What can I help you with?

What will you do with Watson?

Sanjay Sinha
IBM Watson

1997 – Deep Blue from IBM wins on chess !

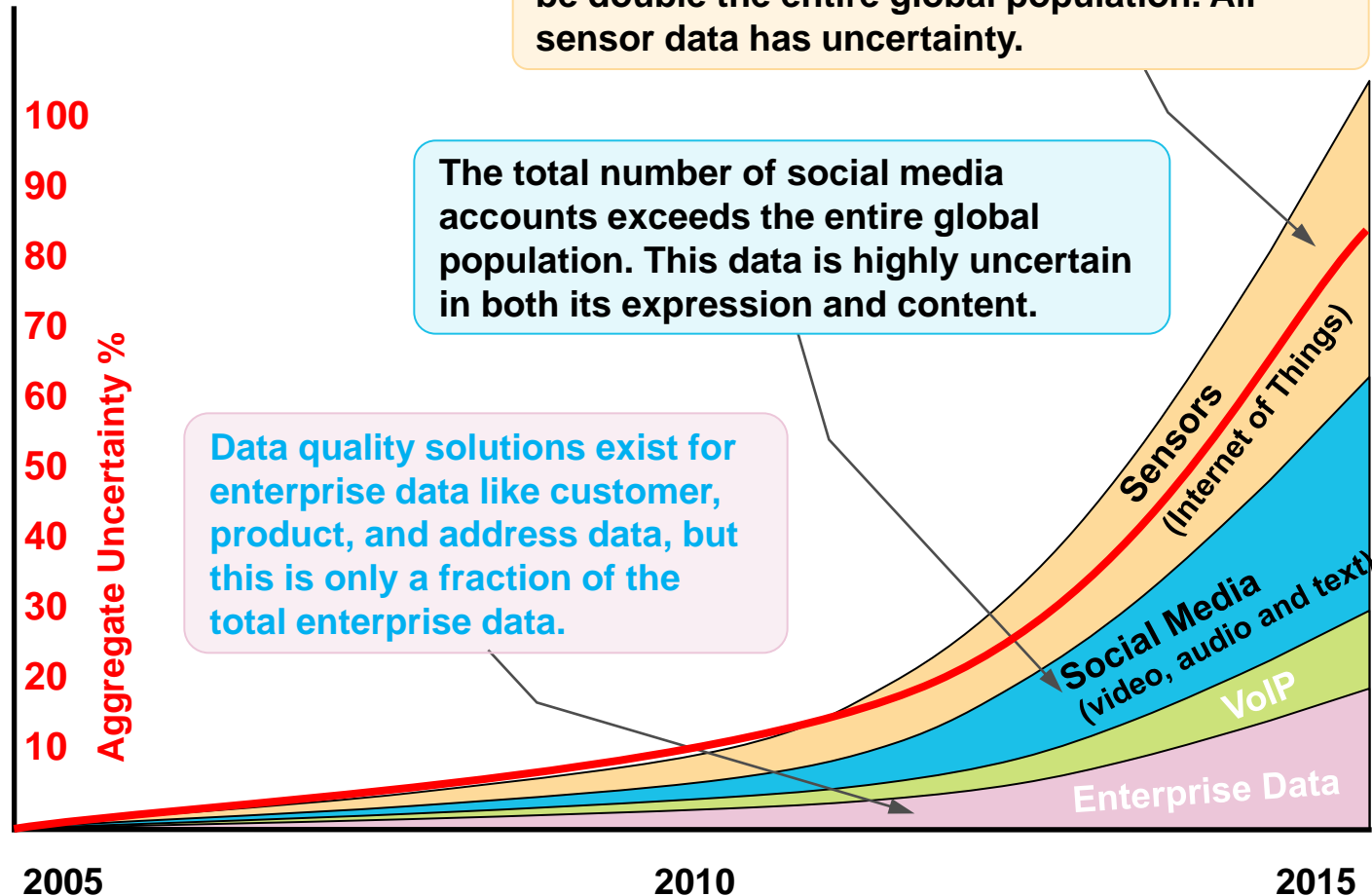# Today businesses
are "dying of thirst in an ocean of data"

90%
of the world's data was generated in the last two years

80%
of the data is in unstructured form

31.7%
expected CAGR in the big data marketplace*

Global Data Volume in Exabytes

Aggregate Uncertainty %

100
90
80
70
60
50
40
30
20
10

By 2015 the number of networked devices will be double the entire global population. All sensor data has uncertainty.

The total number of social media accounts exceeds the entire global population. This data is highly uncertain in both its expression and content.

