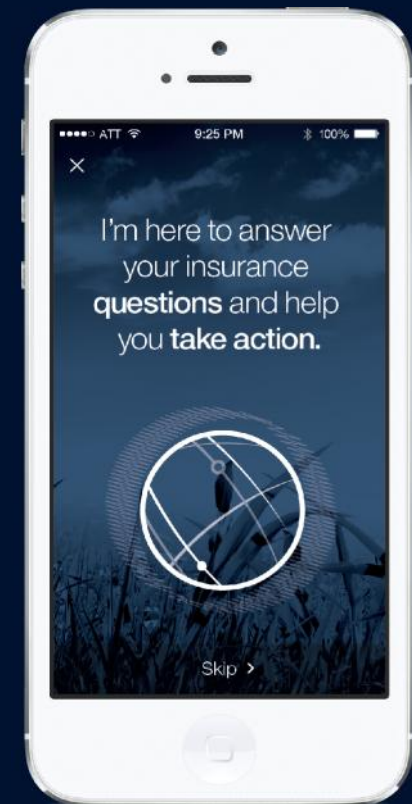
- Engages in interactive conversations personalized to customers
- Communicates insight-driven answers/recommendations with confidence
- Provides multiple channels for self-service

Financial Services Know-how & Company Expertise

- Pre-trained with industry specific content (eg. consumer regulations, best practices)
- Pre-configured to accelerate integration with key enterprise systems & analytics engines
- Can recognize and perform processes and transaction on behalf of customers in guided and unguided conversations
- Acts on triggers from external events (news events, weather etc.)

Personalizes from Interactions

- Learns and adapts to every customer interaction
- Continues to build a relationship 'memory' for individual customers to create a highly personalized relationship



Live Demo of Watson Engagement Advisor

Simulating the Agent Experience

IBM Watson University Program: Leveraging WEA

Students and Watson: changing the world:

- 'Cognitive Computing: Innovation with Watson' course piloted at 10 notable universities

Each given unprecedented access to Watson Engagement Advisor via the cloud

- Focused on a domain of their choosing
- Built a corpus
- Divided into teams in their classrooms to develop prototype apps
- Prepared business plans of how they would commercialize

4 Teams built applications that they are getting funding to develop

- (1st Place) University of Texas:
<http://bit.ly/1yb0CoK>
- (2nd Place) University of Toronto:
<http://bit.ly/1KGwdnr>
- (3rd Place) UC Berkeley:
<http://bit.ly/1DDVOeP>
- University of Michigan:
<http://bit.ly/14WRHeU>
- Carnegie Mellon: <http://bit.ly/1z73bK0>
- Northwestern: <http://bit.ly/1y8ks5H>
- The Ohio State University:
<http://bit.ly/1Is1xEr>
- RPI: <http://bit.ly/1wbcr8W>

The Cognitive Value Assessment Process



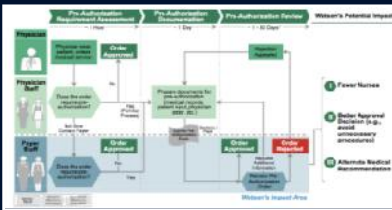
Engage With Watson MEA Team

The Watson Journey consists of Three Phases

1 Start Here - CVA

You are here

Use Case



Benefits Case Report

Goal	Target Object	Initiative	Operational Benefit	Business Benefit
Improve operational efficiency	Business Process	Process Automation	Process Automation	Process Automation
	Business Process	Process Automation	Process Automation	Process Automation
	Business Process	Process Automation	Process Automation	Process Automation
	Business Process	Process Automation	Process Automation	Process Automation
Improve customer experience	Customer Experience	Customer Experience	Customer Experience	Customer Experience
	Customer Experience	Customer Experience	Customer Experience	Customer Experience
	Customer Experience	Customer Experience	Customer Experience	Customer Experience
	Customer Experience	Customer Experience	Customer Experience	Customer Experience

