



Whitepaper

What Can IBM Watson Do to Reshape the Insurance Business?

Author

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Abstract

Insurance companies are experiencing unprecedented disruption from a number of market forces such as rapid digitization, rising customer expectations, changing demographics, changes in economic environments, sophisticated fraud amongst others. To rise above the disruption, Insurance companies can benefit from focusing on Superior Customer Engagement, Optimized Operations, and Transformed Legacy Operations.

These capabilities can be realized at scale with demonstrated value through Cognitive/AI applications.

The IBM Watson Ecosystem, along with IBM BlueMix Cloud, enables the rapid development and deployment of Cognitive Applications including that on Cloud, Mobile, and Web, to suit a variety of use cases.

IBM Watson-Based Cognitive Applications

IBM Watson-based Cognitive Applications learn and interact naturally with people to extend what either humans or machine could do on their own. They help human experts make better decisions by penetrating the complexity of big data. They do so by implementing the capabilities of Understanding, Reasoning, Learning, and Interacting with a variety of actors.

Cognitive Applications have technical foundations in Deep learning/Machine learning, natural language processing, reasoning & inferences, and semantic contextual understanding, while leveraging relevant content and incorporation of deep subject matter expertise. These capabilities enable the foundational capabilities in a graduated way as shown below:

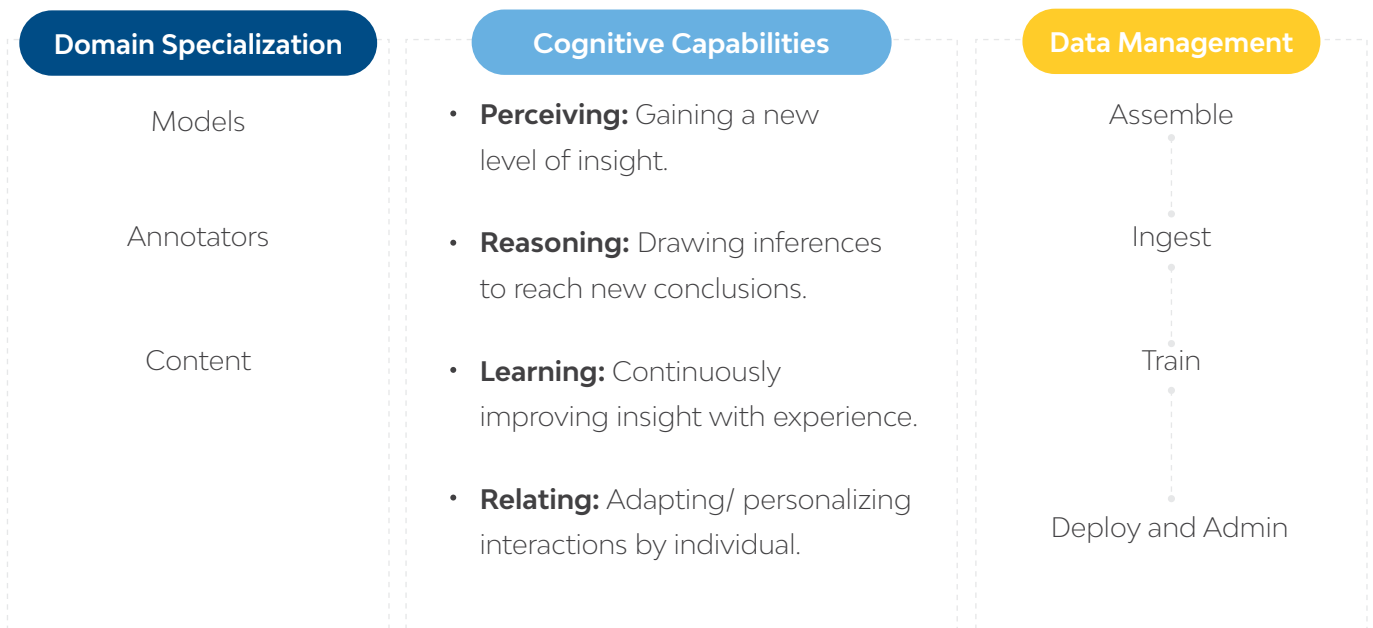
Capability	Required	Advanced	Ultimate
Understand domain deeply	Has task-specific knowledge	Has contextual knowledge relevant to asks	Has common sense and general knowledge
Reason towards specific goals	Uses-specific approaches, deductive/ inductive reasoning	Explanations-based	Adaptive, combines multiple approaches
Learn continuously from experience	Uses explicit training, Supervised Learning	Uses Implicit training, Unsupervised learning	Uses feedback from environment, Reinforcement Learning
Interact naturally with conversational applications	Transactional Request-Response	Session-oriented contextual affective interactions	Life-long conversational interactions