Data quality solutions exist for enterprise data like customer, product, and address data, but this is only a fraction of the total enterprise data.

Sensors (Internet of Things)

Social Media (video, audio and text)

VoIP

Enterprise Data

2005

2010

2015

Finding meaning…

Raw Text: "John sprained his ankle on the step"

Analyze Parts of Speech: Noun   Verb   Noun Phrase   Prep Phrase

Extract Facts from Text: Person   Injury   Body Part   Location

Understand Concepts: Claimant: Soft Tissue Injury

Now able to analyze extracted facts, concepts or other complex relationships

Cognitive Computing

Complex reasoning and interaction extends human cognition for achieving better outcomes

Learn and Reason
vs. program

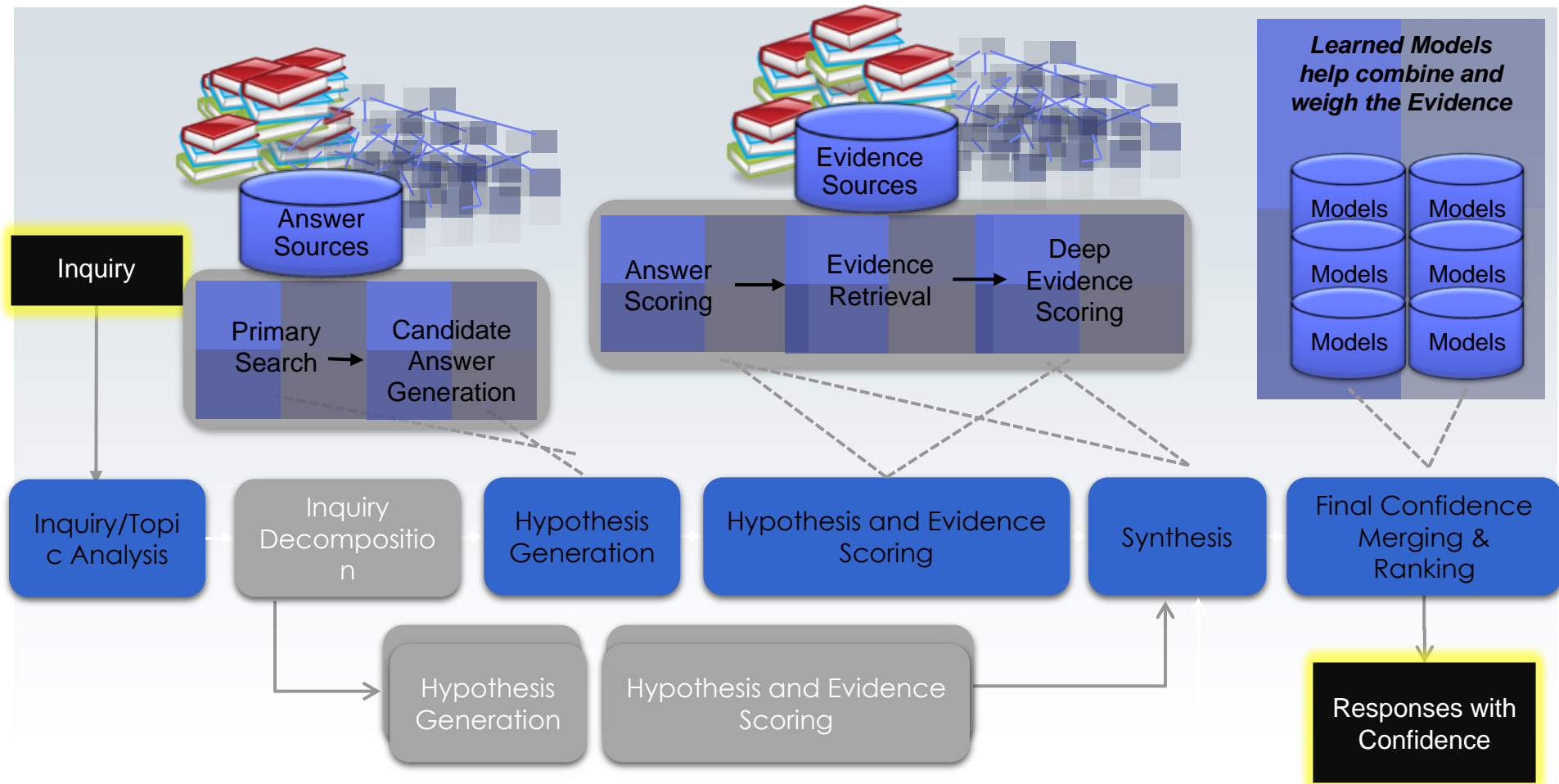**Interact Naturally**
with humans

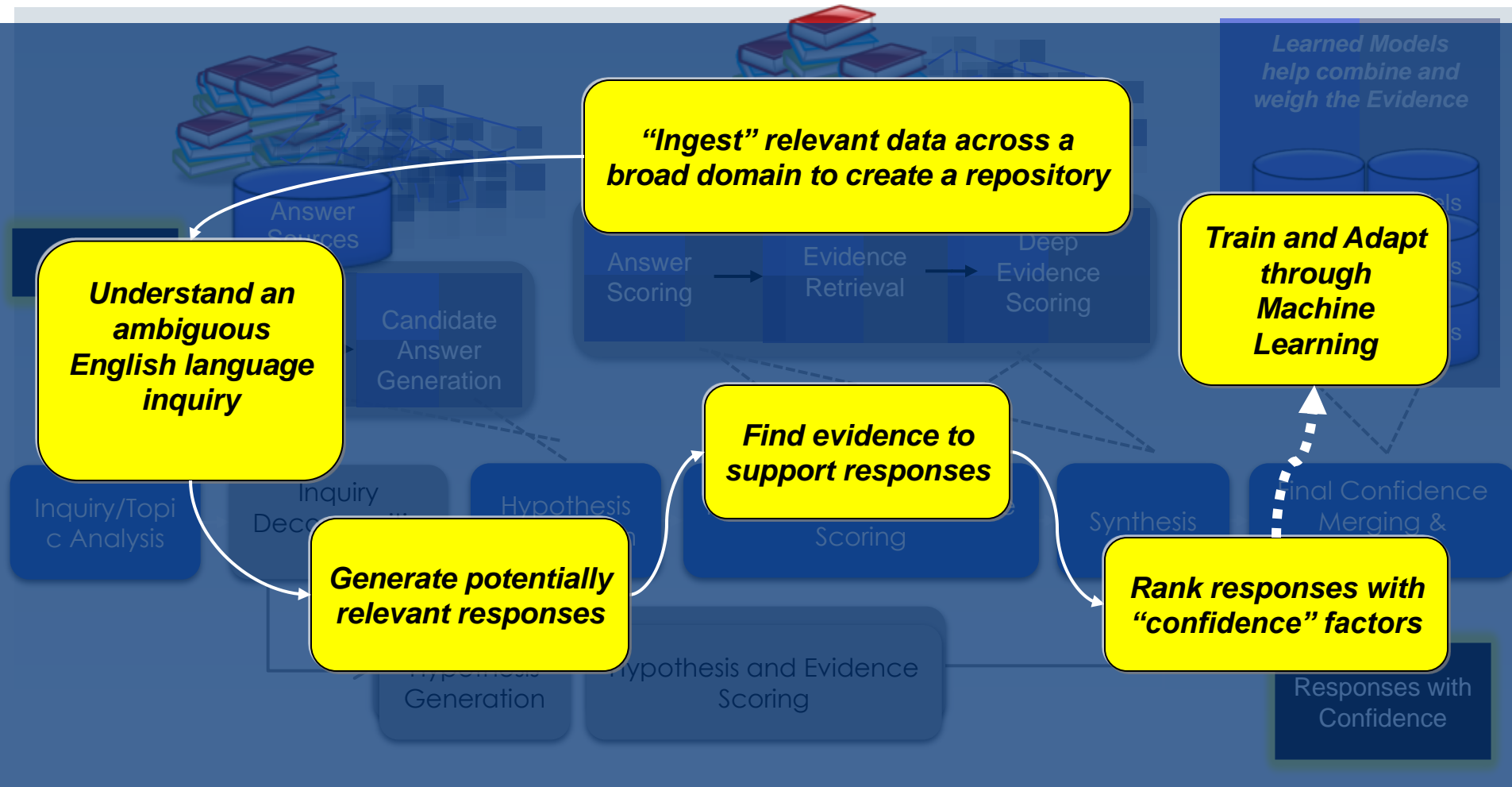**Discover and Decide**
deep domain knowledge representation

2011 – Watson from IBM wins on Jeopardy!

