The Watson Portfolio
# The Watson Portfolio

<table>
<thead>
<tr>
<th>Solution</th>
<th>Explore &amp; Analyze</th>
<th>Engage</th>
<th>Discover</th>
<th>Develop</th>
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<tr>
<td><strong>Description</strong></td>
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<tr>
<td>Watson Explorer</td>
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<td>Watson Developer Cloud (Bluemix)</td>
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<tr>
<td>Enterprise Search, Exploration &amp; 360°</td>
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<td></td>
<td>Cognitive Services “out-of-the-box” for developers</td>
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<tr>
<td>Watson Content Analytics</td>
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<tr>
<td>Text &amp; Content Analytics</td>
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<tr>
<td>Watson Knowledge Studio</td>
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<tr>
<td>Annotator Training</td>
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<td>Watson Engagement Advisor</td>
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<td>Natural Language Information Retrieval</td>
<td>Relationship Discovery for Specific Industries</td>
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<td>Watson Discovery Advisor</td>
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<td>Watson Developer Cloud (Bluemix)</td>
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<tr>
<td><strong>Delivery</strong></td>
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<tr>
<td><strong>NLP component</strong></td>
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<td>Try it!</td>
</tr>
<tr>
<td>Lexical Analysis, Custom annotation, Concept tagging</td>
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<td>Lexical Analysis, Custom annotations, document similarity, NER ...</td>
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<tr>
<td>Human annotation, classifier training</td>
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<tr>
<td>Dialog system, speech to text, text to speech, QA</td>
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<tr>
<td>Co-occurrence analyses, lexical analysis, ...</td>
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</table>
Watson Knowledge Studio
Watson Knowledge Studio

• From Annotation Planning to Classifier Training

  – Entity and relation extraction
  – Set up projects
  – Create annotation tasks
  – Define type system
  – Pre-annotate documents (dictionary-based)
  – User-friendly annotation & adjudication tool
  – Out-of-the-box classifier training (SIRE)
  – Automatic evaluation & inter-annotator agreement
# Watson Knowledge Studio - Capabilities

## Type System

<table>
<thead>
<tr>
<th>Entity Type Name</th>
<th>Roles</th>
<th>Subtypes</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVENT_MEETING</td>
<td>EVENT_MEETING</td>
<td></td>
<td>Delete</td>
</tr>
<tr>
<td>EVENT_VIOLENCE</td>
<td>EVENT_VIOLENCE</td>
<td></td>
<td>Delete</td>
</tr>
<tr>
<td>EVENT_SPORTS</td>
<td>EVENT_SPORTS</td>
<td>AWARD</td>
<td>Delete</td>
</tr>
<tr>
<td>EVENT_LEGAL</td>
<td>EVENT_LEGAL</td>
<td></td>
<td>Delete</td>
</tr>
<tr>
<td>EVENT_PERFORMANCE</td>
<td>EVENT_PERFORMANCE</td>
<td></td>
<td>Delete</td>
</tr>
<tr>
<td>GPE</td>
<td>GPE</td>
<td>OTHER</td>
<td>Delete</td>
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<tr>
<td></td>
<td></td>
<td>LOCATION</td>
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<tr>
<td></td>
<td></td>
<td>ORGANIZATION</td>
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<td>AREA</td>
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</tbody>
</table>

- Entity Types: 52
- Mention Attributes
- Relation Types: 2177
Annotations added to document sets are not considered ground truth until the document sets are submitted and approved. When a document set is approved, documents that are annotated in only one document set immediately become ground truth. Documents that are annotated in two or more document sets become overlapping documents that will become ground truth after conflicts are resolved.

Test
Deadline: 05/27/2016

- Add Document Sets
- Refresh
- Calculate IAA
- Check Overlapping Documents for Conflicts
- Apply Type System Updates

<table>
<thead>
<tr>
<th>Document Set Name</th>
<th>Annotator Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Set</td>
<td></td>
<td>IN PROGRESS</td>
</tr>
</tbody>
</table>
List prices are rarely left unmoistened on models like this, so prepare to budget for add-ons.