IBM Watson Ecosystem

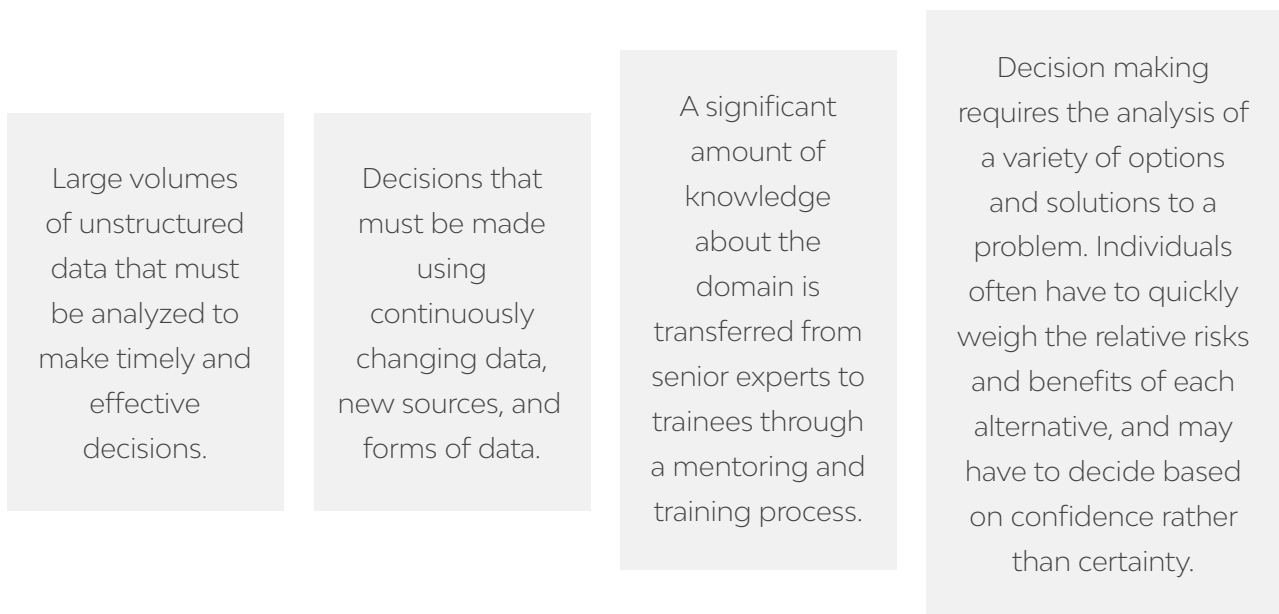
Platforms/PaaS	Analytics	Data Management	SaaS/API's
IBM Bluemix (Cloud, In-Premise, Hybrid)			
IBM Watson Engagement Advisor	IBM Watson Analytics	IBM Watson Explorer	Watson Developer Services
IBM Watson Discovery Advisor	IBM Watson Content Analytics	IBM Watson Foundations	Watson Developer Cloud for Enterprise
IBM Watson Virtual Agent		IBM Data Science Experience	Watson Conversation Service
IBM Watson Content Hub		IBM Watson Machine Learning	IBM Watson Analytics API
IBM Watson IoT Platform		IBM Watson Curator	IBM Watson IoT Workbench

Solutions					
Financial Services	Customer Insight		Regulatory Compliance	Surveillance Insight	
IoT	Automotive Product Lifecycle Management	Electronics Telecom	Insurance Asset Management	Manufacturing & Utilities	Retail
Marketing	Personalized Marketing	Customer Insights	Digital Experience		
Supply Chain	Order Management and fulfillment	Supply Chain Management	B2B collaboration		
Enterprise	Collaboration Solutions	Everyday Analytics			

The IBM Watson Product Ecosystem, as shown above, offers a complete end-to-end capabilities from API services, Data Science/Machine Learning Services, Advanced Data Management, and Analytics and Development Platforms, including DevOps services. There are also reusable solutions that can be leveraged for similar use cases in Marketing, Customer Insights, IoT, Industry solutions in verticals such as Financial Services/Insurance etc and Horizontal solutions such as Supply Chain, Predictive Monitoring etc. The product ecosystem also supports the Data Management, Cognitive/AI, and Domain specialization capabilities that is a common denominator for any new Cognitive Application as shown below.



IBM Watson-based cognitive applications are often appropriate for challenges regarding data and decision making processes, whose characteristics are enumerated below:



Benefits of IBM Watson-Based Cognitive Applications

Cognitive Applications can help us realize the following benefits:



IBM Watson in Insurance

Policyholders are increasing their demands for real-time access to a variety of insurance products and services which is an unavoidable trend. This underlines the importance of the provider-customer relationships, and why it is important to maintain positive interactions, experiences, and satisfaction. IBM's Watson allows users to analyze insights, track their policyholders to anticipate future needs, and provide them services that they want. You can also analyze weather conditions and social data to provide further tailored policies. With the use of real-time data, you can respond faster to catastrophes, and Watson will even help you select the best course of action.

