

# Soluciones Cognitivas

con IBM Watson



# ¿Qué es Watson?

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## ¿Qué es Watson?

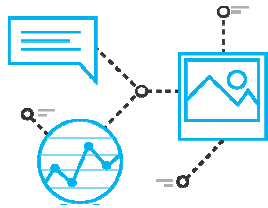
Watson es una **plataforma tecnológica** informática de **inteligencia artificial** que utiliza tecnología de Procesamiento del Lenguaje Natural y Machine Learning para **revelar conocimiento** a partir de un gran conjunto de datos no estructurados.

# El proceso de conocimiento

volumen y variedad de datos

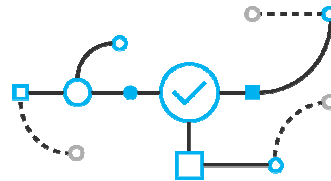


## Tres capacidades diferencian a los sistemas cognitivos de los sistemas computacionales programados tradicionales...



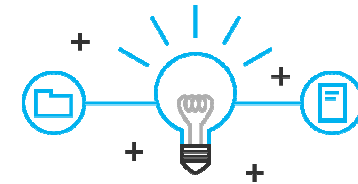
### Entender

Los sistemas cognitivos entienden como lo hacen los humanos.



### Razonar

Entienden las ideas y conceptos subyacentes. Forman hipótesis. Inferen y extraen conceptos.



### Aprender

Nunca paran de aprender convirtiéndose mas valiosos con el tiempo. Avanzando con cada pieza de información, interacción y resultado. Desarrollan "habilidades".

.... permitiéndoles interactuar con humanos.

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# La historia de vida de Watson

**IBM  
Research Project  
2006**



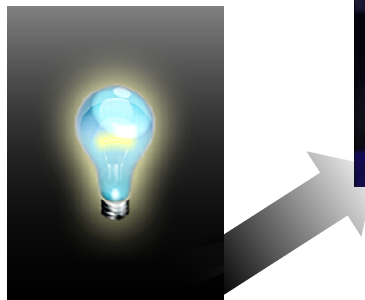
IBM  
Research Project  
2006

The image shows a game show stage with two contestants, Ken and Brad, and the IBM Watson computer system. The background features the word "THINK" in large letters, along with translations in various languages: "PIENSE" (Spanish), "ΣΙΜΑΧΩΝ" (Greek), "चिन्त" (Hindi), "DENKE" (German), and "PENSER" (French). The contestants' names and current scores are displayed on their respective podiums: Ken with \$2,000 and Brad with \$5,000. The Watson podium shows a score of \$7,000. A central screen displays a globe icon. At the bottom, a scoreboard shows the current question: "Franz Liszt" (96%), "Chopin" (10%), and "Ferruccio Busoni" (6%).

Contestant	Score
Ken	\$2,000
WATSON	\$7,000
BRAD	\$5,000

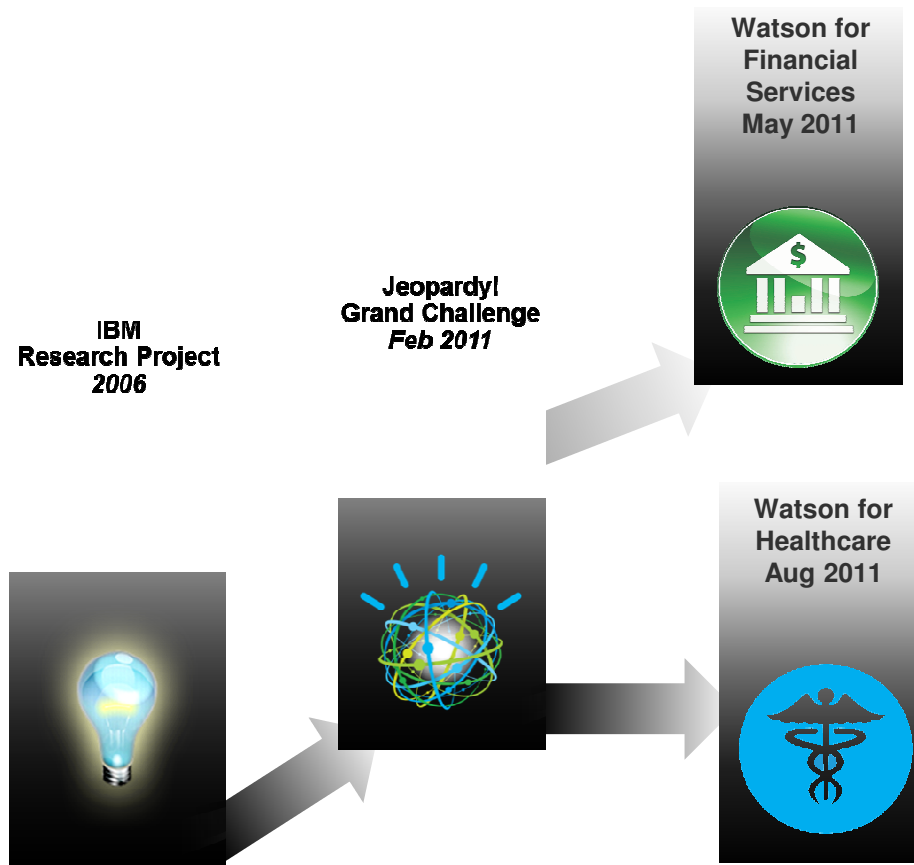
Option	Percentage
Franz Liszt	96%
Chopin	10%
Ferruccio Busoni	6%

