LTIMindtree

Whitepaper

Moving from Digital Insurance Business to Cognitive Insurance Business

Author
Harsha Kumar Srivatsa

Contents

Abstract

In today's economy, we are seeing insurance companies, their business models, products, and processes, undergoing major transformation. Insurance enterprises are rapidly "becoming digital" as they seek to capture the cost savings, agility, and collaboration enabled by cloud, analytics, mobile, and social technologies.

However, digital is not the destination. Rather, it is laying the foundation for a much more profound transformation to come. This transformation is being fueled by the infusion of intelligence into insurance products and processes, the proliferation of mobile devices and social media, and heightened expectations from digitally-empowered consumers. As insurance enterprises race towards digital capability, it is easy to lose sight of the real benefits at the heart of digitization.

Why is it important? How useful can AI, Analytics, Automation, IoT, Social, Cloud, Mobility can be, without fully understanding how they can be leveraged into the business?

With Digital Insurance Enterprises, the challenges will go beyond information overload. In many ways, the challenges will be related to cognitive overload, characterized by an exponential increase in the complexity of decision making. It's impossible to create protocols, algorithms, or software code to successfully anticipate all the potential permutations, trajectories, and interactions. However, these challenges can be addressed to some extent if we have systems that learn. Such learning systems (cognitive systems) can help insurance enterprises, with the challenges and issues that they face today: rapid digitization, rising customer expectations, anticipating consumer behavior, ensuring public safety, changing demographics, predicting risk, sophisticated fraud, etc.

But just like digital before it, successful adoption of cognitive within organizations, is going to come down to purpose, company culture and an ability to embrace disruption. As access to cognitive computing has become more affordable, it will be put to far wider use in different areas of insurance business. Such Intelligence is enabled by technological innovation in AI, deep learning, and other cognitive technologies and solutions that can understand, reason, and learn are augmenting our own capacities – as enterprises and as individuals.

Cognitive Business

A new business design is now gaining traction: one that marries digital business with digital intelligence leading into a Cognitive Insurance Business. When Cognitive capabilities pervades into People, Process, Technology and Things, augmenting intelligence and decision making; it becomes a Cognitive Business.

A Cognitive insurance Business:

- Is not reactive.
- Is not merely pro-active.
- Conceives new opportunities to out-think competition and tackle challenges at scale.
- Focuses on decision intelligence – the right decision at the right time, at the right circumstance.

A cognitive business uses data to create knowledge and predictive insights. The business continually learns and adapts to the market forces. The ability to continually develop knowledge and insights creates a significant advantage over major competitors, and protects from InsurTech disrupters who may not be on your radar.

Business imperatives are clear: enhancing business models to improve profitability, increase revenue, or get closer to customers. Innovate or be overcome by competitors or new market entrants. The availability of IT, accessible through the cloud, makes it efficient to acquire, deploy and manage IT. Even the smallest players and startups can readily integrate IT into their business. So, how will you differentiate your business from the competition? How will you use your company's data to become a cognitive business?

The greatest power is in combining data, insights, and all interaction channels such as mobile apps, conversational applications, intuitive web site, and in the near future augmented and virtual reality.

So what distinguishes a Digital Insurance Business from a Cognitive Insurance Business?

- Drive Deeper Engagement: help clients with better customer experience.
- Scale Expertise: companies spend lots of money training employees, this could be scaled more effectively.
- Put Learning in Every Product: build products that adapt to each consumer's needs.
- Change Operations: streamline your supply chain to help margins.
- Transform How You Do Discovery: research and democratization of knowledge will be the foundation of many segments will work in the future.
- Leveraging Expertise: it matters more than ever to scale right knowledge at right moment. Once you know, enterprises cannot "un-know".