IBM Watson can help with need analysis. When discussing client needs and services, it is necessary to match products to their individual needs. Automated solutions allow agents to ask a series of questions conversationally that Watson would translate into product advice. This will make things more efficient and smoother when discussing

complex products with clients. The next big move in the mobile world will be voice-interfacing with the web, and your insurance clients. IBM Watson enables the more sophisticated technology that will be needed to interpret and respond to customer requests. In order to accurately respond to customer questions, such as "what is the renewal date of my policy?" will require platforms that can understand language, relationships, and concepts.

IBM Watson helps in the development of multi-channel conversational applications, and accommodating the important changes that can affect the way insurance is renewed, client acquisition and research take place. Implementing these technologies will be the key to being able to keep up with future demand.

Cognitive Application implementations demonstrate the potential for offering superior customer experience, transformed legacy operations, and disruptive applications.

Superior Customer Experience

The image below shows a self-service agent application that helps customers choose the right insurance product. The application interacts with customers through a conversational interface. Through a step-by-step guide, the Virtual agent serves, guides, and advises through customer-preferred interaction channel. The application leverages on-demand access to

experts, domain-specific information on web, or mobile-based platform. It engages with customers with natural language dialog and industry-specific insights. A customer session is transformed with personalized recommendations, thereby creating an ultimate experience with personalized assurance and mentoring.

Personalized Automated Self-Service

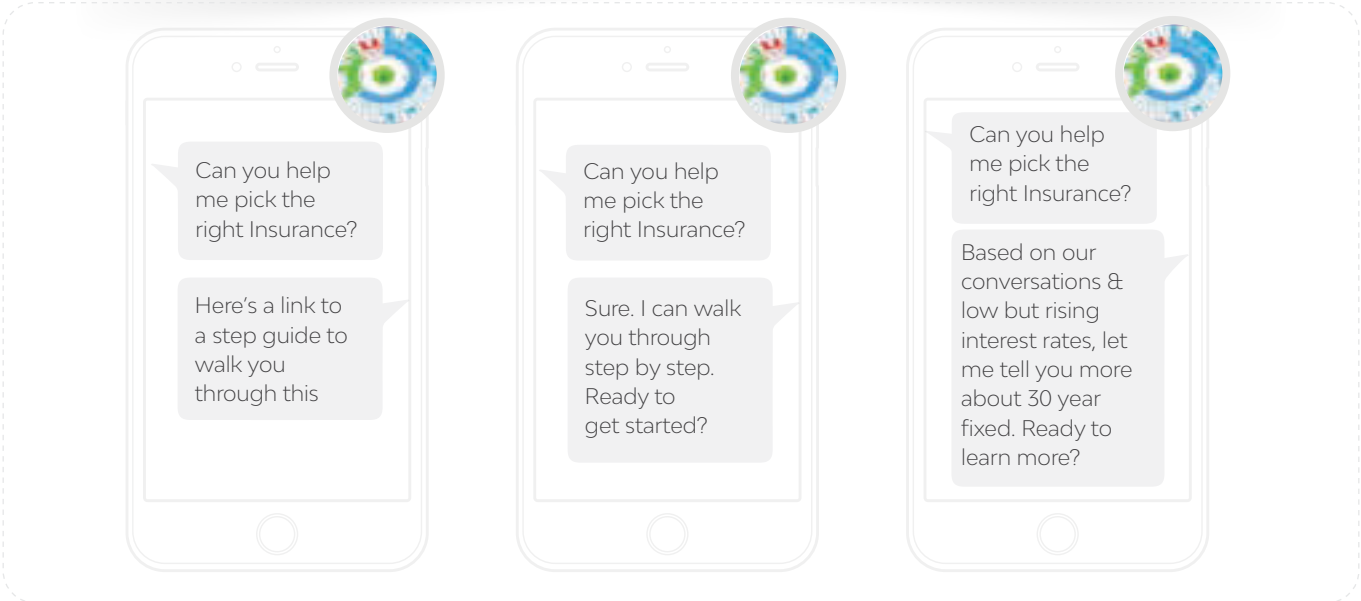


Fig 3: Cognitive Application – Customer Experience (1)