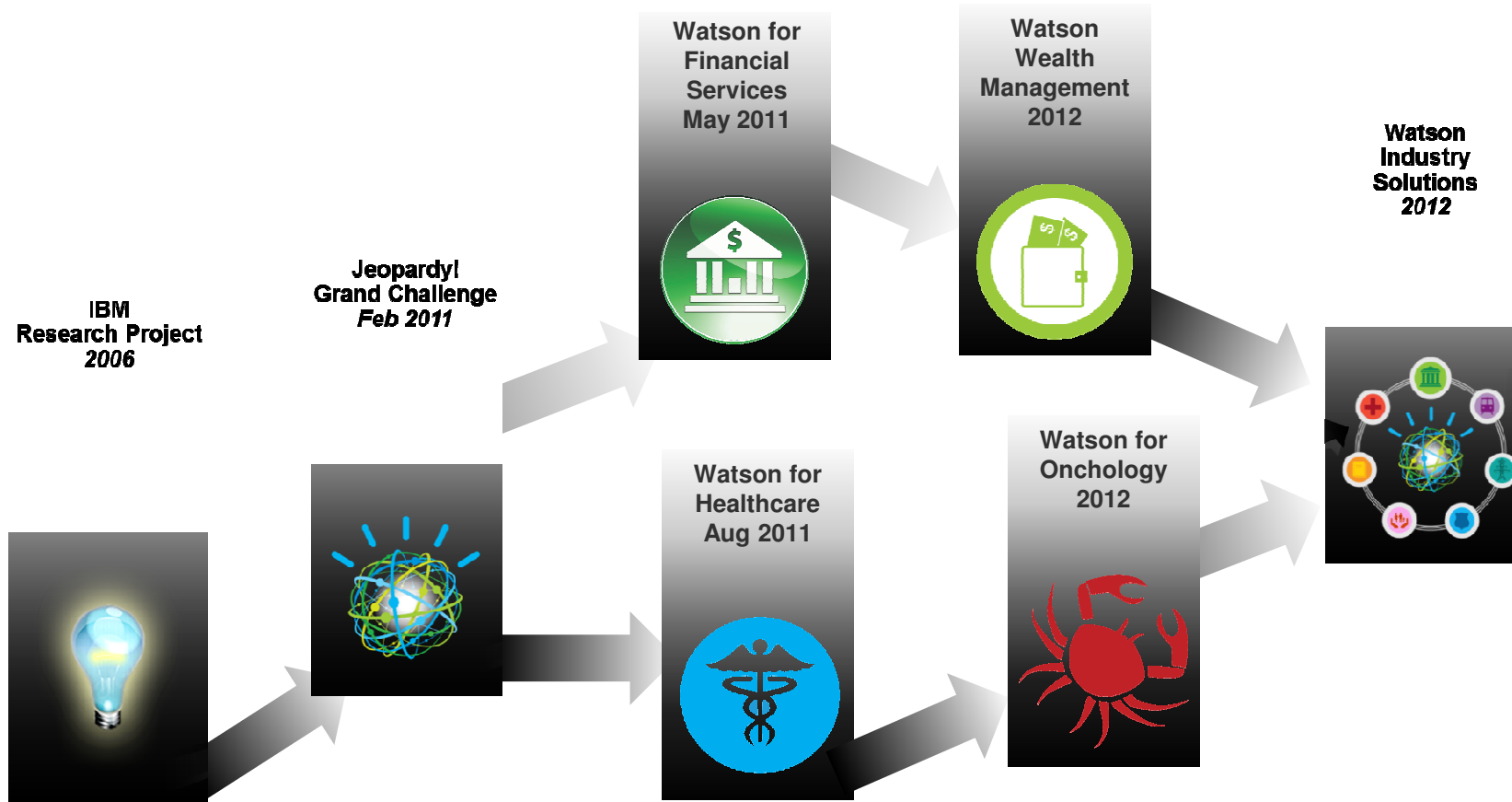


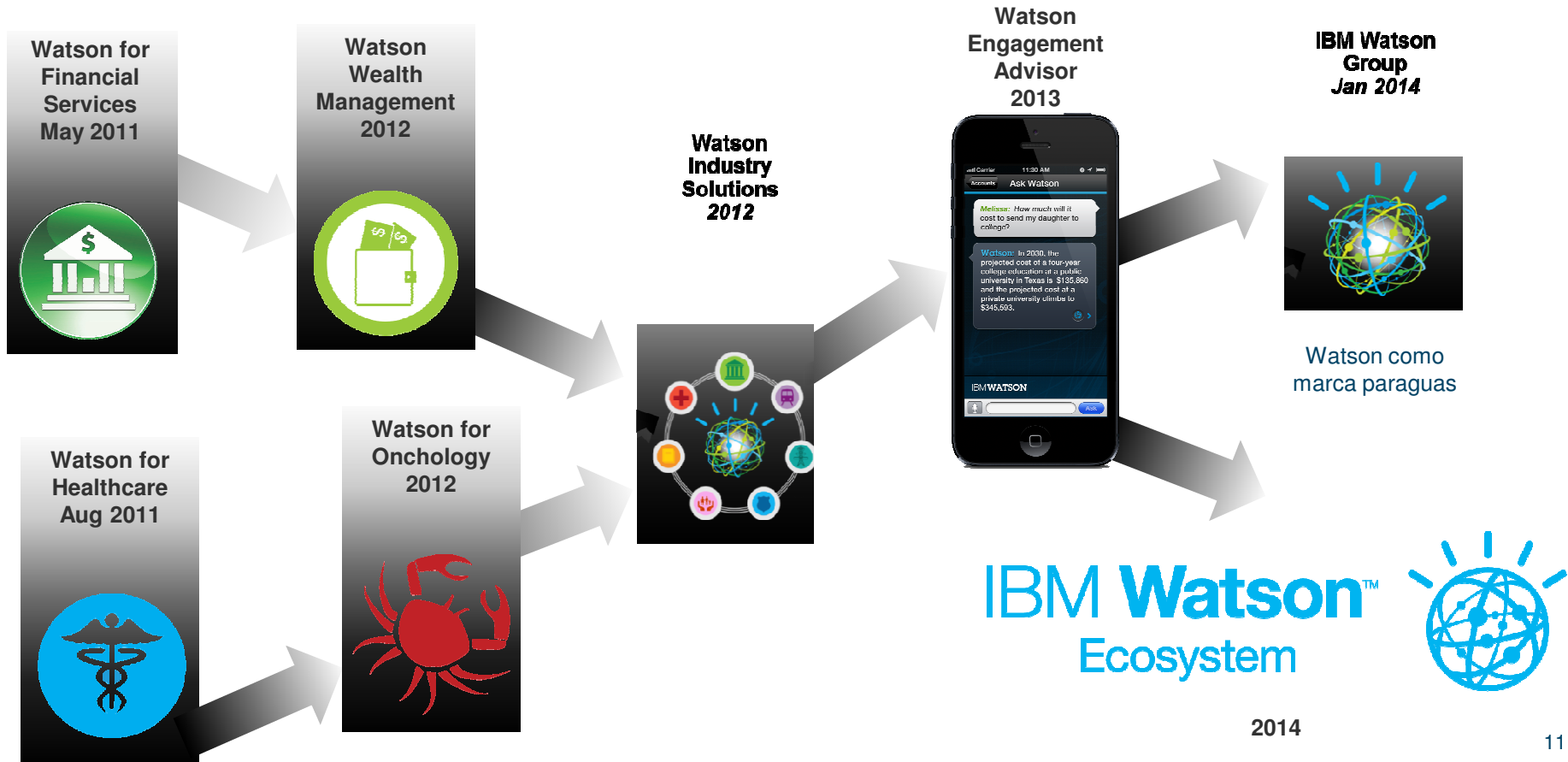
Feb. 2011

