

IBM Watson

# Cognitive computing

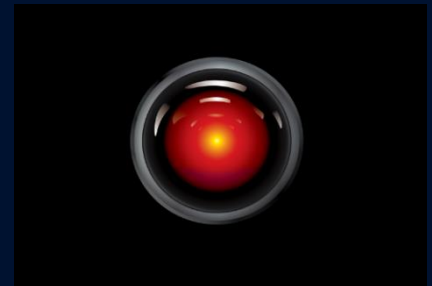
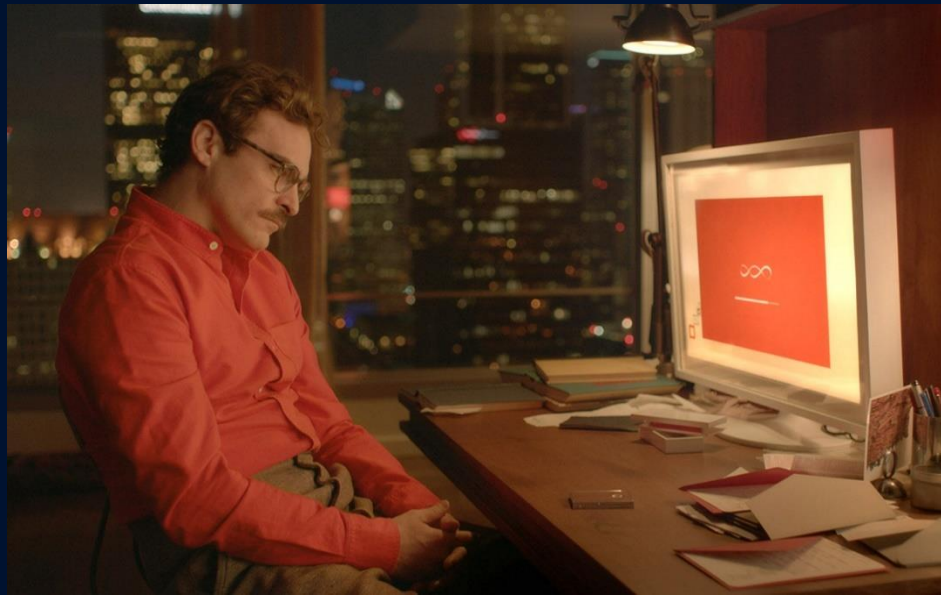
A new partnership

Damiaan Zwietering  
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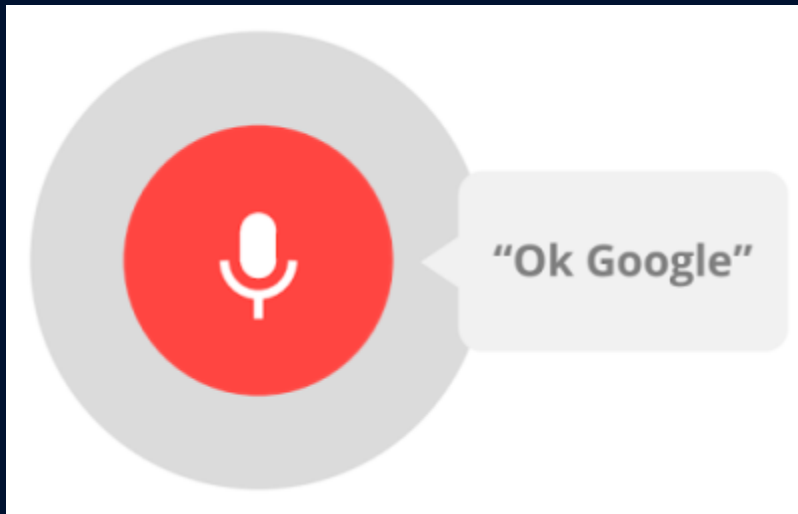
IBM



# Artificial Intelligence in Hollywood



# Artificial Intelligence in practice



# Real-world applications for Watson

- **Healthcare / Life Sciences:** Diagnostic Assistance, Evidence-based, Collaborative Medicine
- **Tech Support:** Help-desk, Contact Centers, Web Self-Service
- **Government:** Improved Information Sharing and Security
- **Enterprise Knowledge Management and Business Intelligence, Regulatory Compliance**
- **Financial markets, insurance & banking**