Cognitive Agent – Agent Assisted Insurance Claims Processing

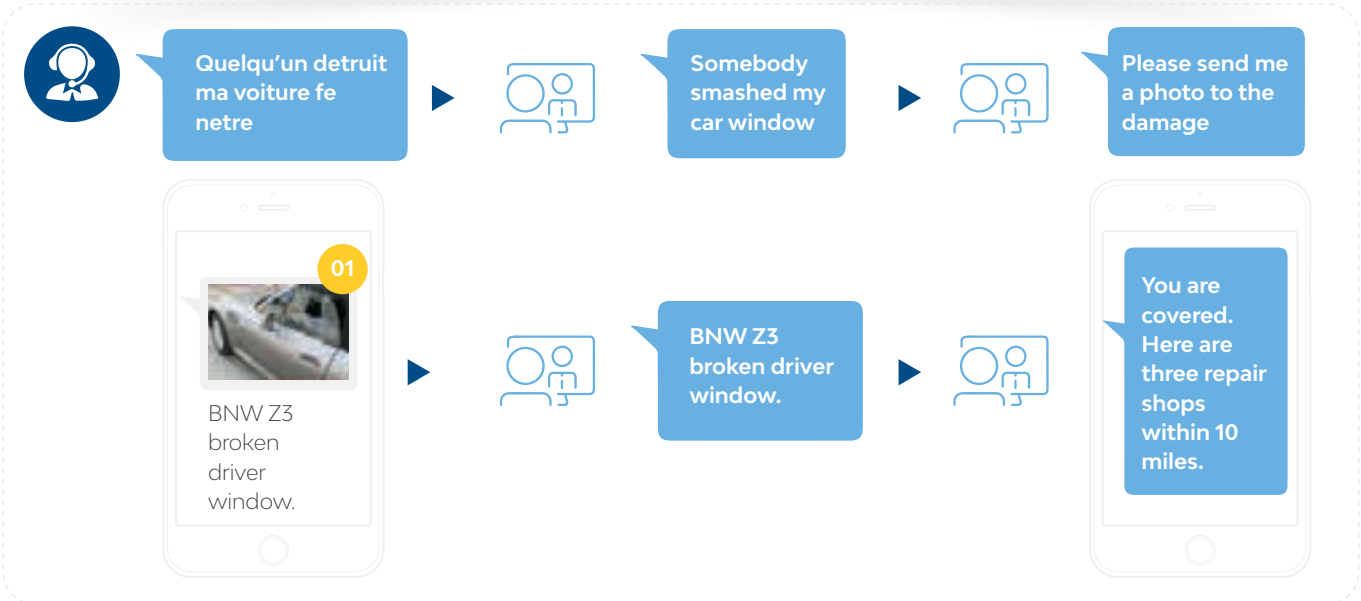
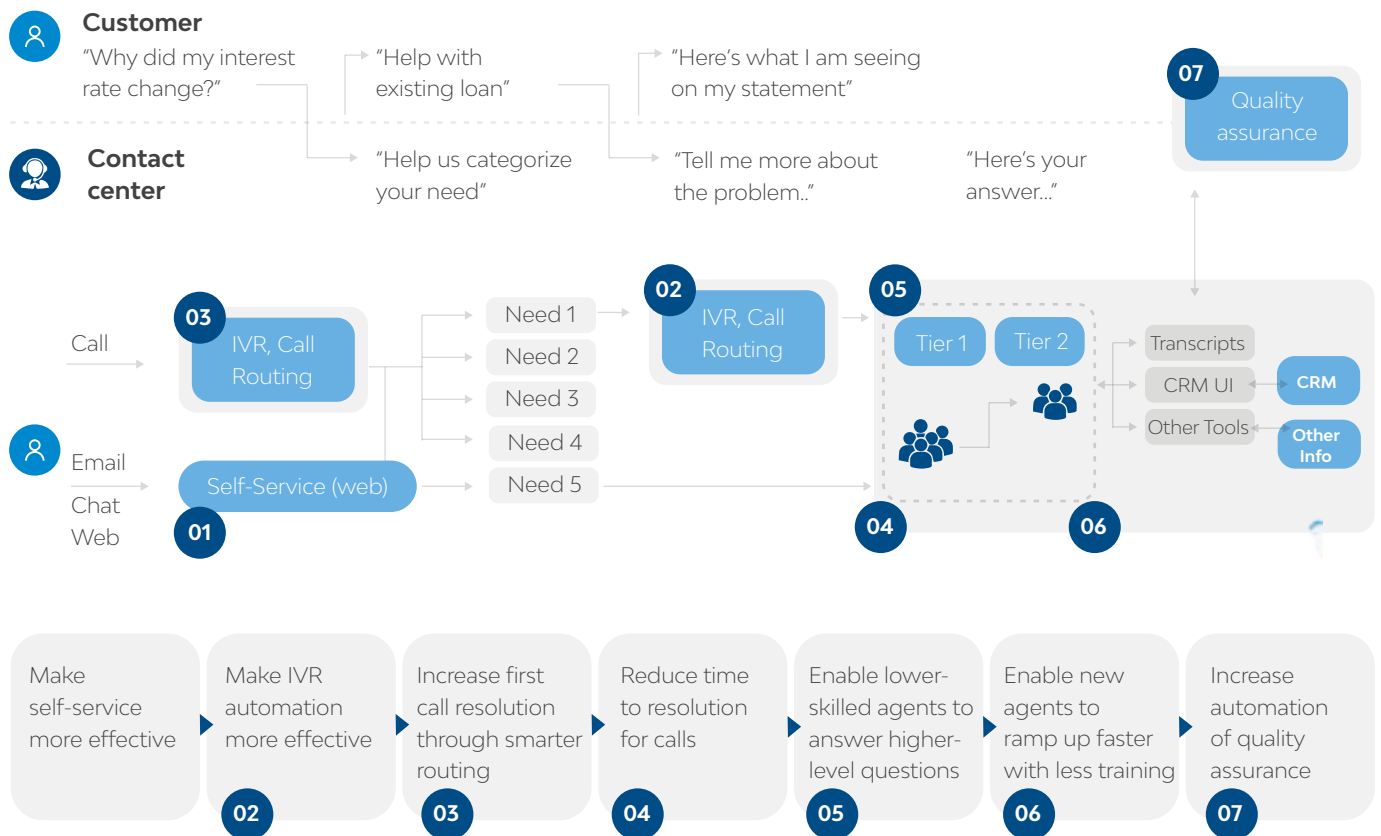