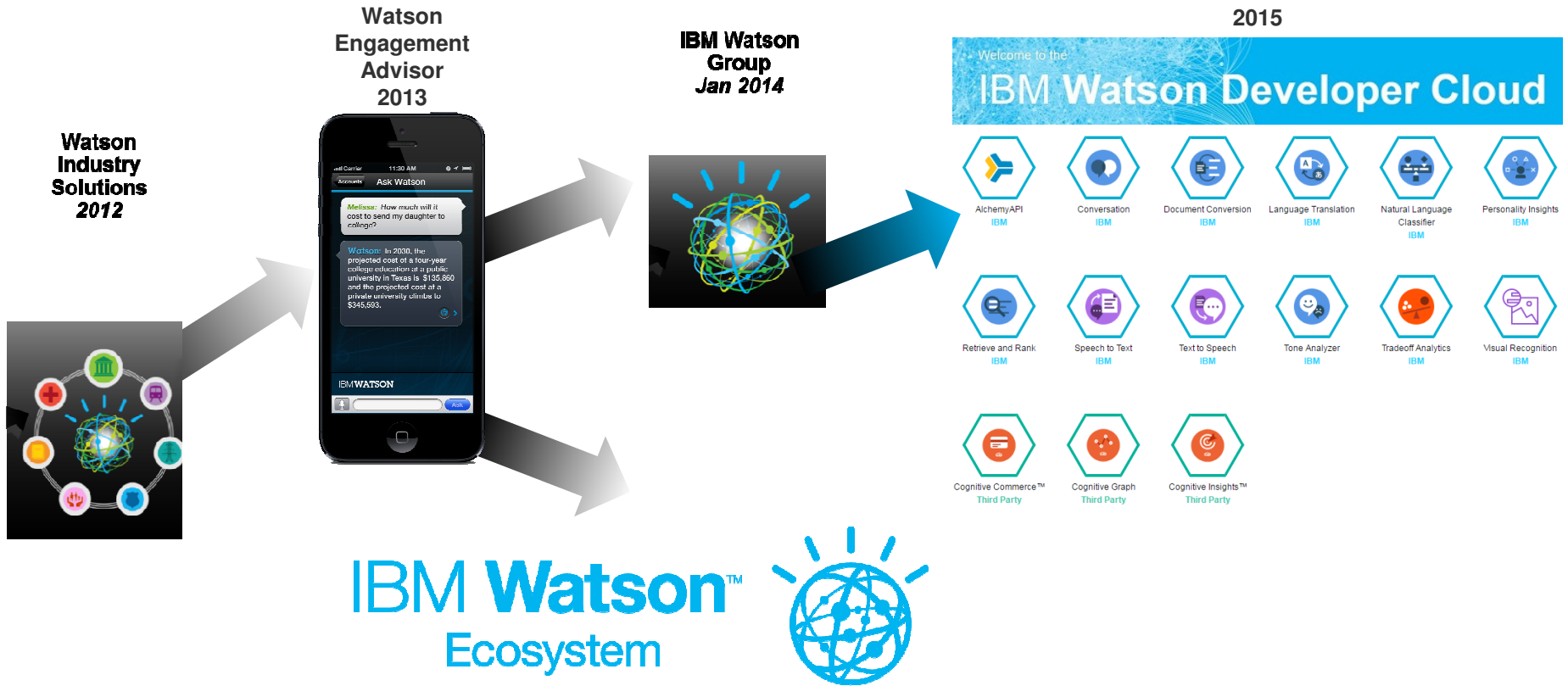
<https://www.youtube.com/watch?v=P18EdAKuC1U>