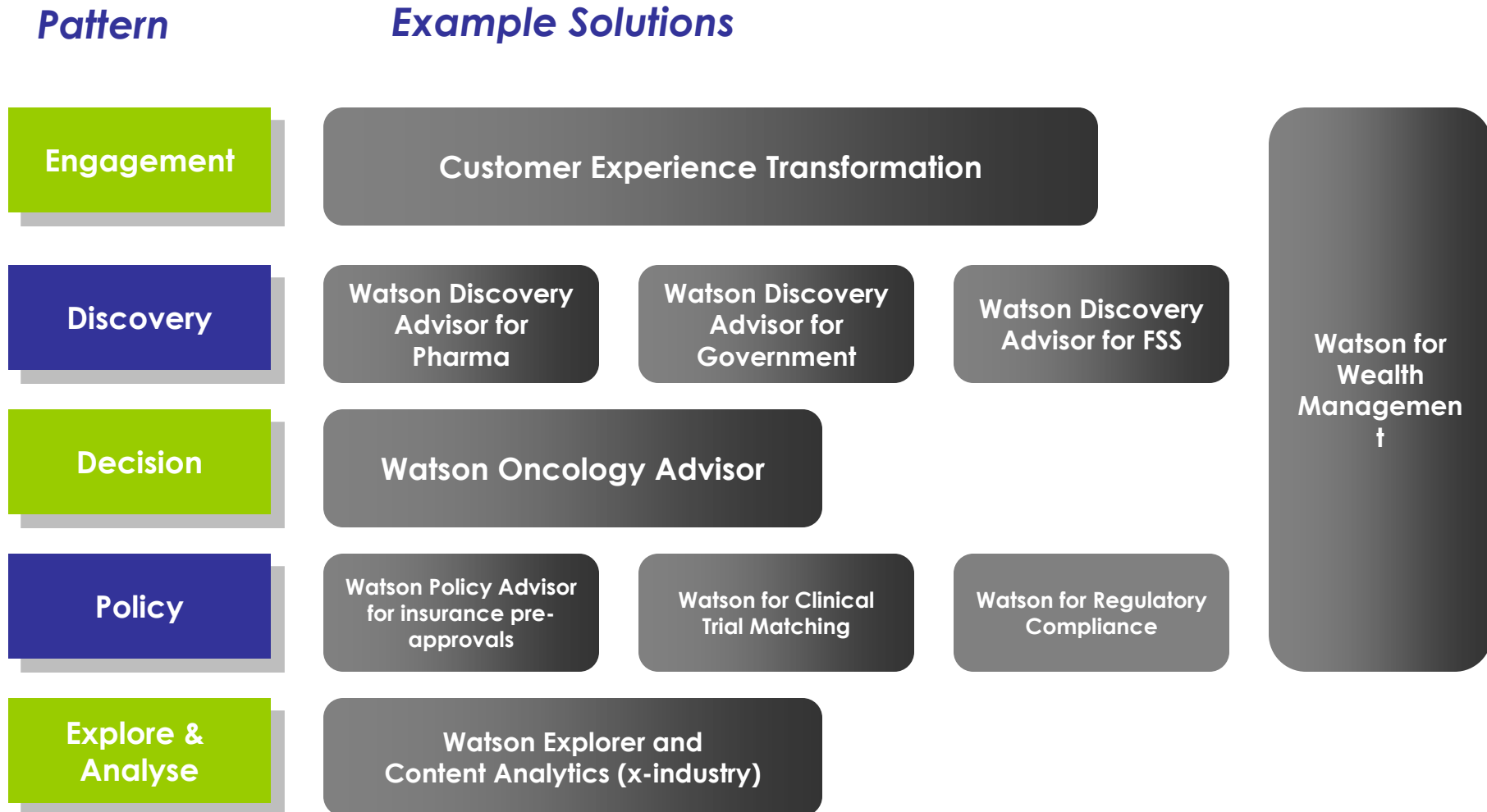# Watson is a massively parallel system

Watson is trained to understand, discover and learn

IBM WATSON

"Ingest" relevant data across a broad domain to create a repository

Learned Models help combine and weigh the Evidence

Train and Adapt through Machine Learning

Understand an ambiguous English language inquiry

Find evidence to support responses

Generate potentially relevant responses

Rank responses with "confidence" factors

IBM WATSON

Watson has evolved from a Q&A machine to a system supporting multiple cognitive "patterns"

Pattern   **Example Solutions**

Pattern	Example Solutions			
Engagement	Customer Experience Transformation			
Discovery	Watson Discovery Advisor for Pharma	Watson Discovery Advisor for Government	Watson Discovery Advisor for FSS	Watson for Wealth Management
Decision	Watson Oncology Advisor			
Policy	Watson Policy Advisor for insurance pre-approvals	Watson for Clinical Trial Matching	Watson for Regulatory Compliance	
Explore & Analyse	Watson Explorer and Content Analytics (x-industry)			

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An insurer in Tokyo pays customers with greater speed and accuracy by using Watson to standardize medical terms

22% fewer
mistakenly unpaid claims—from 435 cases to 339 in the first year

90% accuracy
in coding medical terms and treatments during claim assessment

20% reduction
in assessment workforce, saving several hundred million yen each year

Business Challenge: This insurer in Tokyo needed to find a way to analyze medical certificates and process claims automatically—with more accurate classification of medical conditions and treatments.