Fig 3: Cognitive Application – Customer Experience (2)

The above snapshot shows how a Cognitive Application helps in the filing of claims and speedy examination and adjudication of claims and property damage. An IBM Watson-based Cognitive Application sets into an existing process that allows for a dialog-driven interaction with the

customer, and guides the user to transaction completion. This application also aids in the completion of forms and process-specific, point-in-time questions that customers may have during the self-service interaction.

Transforming Legacy Processes and Applications



The above example shows a Cognitive Application for Contact Center support, that analyzes and discovers new insights to enhance the quality of each interaction with the customer. The application is designed to improve the agent productivity by analyzing extracted and mined call logs to identify patterns, quality issues, similar

phrases, topics, and trends. Common customer issues are identified, collated, and categorized, so that agents can be prepared for answers to frequent queries, thereby improving training and overall call center processes. It enables agents to better respond to customer requests and improve call conversion rate.

Optimized Operations

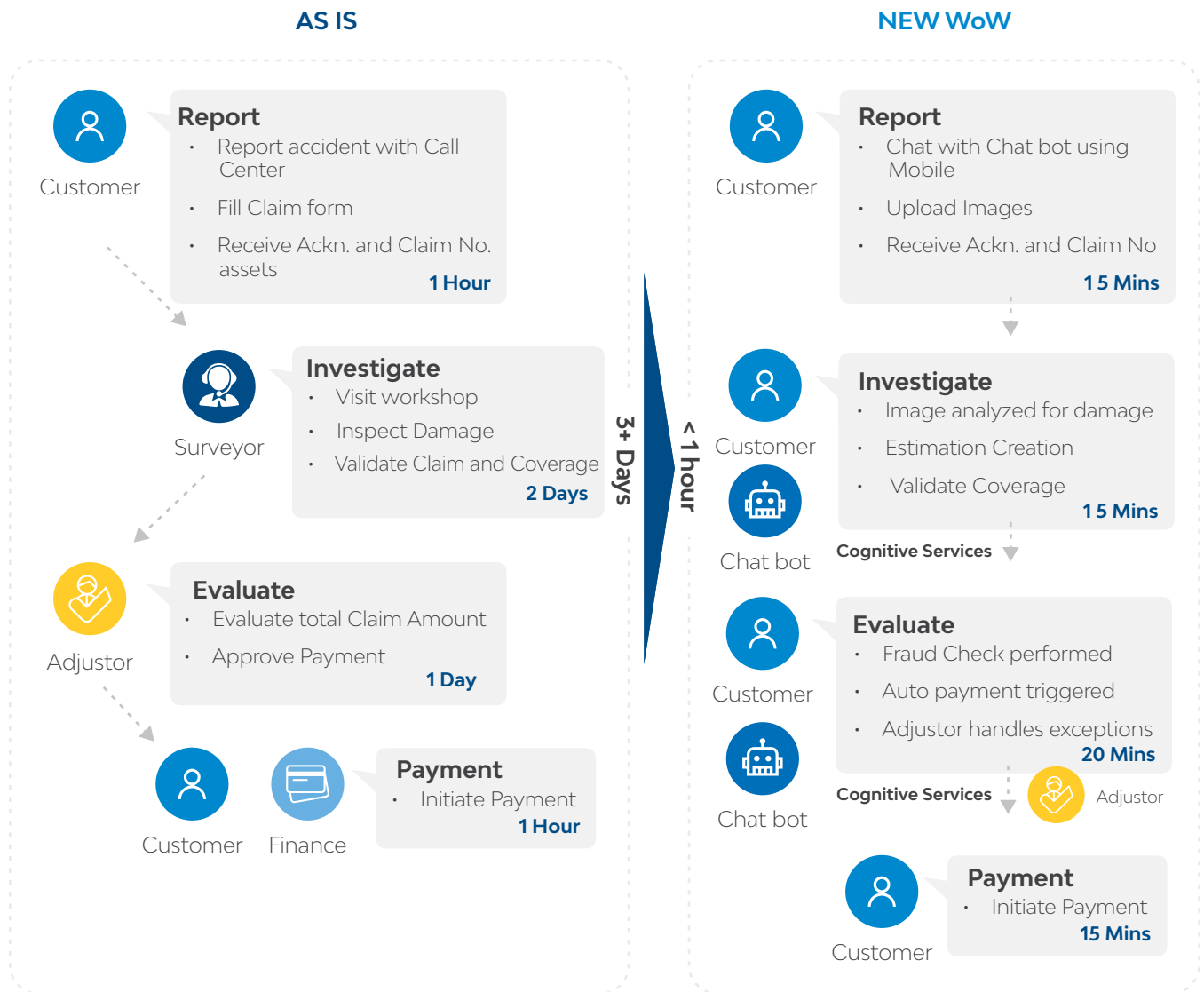
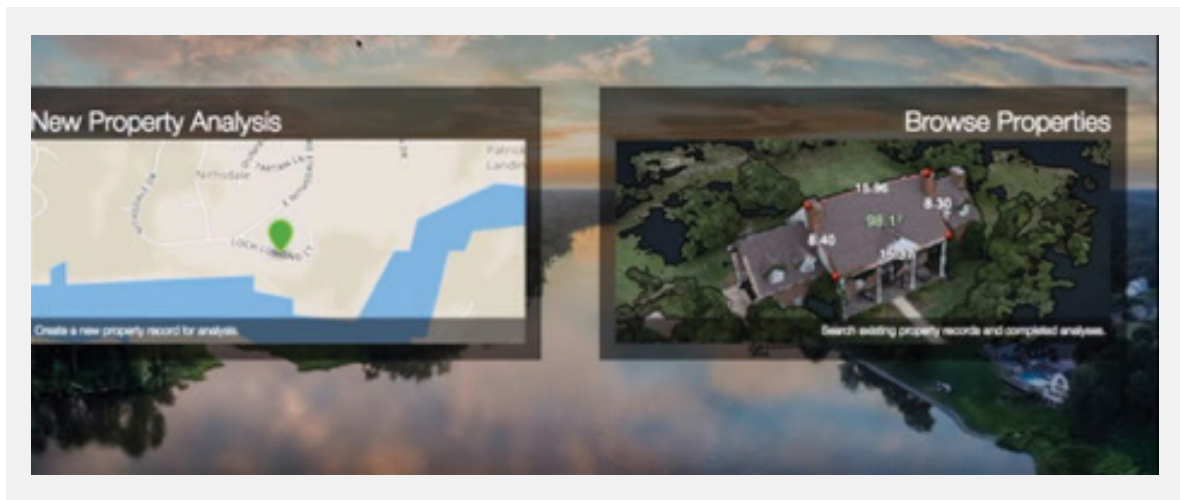
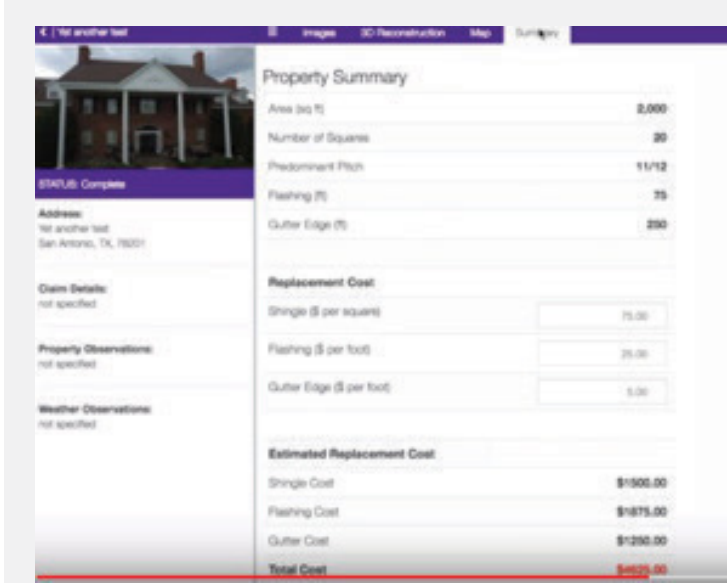


Fig 5: Cognitive Application – Legacy Transformation

The above image shows a Cognitive Claims solution implemented using IBM Watson services. The Cognitive Claims solution demonstrates the application of Artificial intelligence in claims operation that can bring significant changes the way claims are handled today. Claims operation can be automated to the extent that it will reduce

mundane activities done by surveyors, adjusters, and give more facilities to customer in terms of self-services and transparent claims process. It improves risk assessment models by uncovering unexpected patterns and associations between data sources.