The following table lists an illustrative example of the differentiators between a Digital Business and Cognitive business

Digital Business	Cognitive Business
360 degree view of customer profile and transactions.	Enhanced Customer insight through interaction insight, sentiments, and connectedness. Deduce how customers feel.
Vast data points in internal systems to create forecasting models.	Create hyper personalized products and services to customers. Forecast and respond to peaks and valleys in business demand and respond better to business variance, while continuing competitive disruption.
Has analytical models to get insight from data assets.	In addition to customer analytics, able to incorporate customer personality analysis to truly understand the customer. Real- time tracking of the changing needs of customers.
Make predictive assessments.	Better able to come up with impact analysis and risk assessment from major events such as economic shocks, geo-political events, weather, natural disasters, etc.
Completely plugged into internet and social media ecosystem, and have access to external data.	Utilize and gain insights from unstructured and dark data assets.
Transact business digitally through mobile and web.	Conversational and natural interactions with customer giving edge in marketing, sales, retention, etc.

Examples of Cognitive Insurance Businesses

Travelers Insurance Group has a fleet of 65 drone-operating agents to Houston to assess the damage from Hurricane Harvey.

Going beyond traditional rules-based voice or chatbot digital solutions, USAA has rolled out an Intelligent Personal Assistant, using Amazon Alexa and Clinc that has insurance industry-specific deep vocabulary and knowledge

Liberty Mutual has introduced a new app to help drivers involved in a car accident, to quickly

assess the damage to their car in real-time using a smartphone camera. The app provides damage-specific repair cost estimates.

AllState Insurance has developed a virtual assistant called ABIe (AllState Business Insurance Expert) to assist AllState agents seeking information on AllState Business Insurance (ABI) commercial insurance products. ABIe provides step-by-step guidance for quoting and issuing ABI products using natural language.

Fokoku Mutual, a large Japanese Insurance company has replaced its 34 strong claims assessment workforce with an implementation of IBM Watson Explorer AI solution. This solution can analyze and interpret claim data including unstructured text, images, audio, and video to decide policy payouts.

AXA Insurance has implemented a Google Tensor Flow-based application to optimize pricing by predicting" large-loss" traffic accidents with 78% accuracy. Using a deep analysis of customer profiles, AXA was able to understand which clients are at higher risk of large-loss cases requiring payment of more than USD 10,000, thereby optimizing the pricing of its policies.

Some examples of InsurTech startups that are leveraging Cognitive/AI across all areas of the insurance industry, are given below:

Property Insurance aided by Satellite pictures: Silicon Valley startup Cape Analytics has developed a service for property insurers that combines machine learning with computer vision and geospatial imagery to do things like - analyze roofs of houses for material type, condition, and building footprint. Anyone can plug-in their data feed of comprehensive property attributes via an APO, and then use it to improve the underwriting process by increasing quote speed and refining accuracy.

Auto Insurance Claims Management: London-based startup Tractable has created deep learning algorithms that can give cost estimates for auto insurance claims. The collision repairer uploads an estimate and a picture to claims management system; AI algorithms compare the pictures and cost estimate to make sure everything is in order. This reduces the cycle time from days and weeks to minutes, resulting in more consistency. This process no longer requires an expensive human claims handler to be involved in the process.

Identifying fraudulent claims: Paris startup Shift Technology has developed an AI-powered cybersecurity solution to detect fraud in the insurance industry. As of today, the system has processed over 78 million insurance claims, and is said to have a 75% accuracy which is slated to improve over time and data volume. The technology claims to work with both health claims and P&C claims.

Chatbots for Insurance: New York-based startup Lemonade is a licensed insurance carrier offering insurance to renters and homeowners exclusively through a chatbot app for smartphones. It

takes about 9 seconds to get insured and about 3 minutes for claims to be paid.

Drones for Insurance: Better view is an InsurTech startup that marries insurance with drone surveillance to capture aerial images, flags potential problems for properties, and the files a report for their clients. The client knows that these issues could affect them in the future, and choose an insurance policy to address this.

Becoming a Cognitive Insurance Business

Becoming a Cognitive business is a journey. Fortunately, we have all the required technologies and infrastructure to realize the techno-functional framework. What is needed is executive vision and leadership, while enhancing the methods and tools available to business people doing the business redesign to a Cognitive business.

Below are some points to be kept in mind while an enterprise goes about the Cognitive business journey.

1. **Shift Technology's role from enabler to Advisor –** Technology should enhance, scale and accelerate human expertise, while realizing the evolution of next-gen human and system capabilities.

