IBM Watson
Where digital business meets digital intelligence

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Watson & Cloud Platform Implementations
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My NCSU Experience

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IBM’s largest site in North America

12% of IBM patents are from RTP

50+ executives on non-profit boards

256K square feet of Agile space by the end of Q1

31% of RTP employees have under 5 years with IBM

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A Brief Career Overview
An explosion of what we can know

The Third Industrial Revolution is upon us – an information era where we begin to scale human knowledge, with the help of AI systems.
Data has transformed every industry, profession, and domain.

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wearables shipped in 2016, growing to</td>
<td>102,000,000</td>
</tr>
<tr>
<td>237,000,000 by 2021</td>
<td></td>
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<tr>
<td>MRIs taken every year, up from</td>
<td>80,000,000</td>
</tr>
<tr>
<td>3,000,000 in 1980</td>
<td></td>
</tr>
<tr>
<td>Locations generating hyperlocal weather forecasts across the globe</td>
<td>2,200,000,000</td>
</tr>
<tr>
<td>every 15 minutes</td>
<td></td>
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<tr>
<td>Emails every second</td>
<td>2,581,586</td>
</tr>
<tr>
<td>New software vulnerabilities recorded in 2016, up 30% since 2011</td>
<td>10,000</td>
</tr>
<tr>
<td>Forms of malware - with close to 400k variations introduced daily</td>
<td>600,000,000</td>
</tr>
<tr>
<td>Hours of video uploaded to YouTube every minute</td>
<td>500</td>
</tr>
<tr>
<td>New cancer articles published every year</td>
<td>100,000</td>
</tr>
</tbody>
</table>

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Grand Challenge

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AI for Business
Striking the Balance
Watson is AI for professionals.

Our differentiators:
Learn from small data sets
Own your insights
Embedded in workflows
With Watson you can harness the power of augmented intelligence

Your data + the world’s data

Watson can ingest, cleanse, and comprehend every data type. Build off your domain expertise and the largest base of industry offerings in the market.

Ingests + transforms

Apply a powerful suite of Watson services and APIs to transform your data into valuable insights. Watson is optimized for robust AI workloads and lives on the IBM Cloud.

Insights + outcomes

Watson extracts meaning to provide deep insights and produces powerful outcomes. Train your AI on what’s important to your industry gain knowledge and make the most informed, reasoned decisions.
Data and Usage Drives Functionality Choices for Cognitive Systems

“How do I print a W2?”

“How do I clear a paper jam on copier model XYZ1234 with a duplex sorter?”

“What permits should be filed for wetlands with commercial zoning?”

Here Watson uses reasoning strategies that focus on the language and context of the question...

Here Watson uses reasoning strategies that focus on identifying potential answers...

Frequency of Questions

“Fat Head”

Long Tail

100s

Unique Intents

100.00+
Men’s Polo Shirt
Item#: 1234113
Sizes: M-XL
Colors: Blue, Red, Orange, Yellow, Green

Customer: Can I backorder item 1234113 in size Large color Blue, please?

Call Center Agent A: 113 bo bl lg?

Call Center Agent B: n 113 y/g m oly

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Watson services

How Watson sees, hears, speaks, feels, translates, finds
Watson: Handling both Short / Long Tail

Short Tail

Long Tail

Frequency of Questions

Unique Intents

Turn on my headlights.

My exhaust is making a rattling sound, how do I troubleshoot the problem?

Here Watson uses reasoning strategies that focus on the language and context of the question.

Here Watson uses reasoning strategies that focus on identifying the most appropriate answer.
Visual Recognition helps people to **understand** and **take action** from visual data.
IBM Watson Knowledge Studio

A cloud-based application that enables developers and domain experts to teach Watson to understand linguistic nuances in unstructured text. Users build custom models in a collaborative environment that can then be used in Watson Discovery, Watson Natural Language Understanding and Watson Explorer.

Teach by Example
Empower domain subject matter experts to teach Watson the language of your industry or organization without requiring deep technical skills or coding.

Engage your Experts
Bring your experts together into a collaborative online environment to teach Watson how to understand the linguistic nuances of your domain.

Use Everywhere
Apply what you’ve taught Watson in multiple applications by using models from Watson Knowledge Studio in Watson Discovery, Watson Natural Language Understanding and Watson Explorer.
Using and Deploying Watson Knowledge Studio

Build, test, manage, and deploy custom models for domain adaptation

Deploy or export custom models into the following end-points

- Discovery Service
- Natural Language Understanding
- Watson Explorer
Only IBM delivers an architecture engineered for disruption

Applications, solutions and services
Targeted solutions for enterprise businesses

Cloud Infrastructure
A highly scalable, security enabled infrastructure

AI
Cognitive building blocks for developers

Data
Tools to prepare data for cognitive

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A system to analyze the content of a governing document, making sense of the specifics of a document (who it pertains to, what kind of statements are within).

The ability to query the parsed semantic elements of a governing document, and locate relevant sections and passages.

The ability to compare a governing document to a corpus of documents, along with suggestions on how to adjust the document accordingly.
How Discovery Element Classification Works

**PDF Extraction**

**Contract**

**STEP 1: Extract Contract Elements**

**Contract Elements**

- Additional Data
  - Title
  - Page number
  - "Available in braille on request"

**Natural Language Processing**

**STEP 2: Determine Contract Element Types**

- Obligations
- Rights
- "Rules of the Road" *
- Other **

- Supplier Obligations
- Buyer Obligations
- Supplier Rights
- Buyer Rights

**STEP 3: Classify Contract Elements**

Classify

(Based on a list of categories that will be different for each "Contract Type" e.g. Software Contracts, Construction Contracts, Tenancy Contracts...)

Labels will be something like...

- "This is a due diligence supplier obligation"
- "This is a Benchmarking buyer right"
- "This is a Rule of the Road concerning governance"

* A term Mark made up to describe things like "any disputes will be resolved in English courts"

** One example is a Warranty: "the supplier guarantees that the software is free of bugs"

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An integrated platform of tools, services and data that helps companies accelerate their shift to become data-driven organizations

Drive governance policy effectiveness while tracking how data is used and its value to the company

Access powerful tools to prepare data to tease out the insights they’re looking for, without IT involvement

Data Steward
Data Scientist
Data Engineer
App Developer

Easily build data pipelines that power dashboards and data platforms while ensuring high quality

Make the insights immediately actionable and add intelligence to apps in straightforward manner

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1. IBM Cloud Garage MVPs
Clients who want to build a cloud native app and not sure where to start

2. Watson Business Solutions
Clients with specific needs that match Watson Solutions - customer care or compliance needs

3. Watson Expert Services
Clients who need assistance in moving to the Cloud, embedding cognitive APIs into existing application or building cognitive systems of engagement

4. Watson Expert & Delivery Services
Clients who want assistance based upon unique requirements
Customer Stories

Oil and Gas Company
• Off-shore platforms
• 80K sensors, 1M docs, 30 years of expert experience
• Reduced expert knowledge search time by 75%

Bank
• Assisting clients with 59 financial products
• 30K daily calls, 6,500 branch locations, 60,000 employees
• 85% customer satisfaction rating
• 100% Brazilian Portuguese
Guiding Eyes for the Blind
Currently only 37% of dogs born into the program become successful guide dogs for the blind

Increasing the success rate of guide dogs
Get started with Watson

www.ibm.com/watson