# The new era of cognitive computing

**Tabulating  
Systems Era**



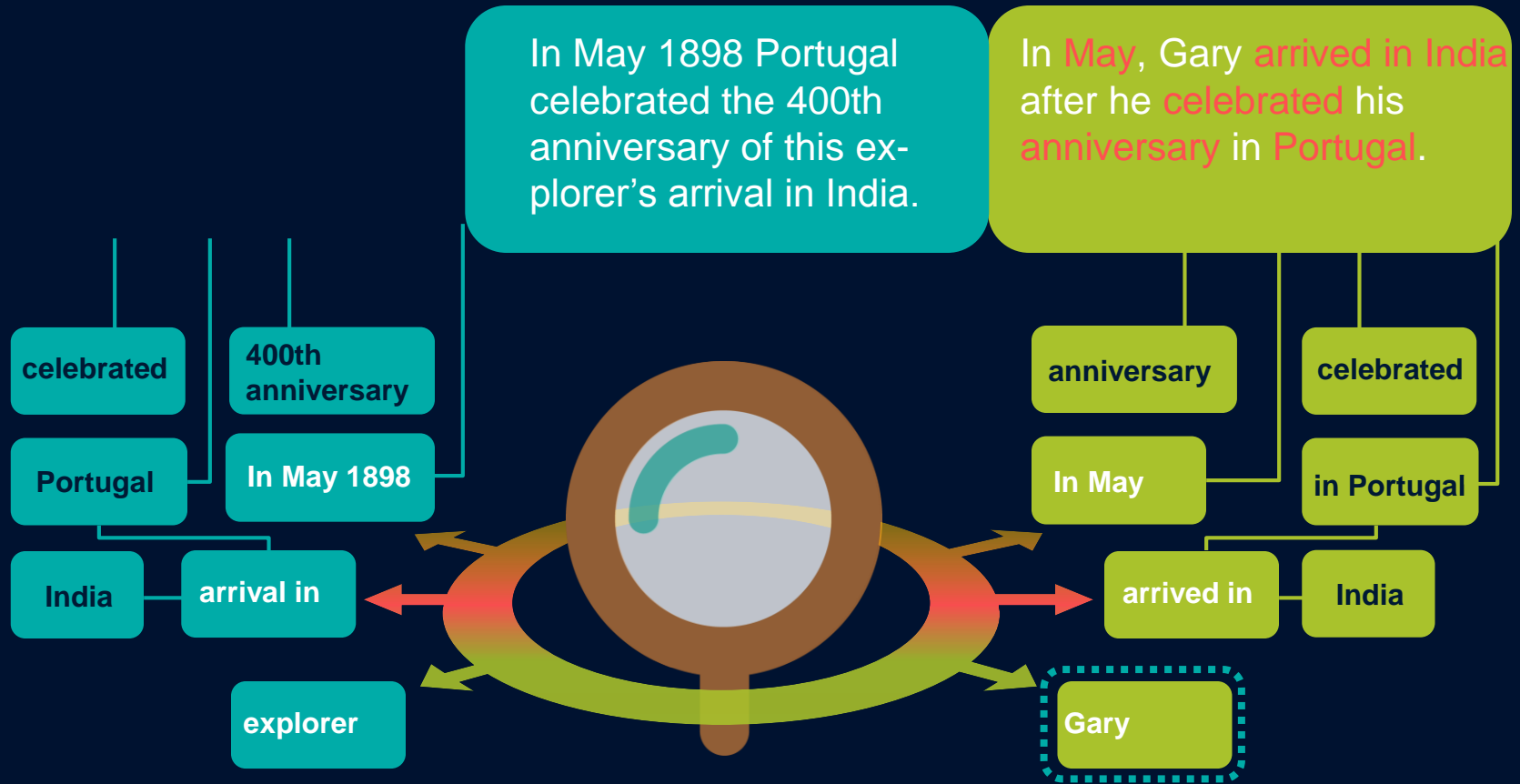
**Programmable  
Systems Era**



**Cognitive  
Systems Era**



# Search engines

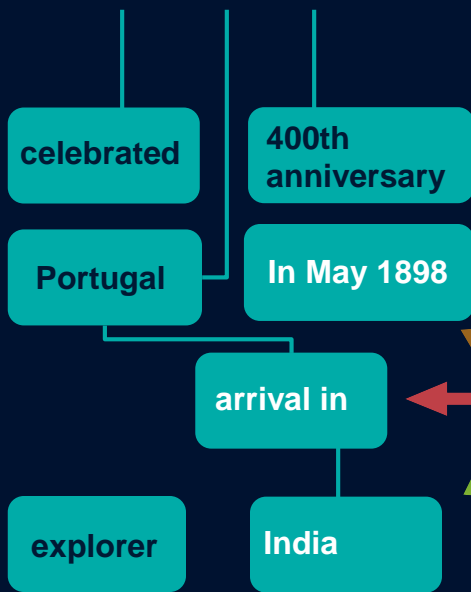


Keyword Matching

# Deeper Evidence

In May 1898 Portugal celebrated the 400th anniversary of this explorer's arrival in India.