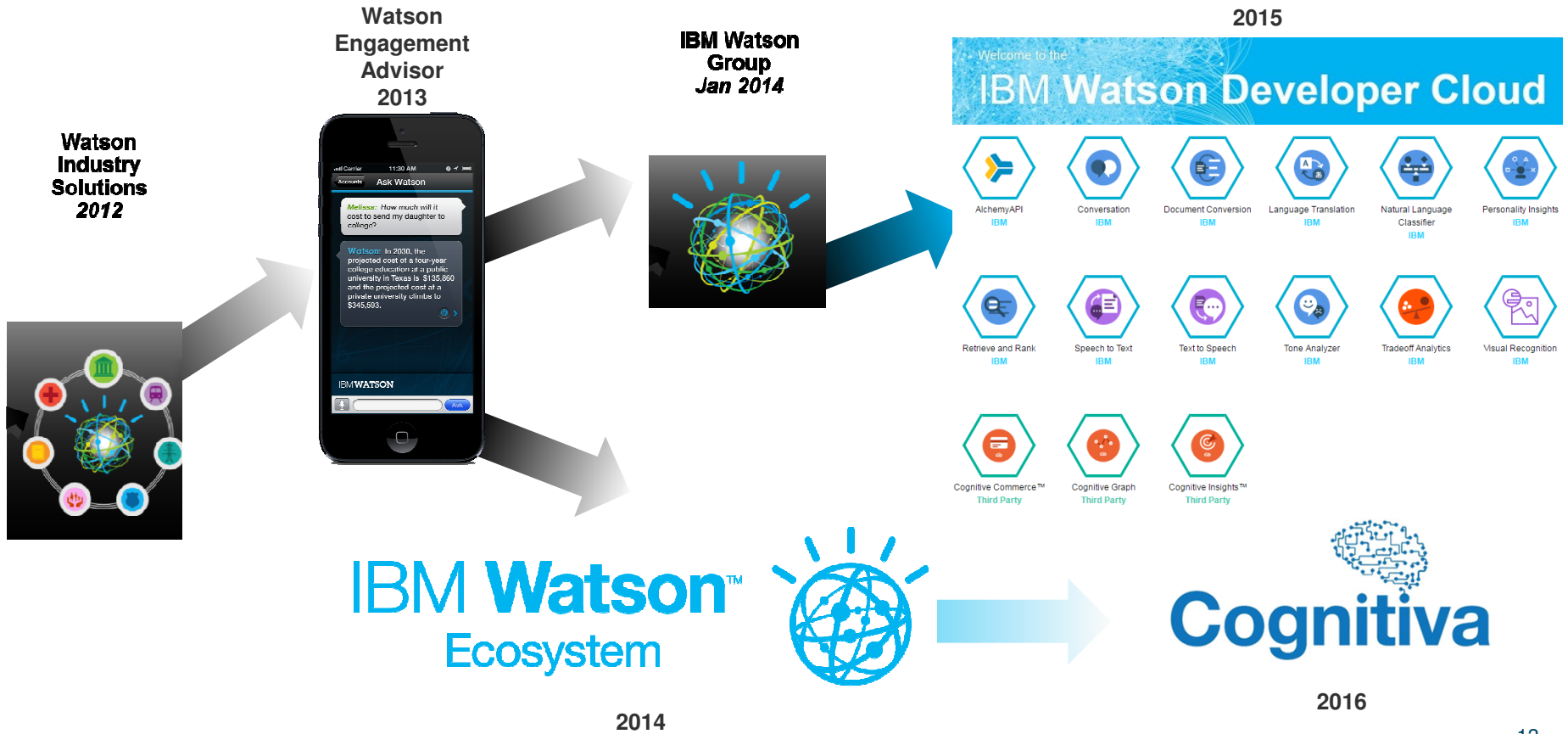




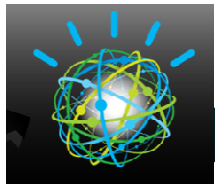




2014



IBM Watson Group  
Jan 2014

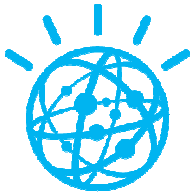


2015

Welcome to the  
**IBM Watson Developer Cloud**

 AlchemyAPI IBM	 Conversation IBM	 Document Conversion IBM	 Language Translation IBM	 Natural Language Classifier IBM	 Personality Insights IBM
 Retrieve and Rank IBM	 Speech to Text IBM	 Text to Speech IBM	 Tone Analyzer IBM	 Tradeoff Analytics IBM	 Visual Recognition IBM
 Cognitive Commerce™ Third Party	 Cognitive Graph Third Party	 Cognitive Insights™ Third Party			