2. **Seize opportunities ahead of competition –** Become indispensable to customers and users, amplify knowledge and re-engineer workflows, and transform the enterprise through new business models.

3. **Analyze and understand all varieties of data –** Adapt and make sense of data; "read" text, "see" images, and "hear" natural speech with context.

4. **Achieve Enhanced Insight –** Reason, interpret information, organize it, and offer explanations of what it means, with rationale for the conclusions.

5. **Learn and augment expertise and intelligence –** Accumulate data and derive insight at every interaction, perpetually.

6. **Build enterprise-level expertise –** Collate all available knowledge and data to create an evidence-based enterprise virtual advisor, and elevate entire teams to the level of the best experts in the enterprise.

7. **Intelligence Workflows –** Build workflows that can be coached by humans to grow ever more effective, safe or productive with each interaction.

8. **Insights-driven Enterprise –** Go beyond analysis to hypothesize, conclusion, and action – in weeks instead of months or years.

Strategic Enablers for a Cognitive Business

The following are key strategic enables, amongst others, which will help an enterprise to make the transition from a Digital Business to a Cognitive business.

Develop a cognitive strategy

Decide which products, services, processes, and operations should be infused with cognition. Determine what data your organization needs and pick the experts to train the cognitive system. The goal is to scale expertise.

Create a foundation of data and analytics

Collect and curate the data most useful to your organization. This data could include data that the organization owns – such as sales figures or customer complaint logs — or data outside of the business, say tweets or news.

Use cloud services

The building blocks for cognitive products and services are Application Programming Interfaces (APIs) and industry data sets.

Make IT systems fine-tuned for cognitive workloads

Combine private, public, and hybrid clouds with existing systems, distributed devices and IoT instrumentation. This combination creates an IT infrastructure to serve as a backbone for your organization to operate as a cognitive business.

Build in security for a cognitive era

The goal should be to secure every transaction, piece of data, and interaction as cognitive systems make their way into cars, buildings, roadways, and business processes. Secure systems ensure trust in the entire system and ultimately, the organization's brand image.

In the past, professionals made decisions based upon experience and historical data. Now cognitive capabilities enable business leaders to make strategic decisions based upon data, structured and unstructured, which are changing in real-time.

Companies can tap the discovery capabilities of cognitive systems to mine deeper insights from vast amounts of data. They can uncover patterns and opportunities that would be virtually impossible to see or find through traditional research methods.

Functional Enablers for a Cognitive Insurance Business

The following are key functional enablers, amongst others, which will provide the necessary foundational technical capabilities for an enterprise to make the transition from a Digital Business to a Cognitive business.

Cognitive Engagement
New and natural channels of engagements, superior customer experience, deepen engagement with users and customers.

Cognitive Products and Services
Infused with understanding, reasoning, and learning and never stop adapting.

Cognitive Process and Operations
Intelligent, scalable, and predictable processes that bring certainty to business.

Cognitive Expertise
Capturing and democratizing expertise, help make critical decisions, multi-dimensional insights, elevates expertise to all segments of users.

Cognitive Exploration and Discovery
Utilizing all relevant and valuable data assets, accelerated insights, patterns, and trends discovery.

Technical Enablers for a Cognitive Business

Cognitive Analytics

Cognitive Analytics represents a paradigm shift in the way enterprises apply analytics and cognitive computing technologies to help humans with Decision Intelligence as shown below.