On the 27th of **May** 1498, Vasco da Gama landed in Kappad Beach.



Date Math

Temporal Reasoning



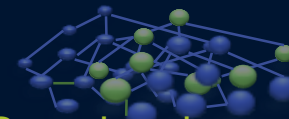
Geo-KB

GeoSpatial Reasoning

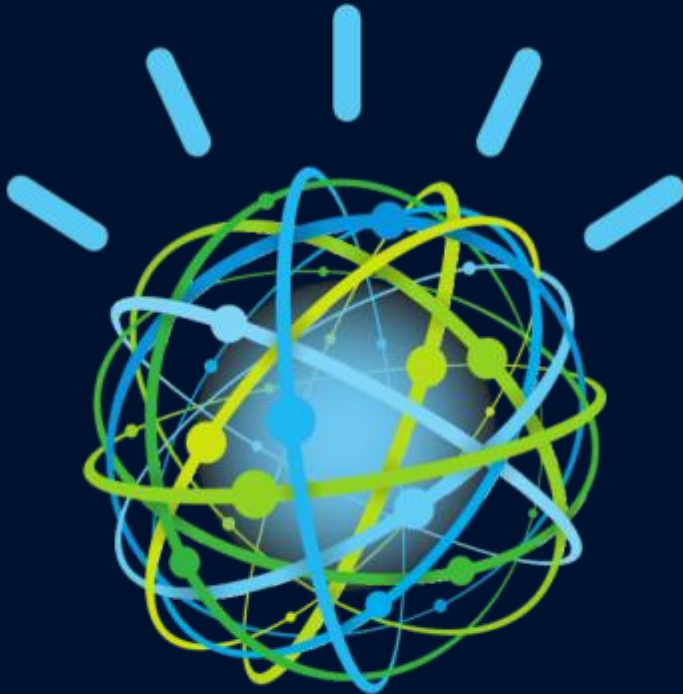


Paraphrases

Statistical Paraphrasing



# The Essence of Watson



## Watson Understands Language

- Reads news, policies, journals
- Interacts with language

## Watson Learns with Experience

- Trains with experts and practice
- Improves with experience & feedback

## Watson Describes Evidence

- Provides reasons behind thinking
- Increases trust and confidence



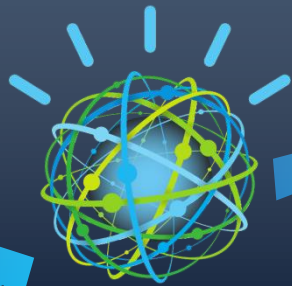
# What happened to Watson after Jeopardy

IBM  
Research Project  
(2006 –)



R&D

Jeopardy!  
Grand Challenge  
(Feb 2011)



Demonstration

Watson  
for  
Healthcare  
(Aug 2011 –)



Commercialization

Watson  
for Financial  
Services  
(Mar 2012 –)



Expansion

Watson  
Industry  
Solutions  
(2012 –)



Cross-industry  
Applications

# Medical applications of Watson

**Ongoing Training Partner**



Memorial Sloan Kettering  
Cancer Center..

**Watson for Oncology, trained by Memorial Sloan Kettering available in clinical use in lung, breast, colon and rectal cancer**



**Bumrungrad International Hospital**

*5 year agreement for Watson for Oncology*



**MD Anderson**

*Introduced proprietary solution with Watson for clinical use for Leukemia and Molecular Targeted Therapies*



**Mayo Clinic**

*Completed testing with Clinical Trial Matching for lung, breast, colon and rectal cancer*



**Baylor College of Medicine**  
*Published results of use with Watson Discovery Advisor – identified 7 targets for P53 activation within weeks*



**Watson Genomics Advisor**  
*Secured 13 Cancer and Academic medical centers for beta testing*



**Department of Veterans Affairs**

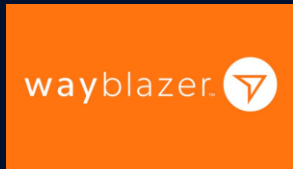
*Selected Watson to analyze EMRs in a demo project*



**Mayo Clinic**

*Selected Watson to analyze EMRs for Clinical Efficiency and Effectiveness Program*

# Watson in industries across the world



“We train Watson. It learns like we learn...We’re one of the very first companies to launch a new company built entirely on top of Watson.”