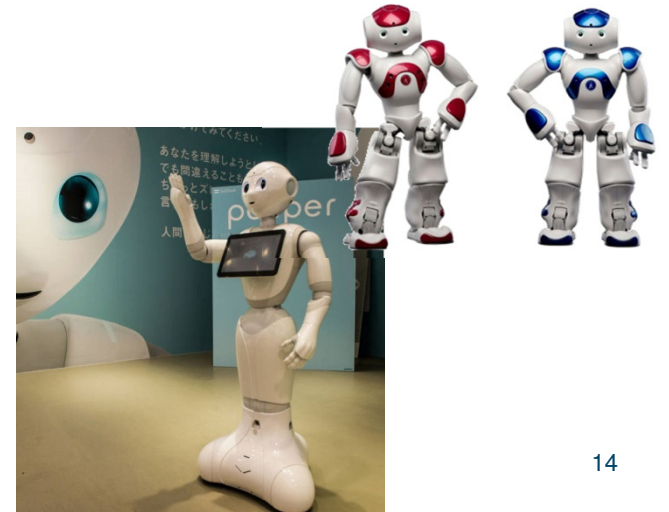
atson™  
em



**Cognitiva**

2016

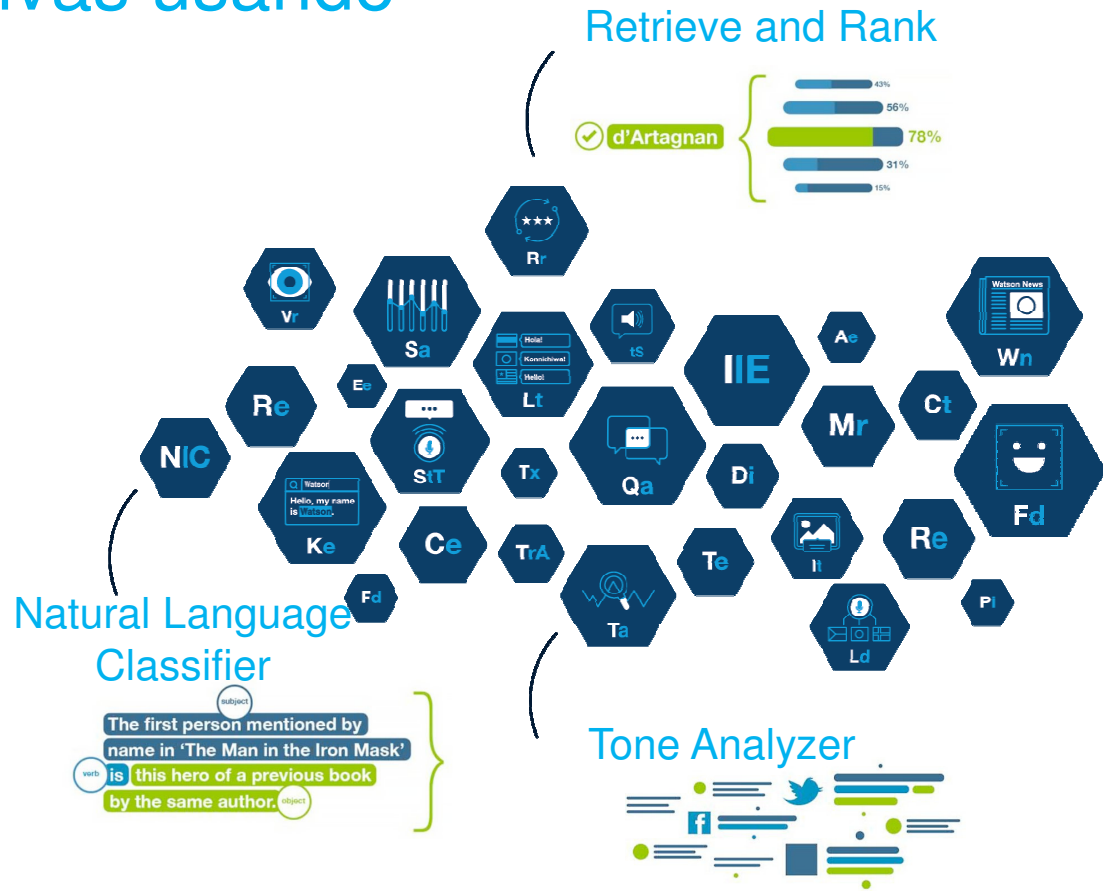
hoy



# Capacidades cognitivas usando Watson APIs.

## 50 tecnologías básicas

- Entity Extraction
- Sentiment Analysis
- Emotion Analysis (Beta)
- Keyword Extraction
- Concept Tagging
- Taxonomy Classification
- Author Extraction
- Language Detection
- Text Extraction
- Microformats Parsing
- Feed Detection
- Linked Data Support
- Concept Expansion
- Concept Insights
- Dialog
- Document Conversion
- Language Translation
- Natural Language Classifier
- Personality insights
- Relationship Extraction
- Retrieve and Rank
- Tone Analyzer
- Emotive Speech to Text
- Text to Speech
- Face Detection
- Image Link Extraction
- Image Tagging
- Text Detection
- Visual Insights
- Visual Recognition
- AlchemyData News
- Tradeoff Analytics



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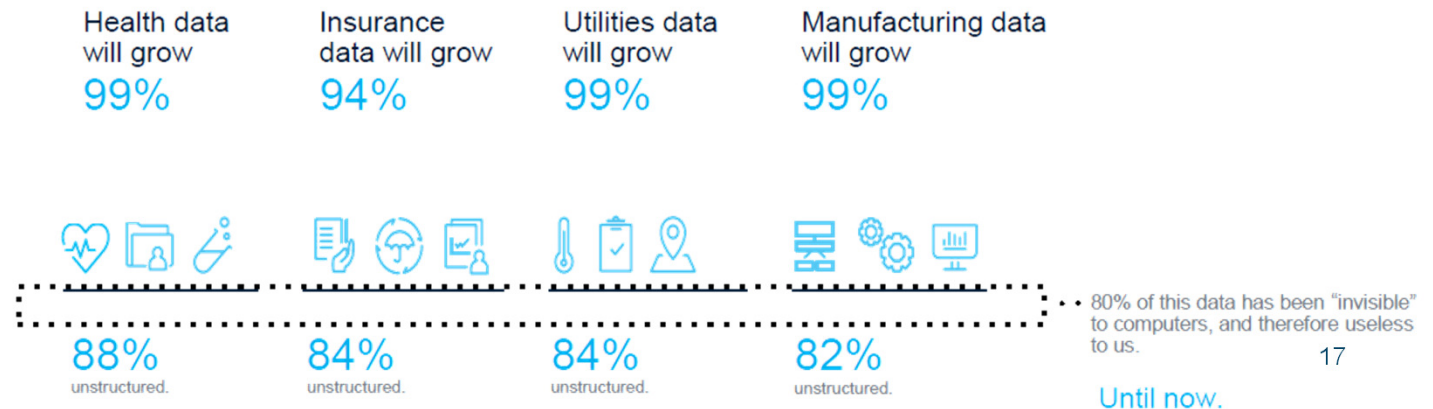
**¿por qué las organizaciones  
tienen que tener esta capacidad?**

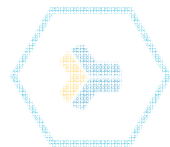


- En los últimos años se han estado generando miles de dispositivos, sistemas y aplicaciones para usos múltiples que han generado y generan millones de datos
- Por su cantidad y diversidad es imposible de procesar por los humanos en tiempos razonables
- La gran mayoría de estos datos están y se generan "desestructurados"
- Se dice que estos datos son invisibles para los humanos y para las máquinas... "nadie" los procesa

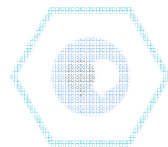
**¿Y si las computadoras pudieran procesar (entender, conectar, descifrar) estos datos en tiempos razonables para generar información útil?**

Ahí está el potencial.





AlchemyAPI  
IBM



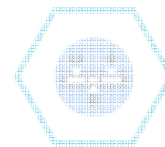
Conversation  
IBM



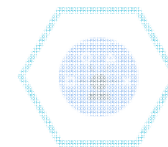
Document Conversion  
IBM



Language Translation  
IBM



Natural Language  
Classifier  
IBM



Personality Insights  
IBM

# Algunas de las capacidades de Watson



Retrieve and Rank  
IBM



Speech to Text  
IBM



Text to Speech  
IBM



Tone Analyzer  
IBM



Tradeoff Analytics  
IBM



Visual Recognition  
IBM



Cognitive Commerce™  
Third Party



Cognitive Graph  
Third Party



Cognitive Insights™  
Third Party

# Alchemy API



## Results

- Entities
- Keywords
- Concepts
- Taxonomy
- Document Emotion
- Targeted Emotion
- Document Sentiment
- Targeted Sentiment
- Typed Relations
- Relations
- Title

### Entities

Extracts people, companies, organizations, cities, geographic features, and other entities from your content, and optionally detects the sentiment of each entity.