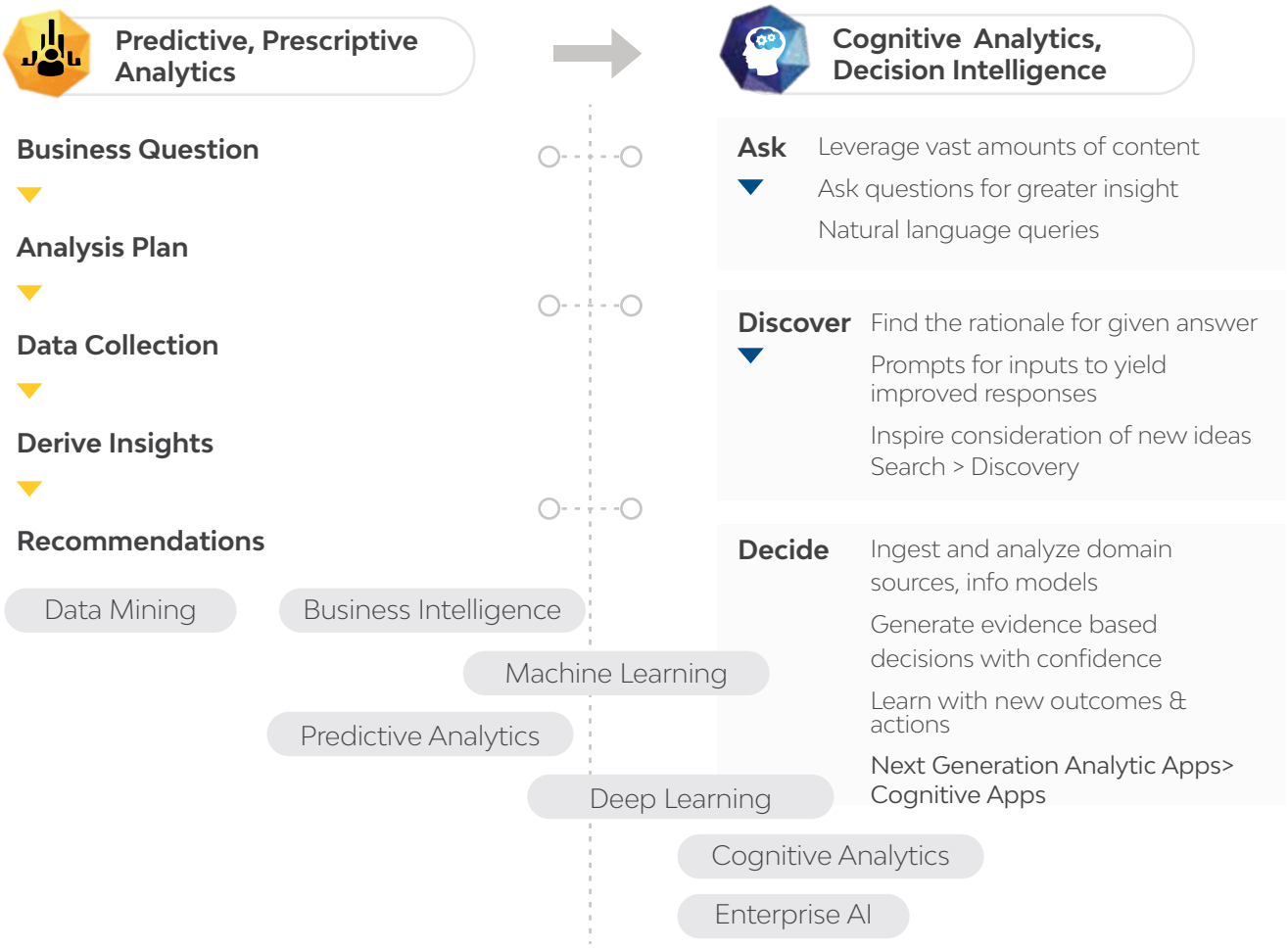


Fig 1: Paradigm Shift in Analytics through Cognitive Applications

It does this by mining untapped data sources, and rather than ignore unwieldy, diverse data formats, organizations can use cognitive analytics to quickly tap unstructured information—text documents, images, emails, social posts, and more—for useful insights.

Cognitive Analytics can provide near real-time answers to questions posed in natural language by searching through massive amounts of information that have been entered into its knowledge base, making sense of context, and computing the most likely answer. As developers and users "train" the system, answers become more reliable and increasingly precise over time.

The value proposition from Cognitive Analytics is as follows:

Improve service consistency and quality: Humans often come to different conclusions based upon the same information. Cognitive analytics can help reduce subjectivity in decision-making—and do it faster—by tracing how decisions are made and measuring the resulting outcomes, allowing leading practices to be shared across the organization.