Disruptive Applications

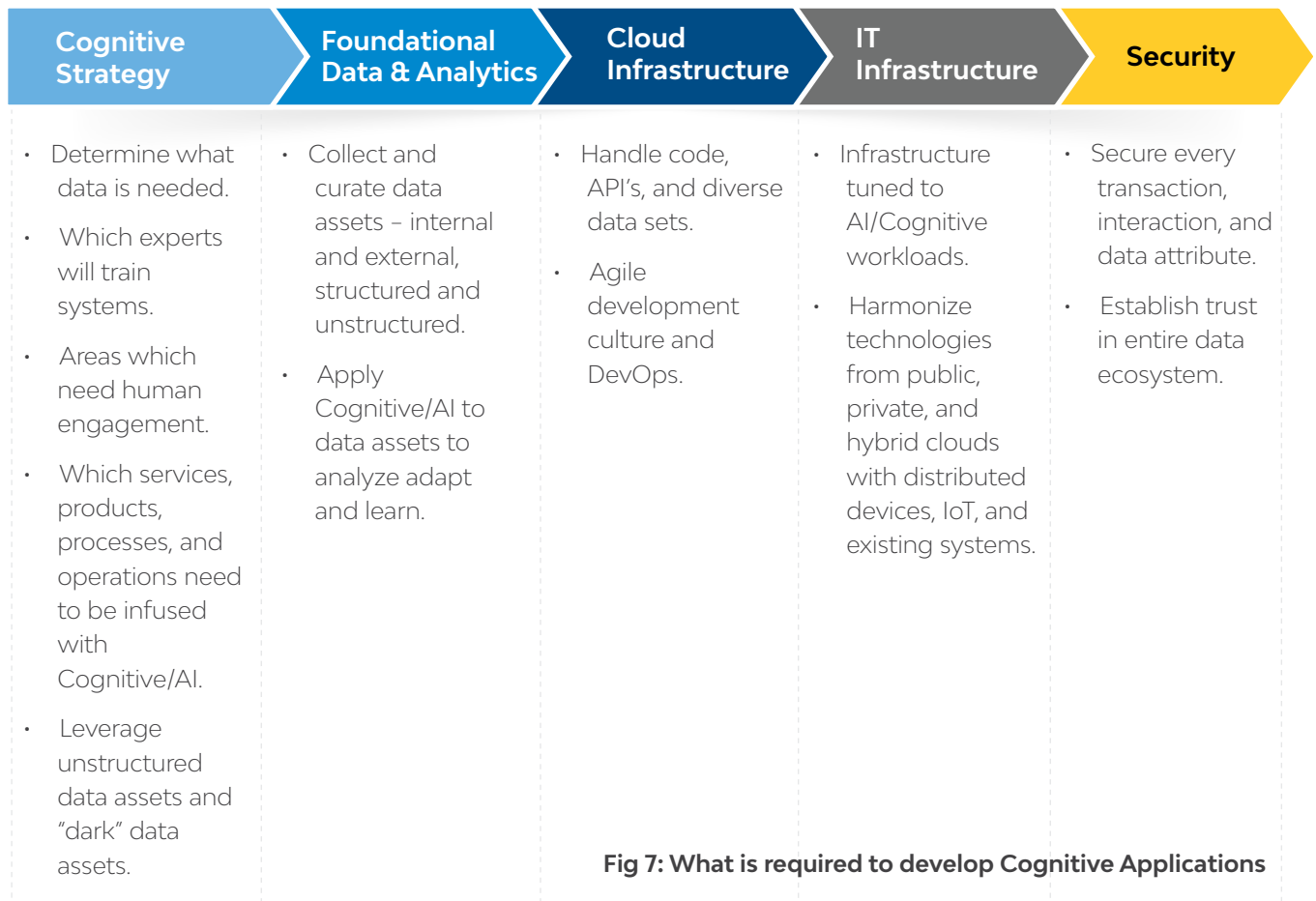
Property Summary	
Area (sq ft)	2,000
Number of Squares	20
Predominant Pitch	11/12
Flashing (ft)	75
Gutter Edge (ft)	250
Replacement Cost	
Shingle (\$ per square)	75.00
Flashing (\$ per foot)	25.00
Gutter Edge (\$ per foot)	5.00
Estimated Replacement Cost	
Shingle Cost	\$1,500.00
Flashing Cost	\$1,875.00
Gutter Cost	\$1,250.00
Total Cost	\$4,625.00

The above image shows a new disruptive application to analyze Hail Damage to properties through drone images, and gives an automated estimate of property damages. Working the usual way, site inspections and documentation of damage have high costs and take weeks or months to complete. The Hail Analytics Cognitive Application analyzes drone images of properties and identifies damaged roof areas, measures areas of roof damage, overlays Watson-analyzed damage onto captured images, estimates claims based on the measurements of damage.

With this new solution, insurance companies can lower costs, accelerate assessment of damaged areas, and process claims in only hours – improving your overall customer satisfaction.

Implementing Cognitive Applications

As with any new enterprise capability, a core set of techno-functional capabilities are required to design, develop and implement Cognitive Applications as shown below.



Define the value

- Define the right opportunity through use case identification, requirements definition, and prioritization.
- Define a value proposition, business case, and capability roadmap for Cognitive initiatives within the organization.
- Set realistic expectations regarding value realization and ROI with stakeholders and sponsors.



Prepare the foundation

- Invest in human talent.
- Build and invest in building a quality corpus.
- Be aware of regulations, policy, process requirements, and organizational impacts.



Manage the change

- Ensure stakeholder buy-in and executive involvement early on in the Cognitive journey.
- Communicate the Cognitive vision at all levels.
- Continually raise the Cognitive IQ of the organization.