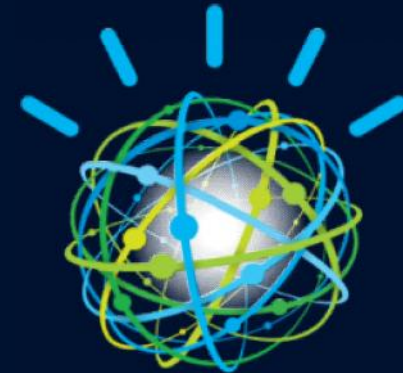
2 Implementation

Core System Training



3 Deploy & Manage

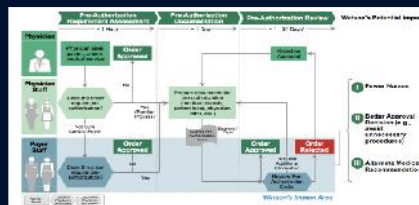
Deploy and Expand to Other Domains



Key CVA deliverables drive our teams to define Watson's initial capabilities, business value

Use Cases

- Assessment of current business workflows and identification of target processes to disrupt with cognitive solutions
- Development of final candidate Use Case(s)
- Development of User Scenarios / Personas aligning to Use Case



Benefits Case

- Development of key benefits hypotheses
- Data collection to test hypotheses
- Development of Benefits Case



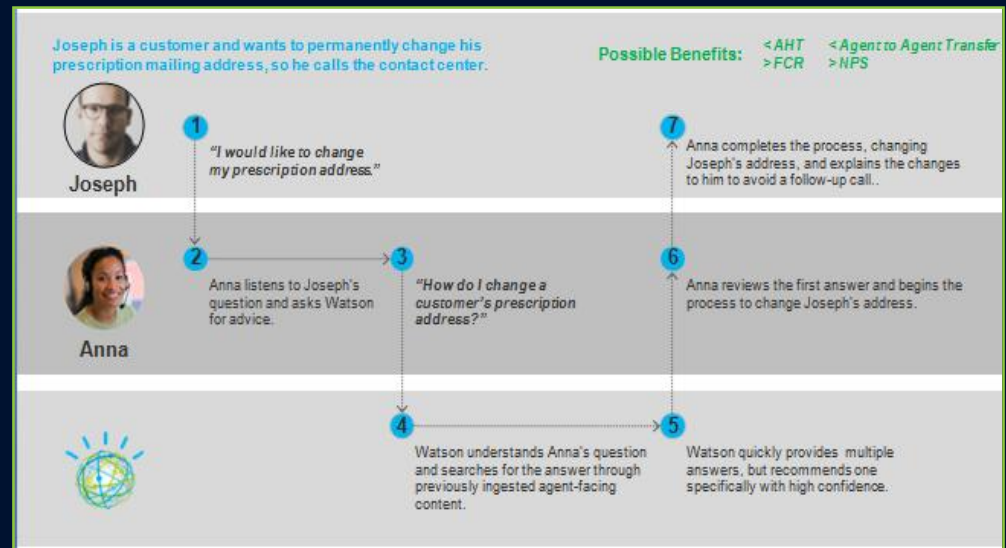
The first step is to identify Watson's role in key user scenarios and processes

Objective

The purpose of developing Use Cases is to develop a point of view on a Watson enabled target state from the point of view of the end user(s) to and define criteria and metrics for measurement against current state baseline.

Key tasks / activities

- Develop personas of Watson-enabled end users
- Define scenarios of how users would interact with the Watson system
- Understand functional capabilities required to satisfy workflow needs
- Identify key metrics to track value once target state workflows are enabled by Watson
- Develop Use Case(s) to implement
- Deliver a PowerPoint including target personas and user scenarios, key indicative questions, and supporting metrics



A comprehensive business objectives and benefits case outlines how Watson delivers measurable value

Objective

The purpose of a Business Objectives and Benefits Case is to define key benefits hypotheses and provide a baseline benefits case to support Watson enablement.

Key tasks / activities

- Collect robust and relevant metrics from the client
- Develop a set of benefits hypotheses for a Watson enabled solution
- Develop a Benefits Case for based on workflow improvements
- Deliver a PowerPoint including benefits hypotheses, KPI's effected, and baseline Benefits Case