Provide personalized services: Fast, efficient service is no longer enough to win today's consumers. Their loyalty is won by organizations that can provide highly personalized service based on what data says about their individual preferences and history.

Enhance knowledge sharing: Cognitive analytics can be used to amplify knowledge sharing, providing fast access to highly relevant answers and insights on demand.

Make smart business decisions.

Crawl through all available data, sort, learn, and conceptualize – make an enterprise look, feel, and sound smarter.

Having technology that can basically take the lead on why, what, how, and when to data mine, analyze, and provide you with elevated insight to make optimal business decisions and help you be an expert.

Save costs and optimize your business; identify new business opportunities; analyze injury reports to improve safety; benefits abound; and more.

Cognitive Data Platforms

A new Data Platform Architecture as shown below capable, is needed for a Cognitive business so that in can analyze all varieties of data, handle data at rest, data in motion, inside and outside the enterprise, and realize Advanced Analytics Capabilities.

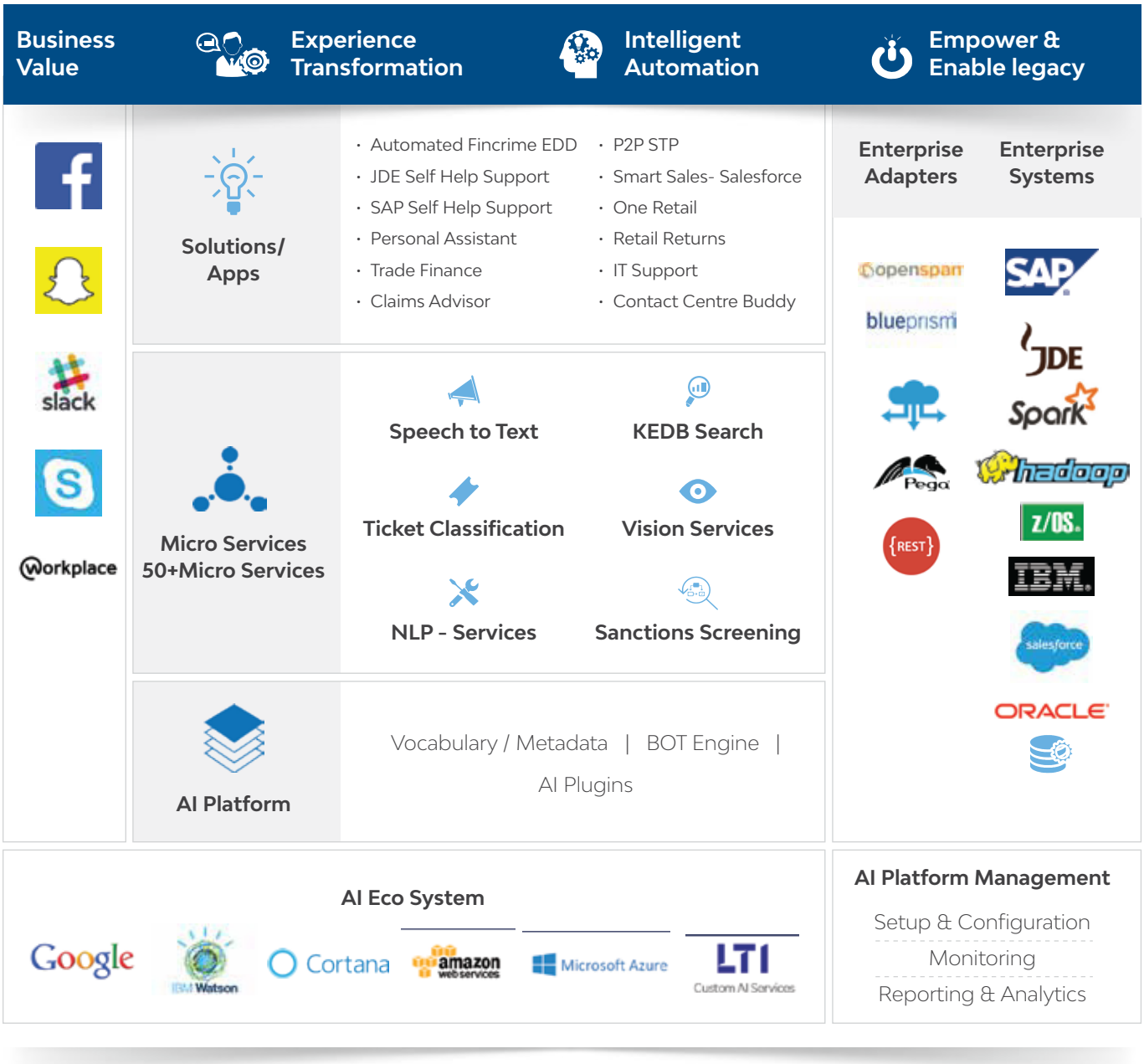


Fig 2: MOSAIC ai – Platform Driven Delivery

With such capabilities, Enterprises can now handle the complexity and scope of AI/Cognitive/Advanced Analytics, and deliver Information for insights and decision making where required.