In order to realize value and return on investment from Cognitive application development initiatives, consider the following leading practices:



Careful planning

- Determine where cognitive capabilities are most suited to the organizational business units.
- Implement tightly focused pilot projects to learn the capabilities of IBM Watson product ecosystem, and build confidence and insights into its pros and cons.
- Create an enterprise data management initiative to acquire and source data needed for cognitive insights.



Prepare thoroughly

- Cognitive Applications need to be iteratively trained and results refined, as they learn with interactions, results, and new information that let insurers scale expertise.
- Identify those areas where competitive advantage can be demonstrated such as augmented workers, operational efficiency improvements, and self-service capabilities.
- Using hybrid-based and/or cloud-ready product models, costs can be controlled, and flexible deployments with advanced architectures can be achieved.



Progress continually

- Monitor progress to be sure that cognitive computing matches organizational strategy.
- Internal innovation and growth hacking can help teams and business units develop competencies in non-linear ways.
- Incorporate agile development and design thinking in addition to business service composition skills so as to be nimble to respond to changing market forces.

Conclusion

Cognitive Applications are increasingly showing demonstrable results in realizing tangible and actionable insights from data and enabling confidence across various dimensions to stakeholders as shown below.

Confidence in data and drawing impactful insights from it are key in achieving business goals



Fig 8: Changing Definition of Success

In addition to enabling confidence, Cognitive applications are a critical component for the realization of a **Smarter, Dynamic enterprise**, along with Digital Transformation, Business Remodeling, and Next Generation Infrastructure operations as shown below.

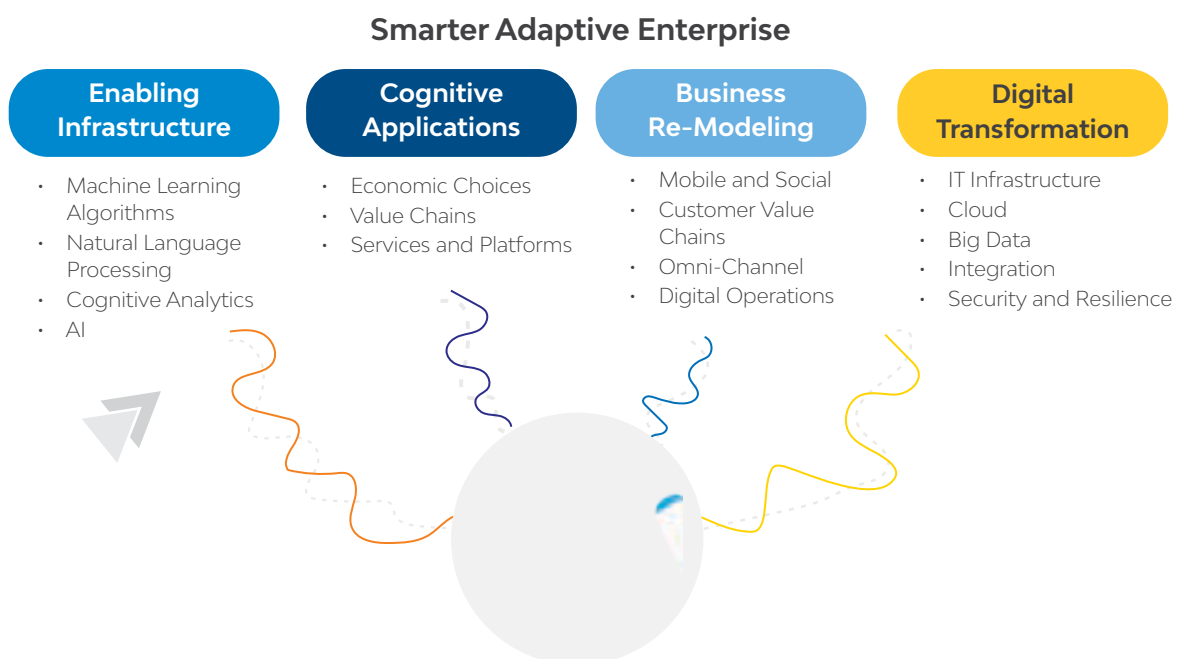


Fig 9: Enabling the Smarter Adaptive Enterprise

About the Author



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Harsha has 18+ years of experience in Information Technology. His functional and technical expertise ranges from Applied Data Sciences, Big Data Management, Large Scale Analytics, Machine Learning, Deep Learning, Sensor Analytics, Customer Analytics, Fraud/Spend Analytics, In-Memory Computing, and Voice Applications. He has consulted for and worked with many top tier Fortune 50 companies across Communications, Hi-Tech, Financial Services, Retail, and Healthcare industry verticals.

Harsha has a Masters in Engineering from Indian Institute of Science, Bengaluru and a Masters in Information Systems from University of Illinois, Urbana-Champaign. He is currently enrolled in a Ph.D. program at the University of Colorado, Colorado Springs. Harsha has five publications in the IBM Systems Journal, has co-authored a book titled, "Big Data Imperatives", and also has to his credit two Data Product patents.

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