– **Terry Jones**, Chairman, *Wayblazer*,  
 Founder, *Travelocity.com*, and  
 Founding Chairman, *Kayak.com*



"IBM Watson will go through the data the same way we are now in two weeks in two seconds."

– **Robert B Darnell**, M.D. Ph.D.,  
 President, CEO and Scientific Director  
*New York Genome Center*



“Watson will help deliver consistent quality from adviser to adviser.”

– **Joyce Phillips**  
 CEO Wealth Management,  
*ANZ Bank*



“Watson can give [our members] crisp yet nuanced answers to their questions. For instance, 'My husband just got out of the Army and we are having a hard time finding a job for him.'”

– **Eric Engquist**  
 Associate Vice President,  
*USAA*



“Watson will revolutionise and simplify student problem-solving: the more questions it is asked, the more informative its answers will become.”

– **Jane den Hollander**  
 Vice Chancellor,  
*Deakin University*

# Cognitive Curriculum Goes Global



# Running implementations

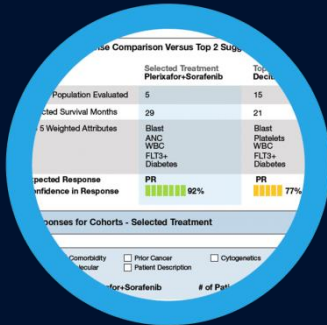


# Three classes of cognitive services



## Ask

- Ask questions for greater insights
- Natural language dialogue



## Discover

- Find the rationale for given responses
- Prompt for inputs to yield improved responses



## Decide

- Ingest and analyze domain sources, info models
- Evidence-based decisions with greater confidence

# Watson services in Bluemix

## Watson

Build cognitive apps that help enhance, scale, and accelerate human expertise



AlchemyAPI  
IBM



Concept Expansion  
IBM BETA



Concept Insights  
IBM



Dialog  
IBM



Language Translation  
IBM



Natural Language Classifier  
IBM



Personality Insights  
IBM



Relationship Extraction  
IBM BETA



Retrieve and Rank  
IBM



Speech To Text  
IBM



Text to Speech  
IBM



Tradeoff Analytics  
IBM



Visual Recognition  
IBM BETA



Cognitive Commerce™  
Third Party

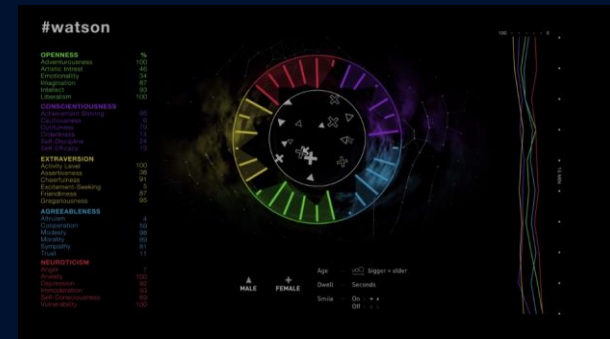
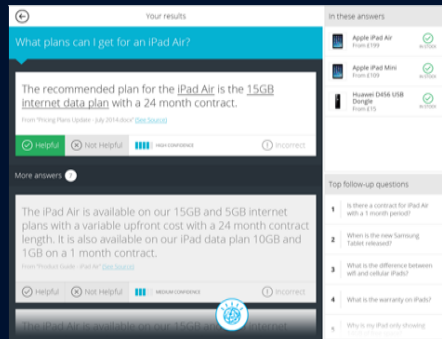
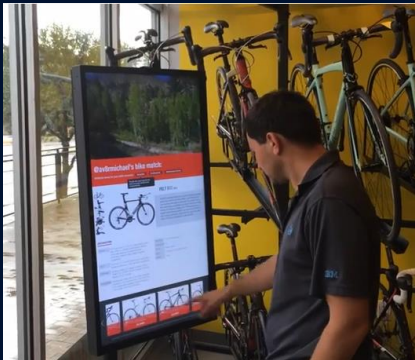