[↔ View JSON](#)

Entity	Relevance	Sentiment	Type
Elliot Turner	0.89066	positive	Person
PR Newswire	0.252507	neutral	PrintMedia
Walmart	0.233257	positive	Company
AlchemyAPI	0.211686	positive	Company
iPhone.	0.163204	neutral	Technology
three years	0.163204	neutral	Quantity

- 12 APIs alrededor de las funciones de servicio de análisis de texto
- Utiliza técnicas de procesamiento de lenguaje natural para analizar su contenido y añadir información semántica de alto nivel
- Devuelve: entidades encontradas, palabras claves, conceptos, relaciones entre conceptos, sentimientos asociados a las entidades, etc

# Tone Analyzer



Tones

Emotion

Anger

Disgust

Fear

Joy

Sadness

Language

Analytical

Confident

Tentative

Social Tendencies

Openness

Conscientiousness

Extraversion

Agreeableness

Emotional Range

In context Ranked by score JSON

None Strong

You are now connected to Customer Service.

Customer: Hello.

Agent: Hello.

Agent: How can I help you today?

Customer: Someone created an account using my email account.

Customer: This is not my account.

Customer: How can I delete this account?

Agent: Okay, let me check this out for you.

Agent: One moment please.

Customer: Okay.

Customer: ?

Agent: Yeah.

Agent: I'm here.

Agent: I'm so sorry for taking a long time on this.

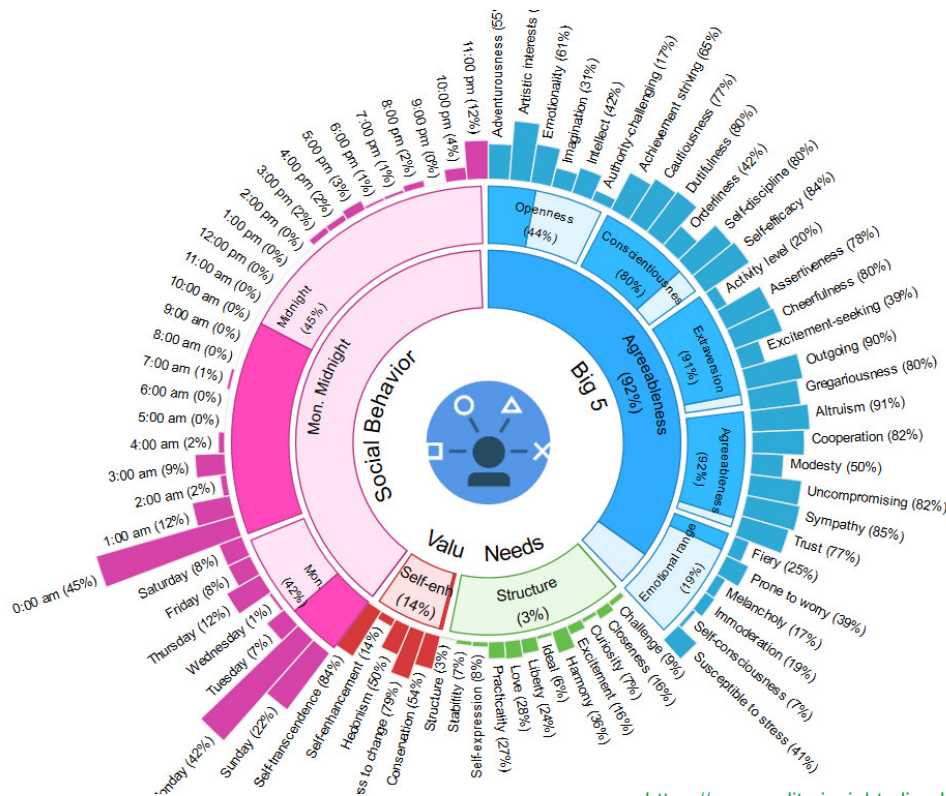
Agent: Okay, I'll reset your password.

Agent: Just check the link on it, so you can have your new password.

Customer: No

- Entiende y ayuda a “afinar” un mensaje.
- Utiliza la psicolingüística, el análisis de la emoción y el análisis del lenguaje para evaluar el tono
- Devuelve: la probabilidad de cada una de las frases de pertenecer a uno de los 5 tonos (enojo, disgusto, miedo, alegría, tristeza)

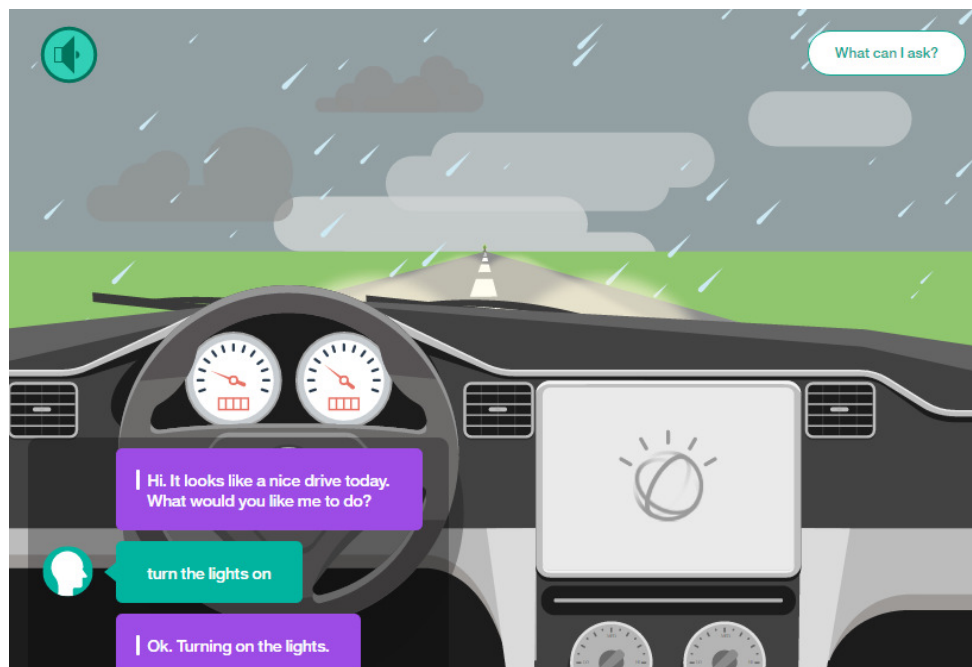
# Personality Insights



- Utiliza análisis lingüístico para inferir las características de personalidad intrínsecas de los individuos (incluyendo los “big five”), necesidades y valores, a partir de las comunicaciones digitales, tales como correo electrónico, mensajes de texto, mensajes de twitter y mensajes en foros.

