



Applying Cognitive Computing for Meaningful Customer Experiences

Introduction

We stand on the cusp of a new era in cognitive computing. It is aided with systems that possess human like qualities - having ability to sense, learn, infer and interact. Interestingly, retail industry is not new to this space. In the past few years, we have witnessed some retailers already taking the lead in applying natural language processing, semantic analysis, machine learning and robotics.

International Data Corporation (IDC) has identified cognitive computing

as "one of six Innovation accelerators that will drive digital transformation by opening new revenue streams, creating information-based organizations, and changing the way work is performed."¹

So, the questions posing the retailers are - Is the industry ready for pushing bigger in applying cognitive intelligence? Are there any specific areas that yield significant value?

“ Cognitive computing systems are based on dialogue oriented natural language interfaces and machine learning algorithms; have knowledge enabled processes and mimic human like decision making abilities to enable man and machine to interact more naturally, thereby extending human expertise and efficiency by intelligently analyzing volumes of data and coming up with insights and solutions in a fraction of the time it now takes. ”

The growing complexity in providing customer experience

Retailers have long known the importance of providing personalized customer experience as source of competitive advantage. Historically, retailers have provided unique personal experience for their goods and services - remember walking into the neighborhood grocer/ butcher. He would know your preferences for meat and would always have the right meat cut and made available for you. As retailers grew in scale and complexity, efficiency in operations

and cost containment took prominence. The explosion of data that accompanied growth posed challenges to extend the personal touch. That's when retailers started embracing analytics for getting customer insights. It segmented customers based on historical purchases and demographics. The inference helped in rolling out targeted offers to a broad segment of shoppers. The next wave of online commerce brought its set of

Venturing into new frontiers

challenges. It paved the way for an omni channel world that facilitated scenarios like browsing from home, adding to the cart using the mobile and picking up the product from the store. True personalization got even

Digital prowess is redefining the rules of engagement. Technology advancements prevalent in the neo-digital era is opening new avenues for data capture. Proliferation of intelligent things, increased computing through cloud, e-commerce, m-commerce, big data analytics enable retailers gain insights and achieve incremental value. Leading retailers have already put in place successful programs for getting a single view of consumers across channels to provide personalized shopping experiences, irrespective of the touchpoints. Venturing in cognitive technologies is a logical progression to increase the value further.

“The main driver for global cognitive computing market is increasing trend of large and complex data-set. This complex data is available in various forms such as images, video, and natural language. These data-set cannot be processed with help of existing big data analytics systems, hence business organizations are turning their heads towards the cognitive computing.”²

more complicated. It no longer resided in the brick and mortar spectrum, but required retailers to provide the same experience across multiple touchpoints.

“**According to IDC, global spending on cognitive systems will reach nearly \$31.3 billion in 2019¹**”

The coming years will witness high performance retailers continue their investment in cognitive technologies to crunch volumes of consumer data, product data, supply chain data, shopping preferences, promotions data, customer loyalty data, associate data etc.; discerning for patterns and gaining intelligence. The results are building of intelligent systems that learns from changing shopping preferences and events in real time.

The developments will have a direct bearing in achieving extreme personalization for customer experience in brick & mortar and online shopping. But that’s just one aspect. The interesting part is the relevance of cognitive intelligence in other areas, which includes:

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- Collaborative worker experiences in stores & DCs
 - Innovative marketing & promotion
 - Smart merchandising
 - Intelligent context aware supply chains
 - Automation in the value chain wherever human perception is involved

Organizations need to carefully assess their processes, offerings, customer & market dynamics before investing in cognitive technologies. It needs to be supported by an able business case. In general, a framework is proposed to identify areas for deployment of these technologies.

Hyper relevant shopping journeys:

Provide consumers or associates with what they want, when they want, and how they want to derive meaningful experiences

Insights driving Hyper efficiency:

Opportunities to reduce cost, minimizing wastage & loss

Hyper automation:

Automating areas that reduce cycle time, effort and improve quality



Areas of Deployment	Type of cognitive technology	Sample use cases
Hyper relevant shopping journeys	Using techniques like machine learning, natural language processing (NLP), speech recognition to enhance better experience and productivity	<ul style="list-style-type: none"> ▪ Product recommendations in online shopping ▪ Personalized promotions ▪ Associates interacting with chatbots for checking product availability
Insights driving hyper efficiency	Cognitive techniques e.g.; computer vision and/or machine learning used in areas of scarce knowledge to get insights resulting in tremendous business value	<ul style="list-style-type: none"> ▪ Labor utilization and optimization ▪ Optimal inventory determination to prevent stock outs ▪ “Share of shelf” insights for competing products ▪ Cognitive intelligence for energy efficiency
Hyper automation	Automation performed on low or moderate skill level jobs or involving simple entry-level process driven tasks executed with full or partial human intervention	<ul style="list-style-type: none"> ▪ First line customer service for checking warranty information, loyalty points verification, scheduling service personnel time for installation or repairs ▪ Forms processing
	Rule based automation - robots performing a set of predefined rules	<ul style="list-style-type: none"> ▪ Dynamic pricing strategy in the store based on online offtake ▪ Optimal product placement in shelf location powered by cognitive intelligence
	Mechanized robots fitted with high performance sensors and actuators working in isolation or with part or full interaction with humans	<ul style="list-style-type: none"> ▪ Robots used for material picking and transportation in distribution center operations
	Integrating cognitive capabilities with the Robotic Process Automation (RPA) bots	<ul style="list-style-type: none"> ▪ Improve order management, quality management and aftermarket services ▪ Fraud detection ▪ Cyber threat detection

Suggested way forward

Cognitive technologies are not to be approached as one-off investments resulting in “glorified science projects.” Nor are they to be viewed as the panacea to all problems. The dearth of industry definition and standards may hinder the adoption of cognitive technologies. Let us also remember that at the heart & mind of cognitive computing is self-learning, which means intelligence is built over a period. Furthermore, there is a concern that cognitive technologies may eventually replace human jobs. The technology should be viewed to enhance “value creation” and not as a harbinger of job losses. The existing workforce can be reskilled to contribute to other value added work.

Broad based adoption of cognitive technologies will likely pick up in the next 2~3 years. It's rate of adoption will also be influenced by technology growth and important clarity on that

most relevant question - how soon can monetization be achieved? The benefits need to be looked at holistically, as the contributions are both direct & indirect. Imagine the use of cognitive intelligence in providing fresh merchandise on the shelf. Freshness brings more footfall to the store and results in improved sales. In cutting wastage & losses; it also frees up time for the store associate who can now focus on assisting the customer; which results in improving personalized customer experience. These unaccounted benefits can sometimes be as high as 3X-4X.

Retail industry has in its repertoire compelling use cases to redefine customer experience. Can the retailer use cognitive intelligence to mimic - for example, what the neighborhood butcher knew - personalized preferences for meat and always have the right meat cut and made available for you. State of utopia. Well looks plausible!!

References

1. IDC, Worldwide Semiannual Cognitive/Artificial Intelligence Systems Spending Guide, Mar 2016
2. MarketsandMarkets, “Cognitive Computing Market by Technology (Natural Language Processing, Machine Learning, Automated

Reasoning), by Deployment Model (On-Premises, Cloud) & by Regions - Global Forecast to 2019”, <http://www.marketsandmarkets.com/Market-Reports/cognitive-computing-market-1>, last accessed Jan 5, 2016.

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