Cognitive Graph  
Third Party



Cognitive Insights™  
Third Party

# Using Watson services



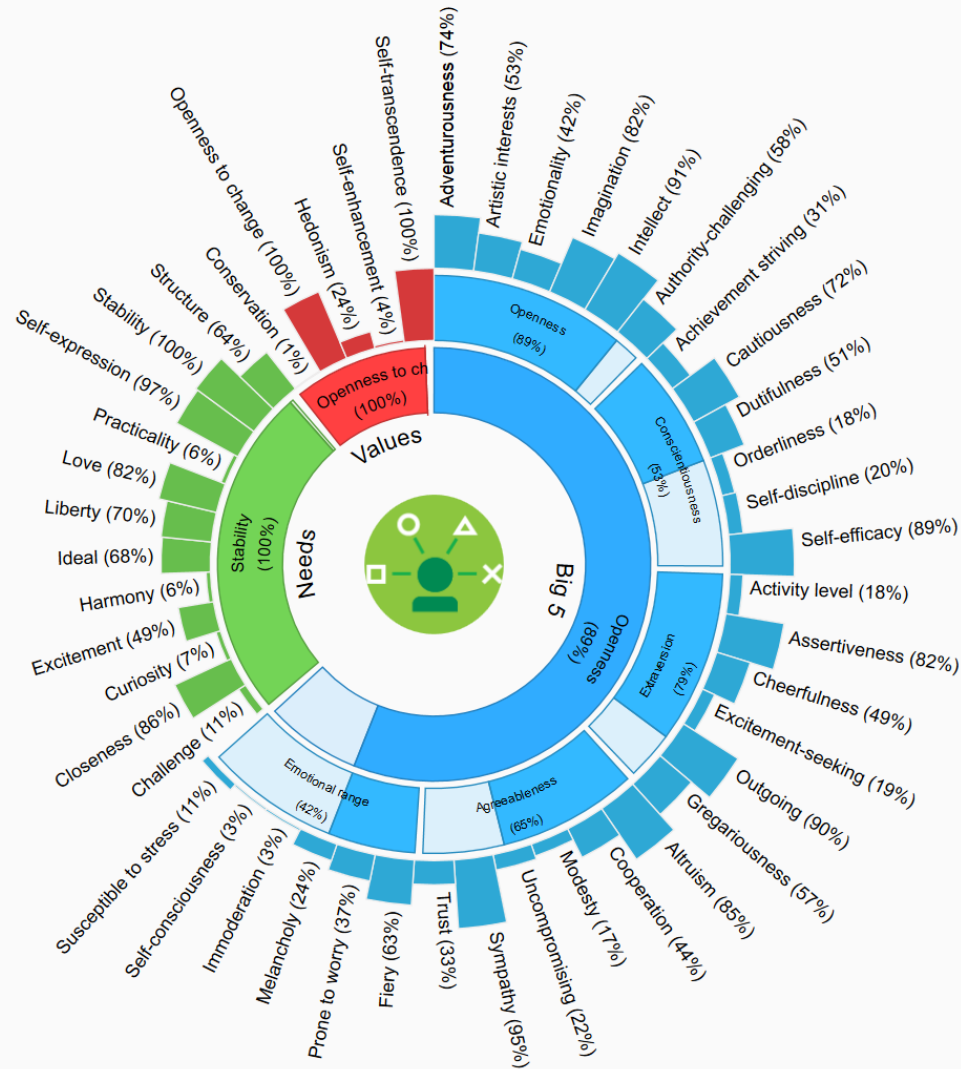
*“...we were able to quickly and easily embed Watson’s capabilities into our eyeQinsights platform to provide an even more personalized shopping experience”*

*“we’re able to work with cognitive computing capabilities that we couldn’t dream of creating ourselves - it’s a fantastic opportunity and a real chance to transform our industry”*

*“[this] is like putting the Hubble telescope in the hands of a backyard astronomer... Watson’s cognitive possibilities alone will spawn a completely new service industry...”*



