IBM **Watson**
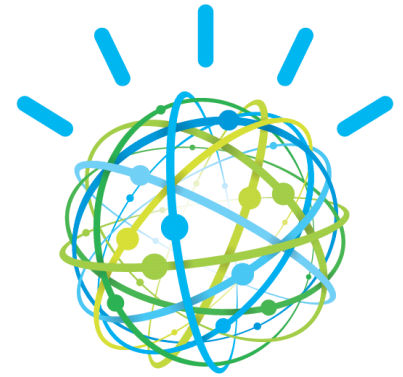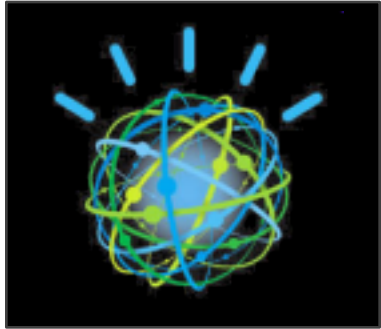
Justin Fessler – IBM Watson Solution Consultant, U.S. Federal

Smart is: breakthrough content analysis

IBM Watson (Jeopardy)

Business Challenge
Advance the state of the art in broad domain Question Answer (QA) systems to enable breakthrough applications in many different industries.

What's Smart?
Uses IBM Content Analytics (LanguageWare) in conjunction with other technologies to read, analyze and understand vast sources of unstructured content. Runs many algorithms in parallel to create, compare and determine confidence in candidate answers. Presents answers with a confidence level attached.

Smarter Business Outcomes
Coming to your industry soon! Will deliver value in limitless applications starting with clinical healthcare, customer care, government intelligence and beyond.

" … an information seeking tool that's capable of understanding your question to make sure you get what you want and then deliver's that content through a naturally flowing dialog "

Dr. David Ferrucci
Principal Investigator
Watson project

Industry context: broad industry value
Value driver: improve business decisions
Solution onramp: content analytics

Front-line employees typically struggle to get the information and insights they need, when they need them.

Too many silos

Inability combine data from multiple sources

Lack of insight due to reliance on a single source of info

100s
of terabytes of internal and external content

Automatic Open-Domain Question Answering
A Long-Standing Challenge in Artificial Intelligence to emulate human expertise

- ## Given
  - – Rich **Natural Language Questions**
  - – Over a **Broad Domain of Knowledge**

- ## Deliver
  - – **Precise Answers:** Determine what is being asked & give precise response
  - – **Accurate Confidences:** Determine likelihood answer is correct
  - – **Consumable Justifications:** Explain why the answer is right
  - – **Fast Response Time:** Precision & Confidence in <3 seconds

Informed Decision Making: Search vs. Expert Q&A

Decision Maker

Has Question
Distills to 2-3 Keywords
Reads Documents, Finds Answers
Finds & Analyzes Evidence

Search Engine

Finds Documents containing Keywords
Delivers Documents based on Popularity

Expert

Decision Maker

Asks NL Question
Considers Answer & Evidence

Understands Question
Produces Possible Answers & Evidence
Analyzes Evidence, Computes Confidence
Delivers Response, Evidence & Confidence

IBM WATSON

Chess

- A finite, mathematically well-defined search space
- Limited number of moves and states
- Grounded in **explicit**, **unambiguous** mathematical rules

Human Language

- Ambiguous, contextual and implicit
- Grounded only in **human cognition**
- Seemingly infinite number of ways to express the same meaning

Watson Use-Case Categories

Engagement

IBM Watson Engagement Advisor

Customers, Citizens

Transform Customer Experiences

Decisions

IBM Watson Interactive Care & Insights

Clinicians

Improve Diagnosis, Treatment, Policy Adherence

Discovery

IBM Watson Discovery Advisor

Analysts, Legal, Academics

Accelerate Research and Insights

Challenges

Watson Explorer

Information Access
Data, applications and services distributed on-premise and in cloud—employees struggle to get a complete view

Explore
Provides a 360-degree view of information from ALL sources to enable better decisions

Unstructured Content
80% of data is unstructured but only a small percentage leveraged for insights

Analyze
Delivers insights from unstructured content

Scaling Expertise
Pressure to increase performance and innovation—while doing more with less

Interpret
Applies cognitive computing to scale human expertise

THANK YOU