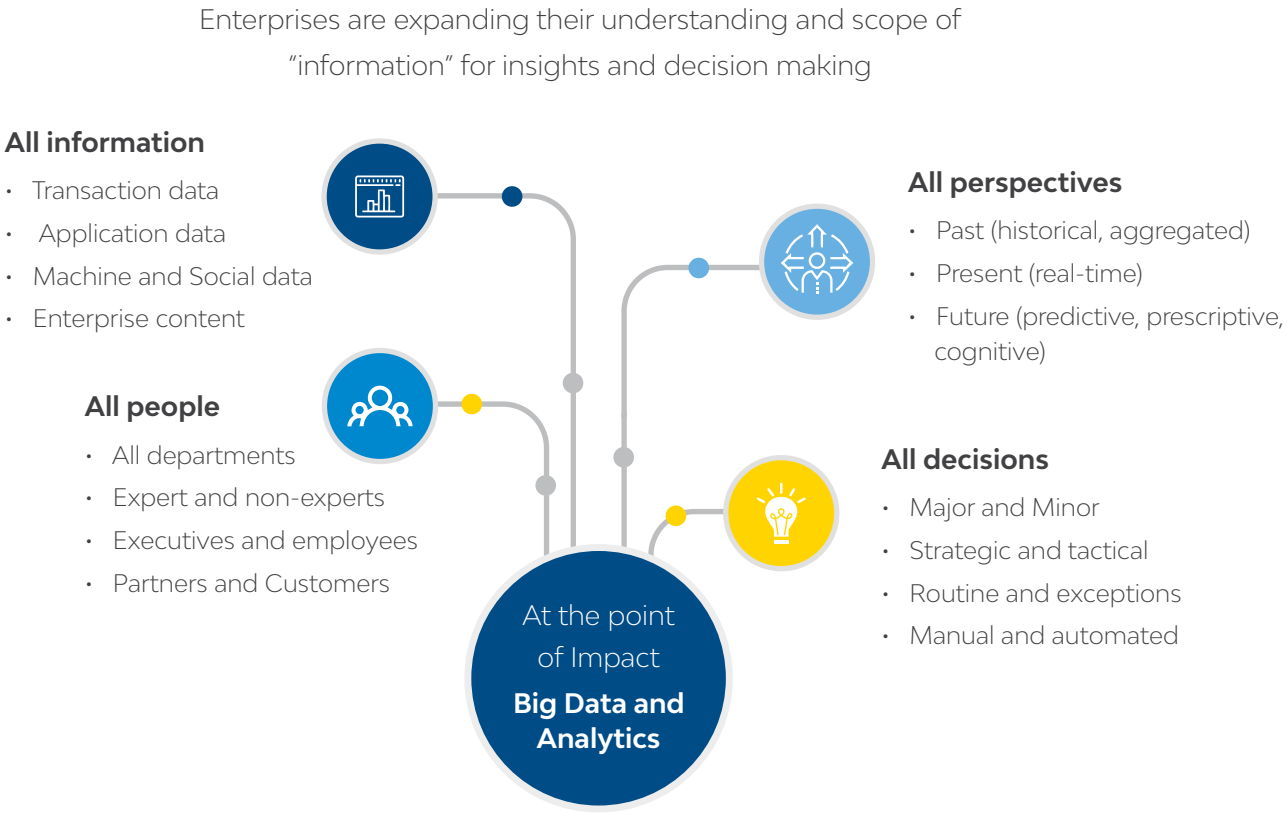


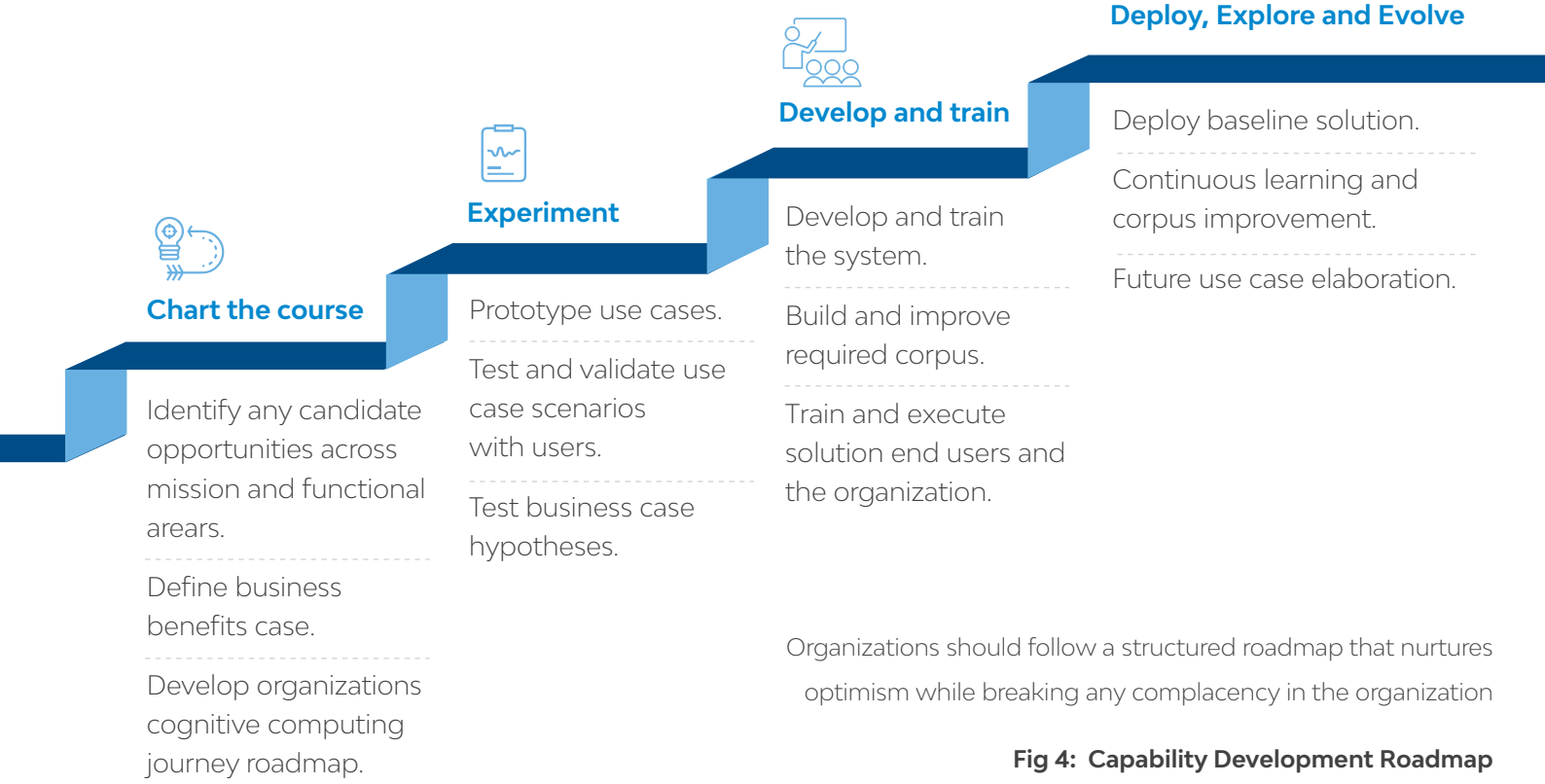
Fig 3: Enterprises are expanding their scope for Big Data Analytics