# Example: Personality Insights



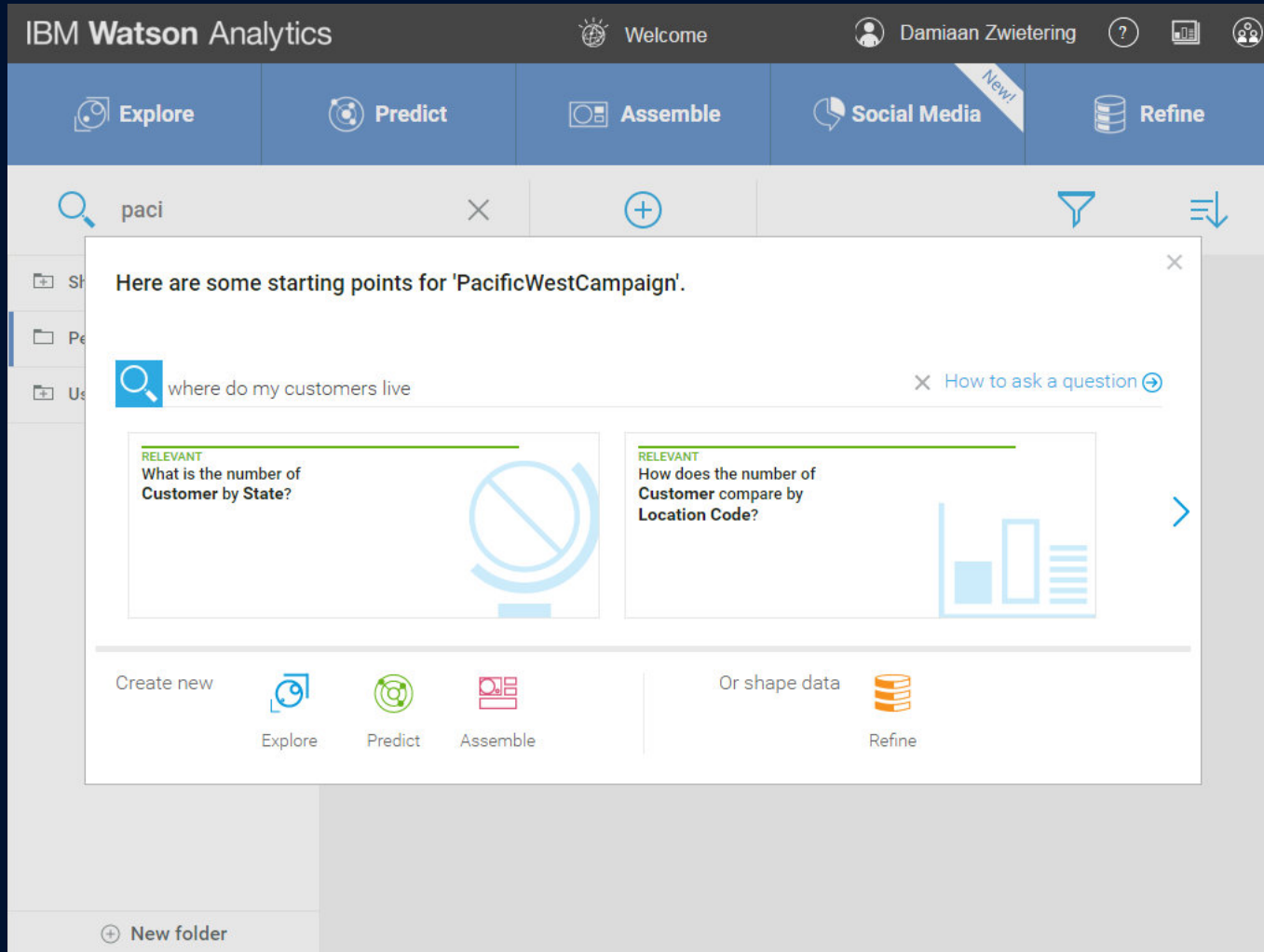
## Chef Watson – cognitive cooking

- **Corpus – knowledge input**
  - Recipes
  - Chemical information
  - Psychophysics
- **Personal taste profile**
- **Result:** unique recipes, based on combinations of unprecedented ingredients
- **Application:** health, food and nutrition