How Watson helps: The Watson based solution replaced a manual error prone assessment system with an automated one. The system analyzes and understands medical certificates written in natural language text and uses the dictionary to assign the most appropriate code.

Based on contextual clues in the unstructured comments from doctors, the solution can determine the proper payment, even when the comments are vague or idiosyncratic and realized accurate.

This results in rapid and efficient automatic insurance payment, which is the first in the life insurance industry.

Watson is helping DBS Bank shape the Future of Banking

"In the digital era, consumers' ability to access information and make choices has changed dramatically, and new technologies are revolutionising our way of life," said DBS CEO Piyush Gupta. *"To remain relevant, we need to continuously innovate. At DBS, we have been on a journey to shape the future of banking, and this collaboration with IBM enables us to explore ways to better harness data, providing more precise, customized and quality solutions that correspond to our customers' needs,"* he added.

- IBM Watson will help DBS' relationship managers analyse large volumes of complex unstructured and structured data, including research reports, product information and customer profiles; identify connections between customers' needs and its growing corpus of investment knowledge, and help advisors weigh various financial options available to customers.

- Applying IBM Watson's capabilities will enable DBS professionals to take control of a 'data deluge' and arm them with data-driven insights that can personalise the customer experience.

IBM Watson helps Singapore Government deliver better advice to its citizens

Singapore Government to improve services with IBM's Watson computing machine

The Singapore Government has announced a collaboration with IBM to tap on its computing machine, called Watson, to improve accessibility to Government information, and to deliver better and more personalised service on government policies and services.

In the first phase, Singapore will first look into using Watson to boost areas like income tax, employment and work passes, and workplace health and safety.

Users can access the Government websites using self-service applications and gain more specific answers to their queries more quickly from Watson's cloud-based solution.

"We hope the collaboration with IBM to tap on their leading Watson technology will bring about a transformative change in how the government can better interact with citizens and address their needs,"

Lim Soo Hoon, Permanent Secretary, Ministry of Finance, Government of Singapore

IBM Watson disrupts the process of discovery

IBM Watson Speeds Drug Research
IBM Watson moves from supplying known answers to tough questions to making its own discoveries in life sciences and pharmaceutical research.

As part of Baylor's research, Watson analyzed more than 70,000 scientific articles related to p53, a protein that has been linked to many cancers. Automated analysis carried out by Watson helped Baylor biologists and data scientists identify six proteins that modify p53 and that should be targeted for new research. Most important, the discovery was made in a *matter of weeks*, according to IBM.

"Even if I'm reading five papers a day, it could take me nearly 38 years to completely understand all of the research already available today on this protein," said Dr. Olivier Lichtarge, professor of molecular and human genetics, biochemistry and molecular biology at Baylor, in a statement from IBM. *"Watson has demonstrated the potential to accelerate the rate and the quality of breakthrough discoveries."*

IBM Watson helps improve patient outcomes

**Bumrungrad International Hospital
Selects IBM Watson to Improve
Medical Care for Cancer Patients**

"Medical knowledge is increasing very fast and cancer care is particularly complex. Oncologists race against time to find the best treatment for their patients. How does one take into account all the latest clinical research? How do you find what doctors elsewhere have learned from treating a patient like yours? Watson makes it possible. Our physicians will have a more powerful tool to help them make treatment decisions, ultimately improving our care and increasing patients' lifespans."

- Dr. Num Tanthuwanit, Chief Executive Officer and Medical Director of Bumrungrad

Business problem:
Need better individualized cancer treatment plans

Solution:
Suggestions to help inform oncologists' decisions based on 600K+ pieces of evidence and 2M pages of text from 42 publications

Analyzes patient data against thousands of historical cases and trained through 5000+ Memorial Sloan-Kettering MD and analyst hours

Evolves with the fast-changing field

More Watson Excitement on the way…

Question and Answer
Direct responses to users inquiries fueled by primary document sources

Machine Translation
Globalize on the fly. Translate text from one language to another.

User Modeling
Personality profiling to help engage users on their own terms.

Relationship Extraction
Intelligently finds relationships between sentences components (nouns, verbs, subjects, objects, etc.)

Message Resonance
Communicate with people with a style and words that suits them

Visualization Rendering
Graphical representations of data analysis for easier understanding

Concept Expansion
Maps euphemisms or colloquial terms to more commonly understood phrases

Language Identification
Identifies the language in which text is written