<https://personality-insights-livedemo.mybluemix.net/>

# Conversation



- Con este servicio se pueden crear bots (chatbots o agentes virtuales) que combinan machine learning, entendimiento del lenguaje natural, y herramientas de diálogo para que, de forma integrada, generen una relación/experiencia con el usuario

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# ¿qué se ha hecho con Watson? (Casos de Uso)

**GET HELP FROM WATSON**

red meat olive oil thyme  
black pepper kosher salt  
butter shallot garlic  
red onion

INCLUDE EXCLUDE

Q Search:

**A**

- absinthe
- acacia honey
- acai puree
- achioté paste
- acini di pepe
- acorn squash
- active dry yeast
- adobo sauce
- african bird pepper
- agave syrup
- aged rum
- aioli
- aji amarillo
- ajvar sauce
- ajwain
- albacore tuna
- alcoholic beverage
- ale
- aleppo pepper
- alfredo sauce
- allspice
- almond
- almond biscotti
- almond butter
- almond extract
- almond flour
- almond liqueur
- almond macaroon
- almond meal
- almond milk
- almond oil
- almond paste
- almond syrup
- aloe vera juice
- amaranth
- amaretti
- amaretto

LOOK FOR INGREDIENTS

CHOOSE A DISH

PICK A STYLE

START AGAIN

FAVORITES

RED MEAT

© W

MUSHROOM

A mushroom (or toadstool) is the fleshy, spore-bearing fruiting body of a fungus, typically produced above ground on soil or on its food source. The standard for the name "mushroom" is the cultivated white button mushroom, *Agaricus bisporus*; hence the word "mushroom" is most often applied to those fungi (Basidiomycota, Agaricomycetes) that have a stem (stipe), a cap

© W

PECAN

The pecan (*/piˈkɑːn/, /piˈkæn/, /ˈpiːkæn/, or /ˈpiːkɑːn/*; *Carya illinoensis*) is a species of hickory, native to south-central North America, in Mexico from Coahuila south to Jalisco and Veracruz, in the United States in Alabama, Arkansas, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Mississippi, Missouri, Oklahoma, South Carolina, Tennessee

© W

DIJON MUSTARD

Mustard is a condiment made from the seeds of a mustard plant (white or yellow mustard, *Sinapis hirta*; brown or Indian mustard, *Brassica juncea*; or black mustard, *B. nigra*).

© W

← BACK
→ MORE

24

MORE...

**HERE ARE SOME IDEAS**

**Red Meat Rice Dish**

cornstarch, **lamb leg**, egg, pecan, mushroom, vegetable oil, horseradish root, negro chile, red rice, sorrel, sage, kosher salt, sauerkraut, soy sauce, dijon mustard, chipotle

Based on: [Tofu Yum-Yum Rice Bowl](#) from Bon Appétit

**Red Meat Noodles**













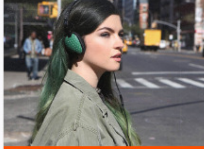


**lamb leg**, confectioners' sugar, egg, pappardelle, tarragon vinegar, striped bass, pecan, broccoli, avocado, mushroom, vegetable oil, blackberry, salsa verde, dijon mustard, white pepper



# Watson for IT (app interna a IBM)



### TOP TRENDS

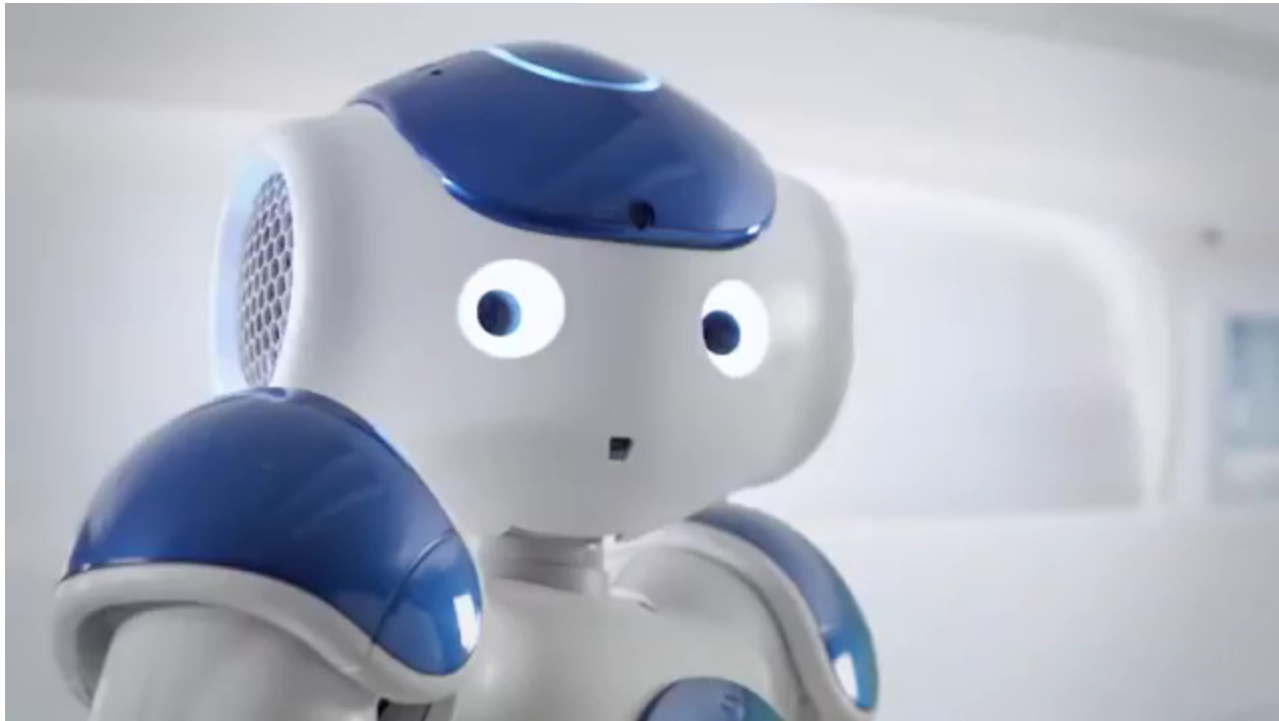
 <p>Samsung TVs <b>36</b> ▼7</p> <p>☆</p>	 <p>Sony TVs <b>34</b> ▼3</p> <p>☆</p>	 <p>LG TVs <b>18</b></p> <p>☆</p>	 <p>Sharp TVs <b>9</b> ▼1</p> <p>☆</p>	 <p>Sennheiser Headphones <b>5</b> ▼5</p> <p>☆</p>
 <p>Beats by Dre <b>3</b> ▼1</p> <p>☆</p>	 <p>Bose Audio Speakers <b>3</b></p> <p>☆</p>	 <p>Bose Headphones <b>2</b> ▼1</p> <p>☆</p>	 <p>Philips TVs <b>2</b></p> <p>☆</p>	 <p>Shure Headphones <b>2</b> ▼1</p> <p>☆</p>
 <p>JBL Flip 3 <b>1</b></p> <p>☆</p>	 <p>Sonos <b>1</b></p> <p>☆</p>	 <p>Skullcandy Headphones <b>1</b></p> <p>☆</p>	 <p>Samsung Cameras <b>1</b></p> <p>☆</p>	 <p>Microsoft Surface Pro 4 <b>1</b></p> <p>☆</p>