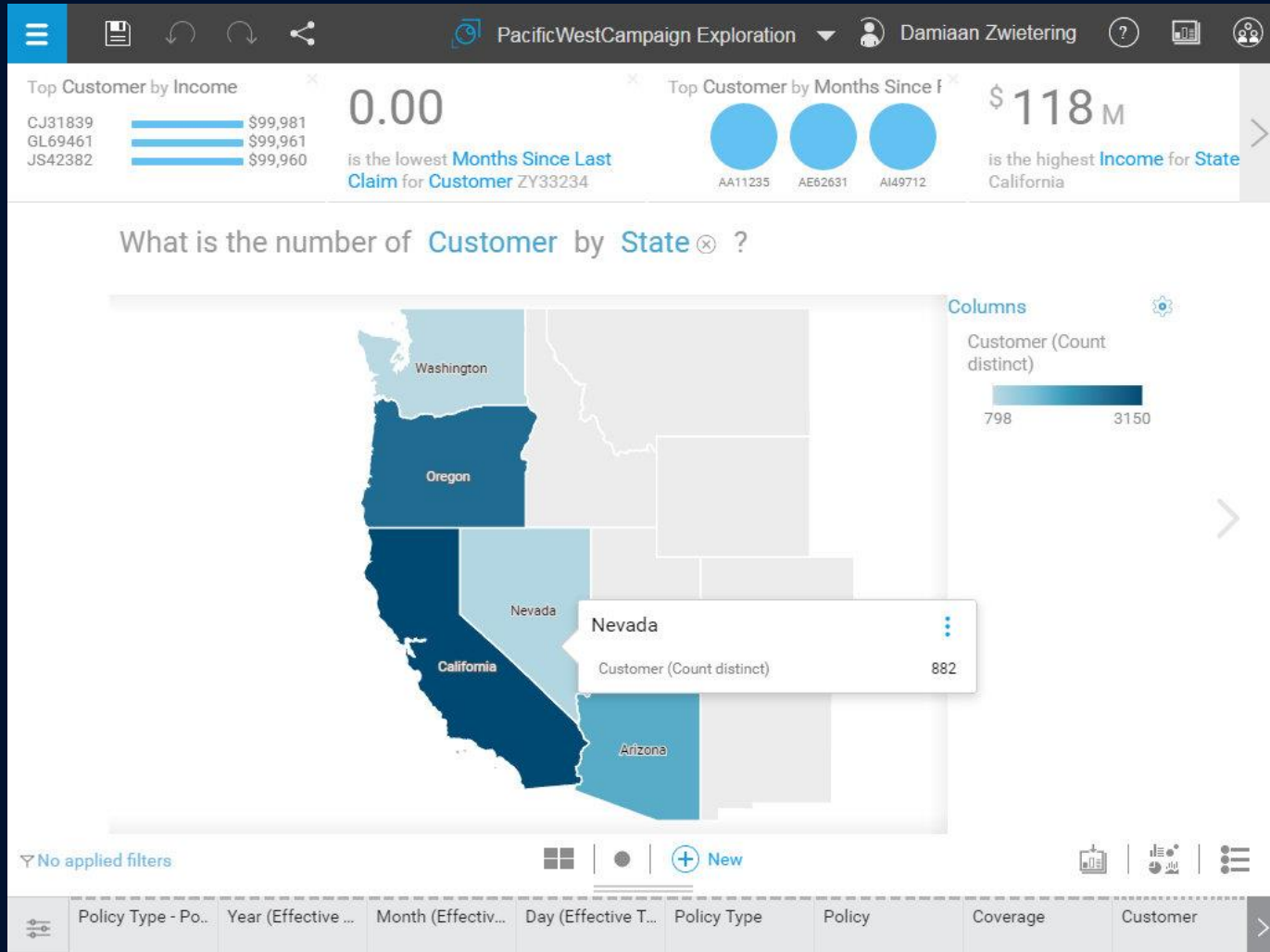


# Watson applied to BI



<http://www.watsonanalytics.com/>

# Watson applied to BI



# Watson applied to BI

The screenshot shows the IBM Watson Analytics interface. At the top, there is a navigation bar with a hamburger menu, a document icon, undo and redo arrows, a share icon, and a search icon. The current workspace is titled "PacificWestCampaign Exploration" and the user is "Damiaan Zwietering".

The main area displays the question "What do you want to explore next?". Below this is a search input field containing the text "do women cliam more then men". A search icon is visible to the right of the input field.