An obvious target buyer is the safety-minded parent who wants that height and size on the road, combined with a level of premium feel not found in cheaper cars.

No doubt plenty will crop up in Kensington, for example, but the GLE does harbour a secret – and deeply impressive – off-road ability (with the £3,000 off-road package) that will appeal to people who tow heavy
Watson Knowledge Studio

Key Differentiators:
- A tool for non-experts: annotation can be conducted by subject matter experts
- Machine learning component: out-of-the-box classifier training
- Integration with other Watson products
Content Analytics – Use Cases

• Watson Knowledge Studio:
  – Automotive industry
    – Analyzing customer feedback about different car models (DE, RU)
    – Finding *weak word expressions* in contract drafts (DE)

• Watson Content Analytics:
  – Public sector
    – Analyzing documents from confiscated hard disks (DE, FR, IT)

• Outlook:
  – Integration of lesser-resourced languages (e.g. Romansh)
  – Support for multilingual documents
Watson Developer Cloud
Bluemix is an open-standards, cloud-based platform for building, running, and managing applications.
Build Cognitive Applications with IBM Watson

Watson is creating a new partnership between people and computers that enhances, scales and accelerates human expertise.

Build with Watson

IBM Watson services available on Bluemix are building blocks for developers to create the next generation of cognitive applications to transform the way businesses engage with their customers, discover, innovate and make decisions.

AlchemyAPI’s text analytics and computer vision capabilities now part of Watson Developer Cloud and available on Bluemix.
Watson as Bluemix Services

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

AlchemyAPI
IBM

Concept Insights
IBM

Dialog
IBM

Document Conversion
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

Tone Analyzer
IBM

Tradeoff Analytics
IBM

Visual Recognition
IBM

Cognitive Commerce™
Third Party

Cognitive Graph
Third Party

Cognitive Insights™
Third Party
Example Watson Application
Natural Language Classifier

Using the Natural Language Classifier Service

1. **Prepare training data**
   - Identify class labels
   - Collect representative texts
   - Match classes to texts

2. **Create and train the classifier**
   - Use the API to upload the training data
   - Training begins immediately

3. **Query the trained classifier**
   - Use the API to send text to the classifier
   - The service returns the top matching class and other possible matches

4. **Evaluate results and update training data**
   - Update your training data based on the classification results
   - Create and train a classifier using updated training data
Dialog Service

Using the Dialog Service

- Prepare data
  - Gather representative questions
  - Understand case
  - Understand business processes

- Design
  - Review potential for Watson services (NLC, STT, TTS, etc.)

- Monitor conversations and review activity

- Optimize content
  - Learn from real interactions
    - Adjust existing content to suit user needs
    - Add new content based on user activity

Japanese, Spanish, Portuguese, Arabic, French, Italian ... and German
Watson & Bluemix – Use Cases

• Sentiment Analysis, Personality Insights
  – Social Media Analytics (FR, DE)

• Retrieve & Rank, Machine Translation
  – Pharmaceutical industry
    – Return most accurate response document template for medical questions

• Outlook: Call center support for Swiss clients
  – Challenge: speech synthesis and speech recognition for Swiss German dialects and Swiss Standard German
Watson on Bluemix: Summary

• Watson Services available for the most common languages…and new languages are added continuously

• Interest in integrating NLP components for lesser-resourced languages

• Try it yourself: www.bluemix.com
What will you do with Watson?
Backup Slides
How to approach a Watson Project

1. Use Case Exploration
2. Solution Design
3. Feasibility Study & Prototyping
4. Pilot solution design
5. Pilot - Iterative Development
6. Production Deployment planning & Skills Transfer

- Cognitive projects are not classical IT projects with defined outcomes in static systems
  - Uses cases in Cognitive computing projects can vary greatly depending on the use-case
  - Different technologies and solutions, ranging from research projects to industry proven product solutions are available to address different use cases
  - Results base on training and linguistic development and depend greatly on the source data
  - A dynamic, iterative implementation approach is required