The Journey

Malcolm Gladwell famously stated that it takes 10,000 hours to become an expert in any skill. If organizations embark on a rationalized and structured approach to becoming a Cognitive Business as shown below, they can benefit from Scaled Intelligence and expertise at any and all levels in the organization, truly realizing the potential from Cognitive Computing. A Cognitive Insurance Business will be an enterprise wherein the gap between staff and systems is narrowed, expertise, agility,and insight is brought all aspects of business operations and functioning.

The combination of Strategic, Technical, and Functional capabilities, along with a Capability Development Roadmap as shown below will enable an Insurance enterprise develop systematically towards becoming a Cognitive Business.

The capability and maturity journey of Cognitive Insurance Business, from being Foundationally Intelligent to Incrementally Intelligent, and then reaching the state of Institutionally Intelligent, is summarized in the table below.



Organizations should follow a structured roadmap that nurtures optimism while breaking any complacency in the organization

Fig 4: Capability Development Roadmap

Maturity Level	Characteristics	Imperatives	Recommendations
Foundationally Intelligent	Insurers at this stage, heavily rely on traditional processes and legacy systems. Most have a limited online and social media presence.	• Attain rapid growth through channel and touch point expansion. • Employing operational intelligence to optimize resource, overhead, and improve customer service. • Modernizing technology to solve legacy problems such as scalability, service turnaround times, etc. • Have 360 degree view of customer.	• Start with chatbots with smart configuration rather than NLP-based. • Use rules-enabled, easily configurable decision, and process engines, thereby saving resources leading to more efficient marketing, lead management, and sales efforts.

Maturity Level	Characteristics	Imperatives	Recommendations
Incrementally Intelligent	Insurers at this stage have embarked on the digital journey and improved engagement with distribution partners, customers and internal stakeholders.	• Have knowledge of customer's needs and behaviors. • Multiple channels and touch points of sales and service; customer experience is not optimized.	• Improvise on business processes by building a strong Cognitive/AI platform foundation. • Implement virtual sales assistants that manage foundational functionality (emails, meetings, lead search, etc.). • Robo-Advisors with Automated algorithms for needs analysis that can be deployed across all customer facing channels.
Institutionally Intelligent	Insurers at this stage are at the forefront of the insurance industry, employing technology to effectively solve business problems.	• Customer experience is improved at every touch point and channel. • Automated discovery of possible routes of up-sell and cross-sell through better customer data analytics. • Optimized operations through decision intelligence across manually-intensive processes such as claims management, underwriting, and actuarial knowledge bases.	• Disrupt business models, processes and products and confidently implement complex Cognitive/AI solutions. • Think Big, Start incrementally, Fail Fast, and scale rapidly through agile processes and Design Thinking. • Dynamic underwriting model, based on Machine Learning to provide content and context for decision intelligence. • Claims management transformation through intelligent prediction and adjudication. • Contact Center modernization through conversational applications and intelligent agents.

About the Author

Harsha Kumar Srivatsa

Principal Architect, AI & Cognitive

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.

LTIMindtree is a global technology consulting and digital solutions company that enables enterprises across industries to reimagine business models, accelerate innovation, and maximize growth by harnessing digital technologies. As a digital transformation partner to more than 700 clients, LTIMindtree brings extensive domain and technology expertise to help drive superior competitive differentiation, customer experiences, and business outcomes in a converging world. Powered by 84,000+ talented and entrepreneurial professionals across more than 30 countries, LTIMindtree — a Larsen & Toubro Group company — combines the industry-acclaimed strengths of erstwhile Larsen and Toubro Infotech and Mindtree in solving the most complex business challenges and delivering transformation at scale. For more information, please visit **https://www.ltimindtree.com/**

LTIMindtree Limited is a subsidiary of Larsen & Toubro Limited