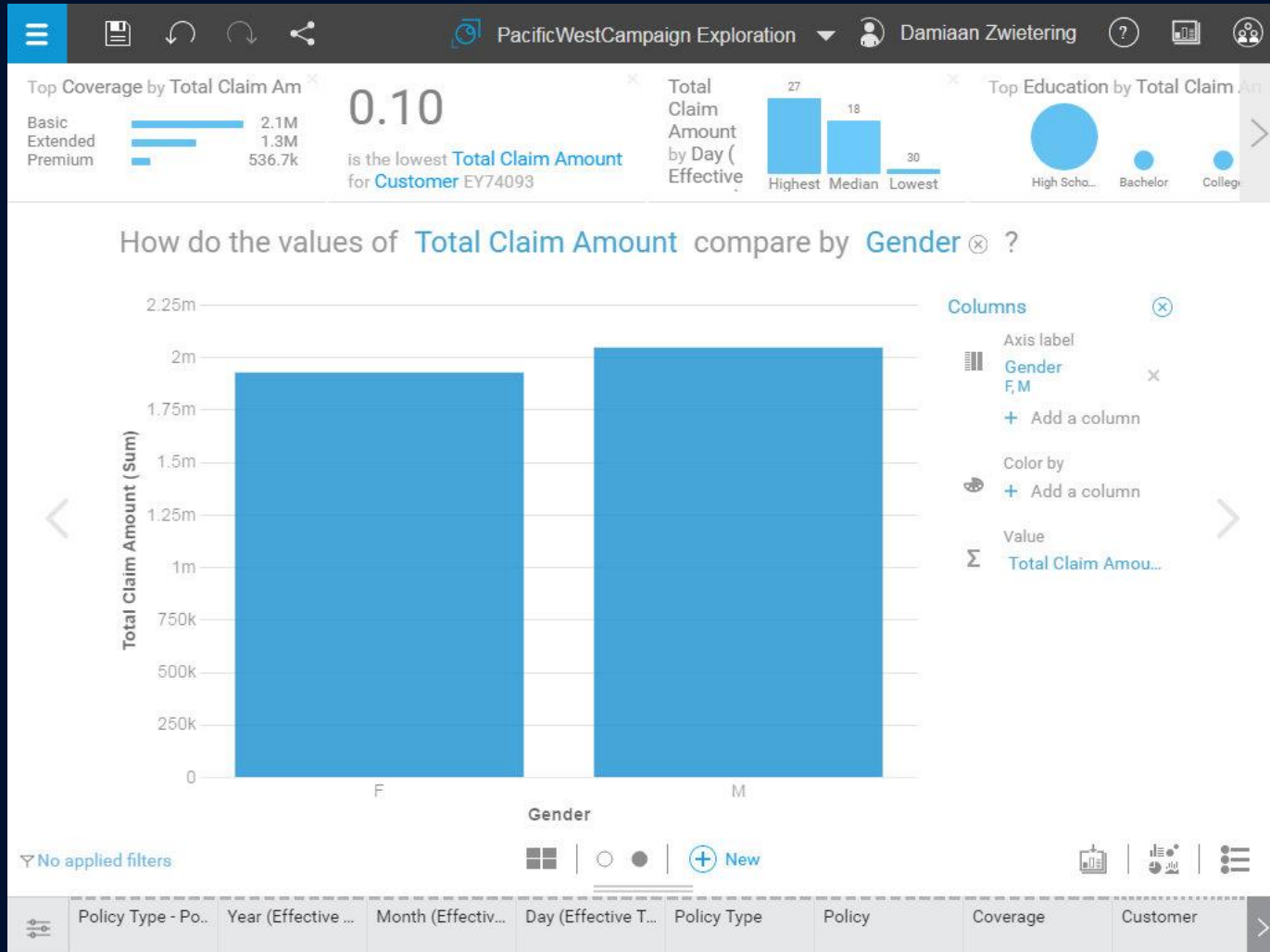
Below the search input, three suggested questions are displayed, each with a "Relevant" label and a small chart icon:

- How do the values of Total Claim Amount compare by Gender?
- What is the breakdown of Total Claim Amount by Gender?
- What are the most relevant values of Gender for Total Claim Amount?

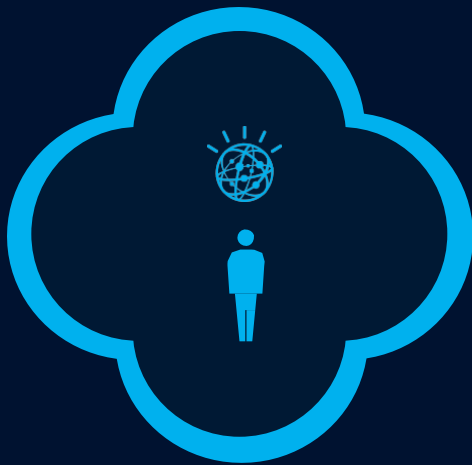
At the bottom of the interface, there is a "New" button and a table of columns: Policy Type - Po..., Year (Effective ...), Month (Effectiv...), Day (Effective T..., Policy Type, Policy, Coverage, and Customer.

<http://www.watsonanalytics.com/>

# Watson applied to BI

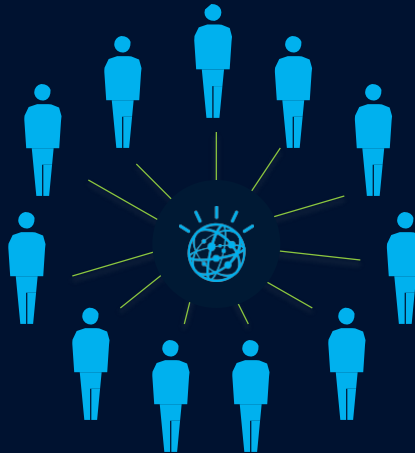


# A new partnership



## Enhance

the cognitive process of professionals to strengthen decision making in the moment



## Scale

expertise by elevating the consistency and objectivity of decision making across an organization



## Accelerate

development of expertise in others by capturing the expertise of top performers



# IBM Watson



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[ibmwatson.com](https://ibmwatson.com)



[@ibmwatson](https://twitter.com/ibmwatson)