## Connie : conserje de hotel Hilton



<https://www.youtube.com/watch?v=AooSz0weMVc>

## Asistente en Personal Bank



<https://www.youtube.com/watch?v=o-HaP4mpW78>

# Asesor de Inversiones

[< Back to home](#)

## Clients > Catalina Santos

### Personal info



Catalina Santos  
Client 112

No info      16171  
language      posts analyzed

### Personality Summary

### Matching Funds

### Representatives

Investment advisor recommends agents focusing on

building a long-term relationship with your clients. It uses client's personality to select the best matching agent, as the closest personality match or best complementing personality to handle this customer.

### Recommended Engagement Times

Wed. in the Evening hour

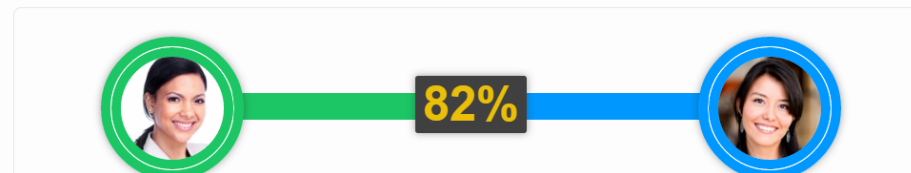
### Recommended Engagement Channel

Social Media

### Engagement Strategy

This person appears to be very risk tolerant, pragmatic, embraces change and can handle stress well but a bit unorganized. Help them by offering taking care of details for them, offer tools to better organize and provide structure to their life.

### Best matches for Catalina Santos



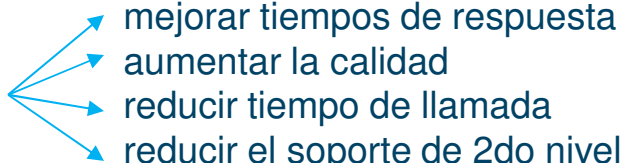
<http://investment-advisor.mybluemix.net/>

# Asistente virtual

## Para clientes:

- Educar a la población
- Realizar trámites específicos

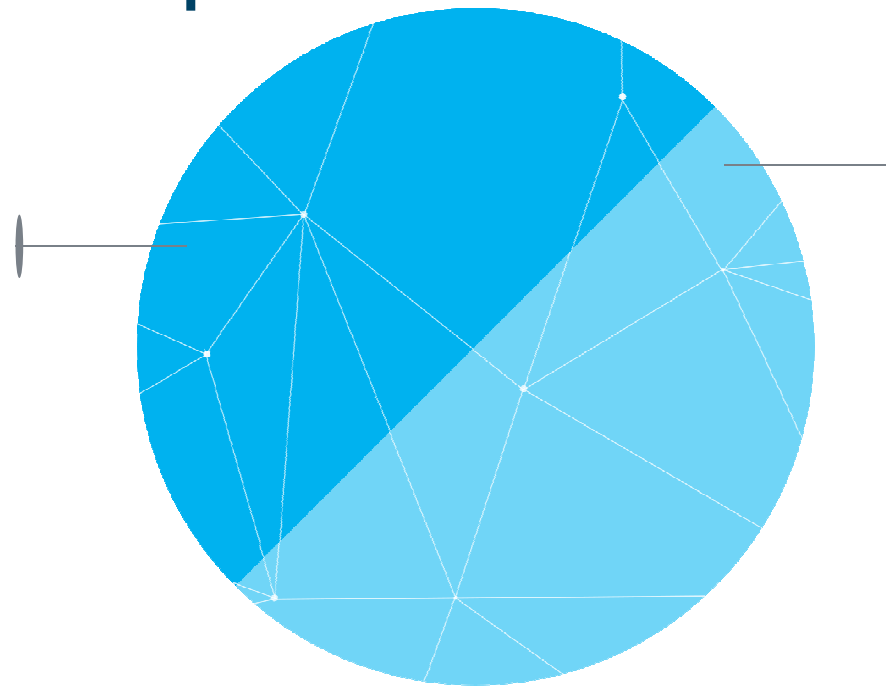
## Para uso interno:

- Asistencia a los funcionarios del contact center
  - Para optimizar el día a día de los funcionarios
  - Identificar nuevos prospectos
- 
- mejorar tiempos de respuesta
  - aumentar la calidad
  - reducir tiempo de llamada
  - reducir el soporte de 2do nivel

# Los sistemas cognitivos forjan una nueva alianza entre el hombre y la máquina

## Los humanos destacan en:

- Sentido Común
- Moral
- Imaginación
- Compasión
- Abstracción
- Dilemas
- Soñar
- Generalización



## Los Sistemas Cognitivos destacan en:

- Encontrar Conocimiento
- Identificación de Patrones
- Lenguaje Natural
- Machine Learning
- Eliminar Parcialidad
- Capacidad Infinita

**Muchas gracias**

