CHANGING THE BUSINESS LANDSCAPE WITH COGNITIVE SERVICES

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Abstract

We no longer live in a world where automation is rare and predictive technology is new. In today's digital world, customers and businesses expect technology to be capable of a lot more than what was expected few years ago. It goes without saying that change is constant in this scenery of technology and automation. One very important topic in this landscape of predictive technology and artificial intelligence is Cognitive Services. Cognitive services are a simulation of human thought process in a computerized model which involves AI, machine learning, NLP and pattern recognition among several other technologies. This is something that has become synonymous with many of our daily activities, even if we might not know it. This paper discusses Cognitive Services, how they are taking shape in businesses and their various components. It also presents a point of view on how Cognitive Services apply across multiple industries and how these can be used to enable the right solutions are being leveraged in transformative endeavors.

Introduction

By definition Cognitive systems are designed to solve problems the way humans solve problems, by thinking, reasoning and remembering. These services are machine learning APIs that perform human-like tasks in an intelligent way and gives applications a human side. Computers are faster in solving complex calculations, however they are not equipped to resonate and understand like humans. An Artificial Intelligence system prescribes a course of action to a person based on analysis, however with the use of Cognitive Service it provides the information to the person and lets him/her decide.

Cognitive services essentially leverage machine learning APIs and provide the ability to add intelligent features across a spectrum of emotion detection, facial recognition, speech and vision recognition, language understanding, video detection, translations etc., into the applications that are being used. The reach of these features is wide and varied and can be applied with any back end systems supporting this.

These services offer the best collection of their technology using which businesses can have an automated as well as an interactive model of an application. With the help of this technology, applications can be infused with power and intelligence to automate a lot of important tasks, thereby enabling productivity and efficiency.

How Cognitive Services Transforms Enterprises?

Cognitive Technologies have made ground breaking progress and started to have big implications on the Business World. Although a number of Enterprises are yet to adopt Cognitive Services, it has become important for the Enterprises to embrace Cognitive Services as it is changing the dynamics of business. It is helping Enterprises to create value with its features, some of which we have outlined below –

To enable natural and contextual interaction with tools/applications

Facilitate User Engagement using the power of machine-based intelligence

To empower applications with Artificial Intelligence

To give Applications a Human Touch

Cognitive Services enables natural and contextual interaction with tools/applications which helps in replicating human like conversations. Business now demands for enhanced User Experience and User Engagement. Cognitive Services uses the power of m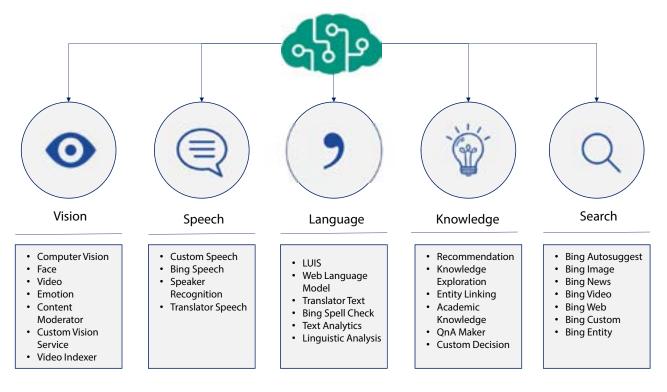achine-based intelligence to drive enhanced User Experience and User Engagement. AI has evolved through various forms, had its share of criticism and appreciation. With AI, applications revolutionized and transformed the business decisions, outcomes thereby giving Enterprises the Cognitive Advantage. Technology of course, has transformed by leaps and bounds to automate a lot of traditional tasks performed by humans, and computers unlike humans do not exercise human thinking. Cognitive Services give applications a Human Touch and helps to bridge the empathy gap by introducing a human element.

Cognitive Services Components

Understanding the key components of cognitive services, helps to have a clearer correlation in terms of its applicability to businesses.

Here, we take the example of Microsoft Cognitive Services to provide a view on the key components.

Vision	Speech	Language	Knowledge	Search
• Computer Vision • Face • Video • Emotion • Content Moderator • Custom Vision Service • Video Indexer	• Custom Speech • Bing Speech • Speaker Recognition • Translator Speech	• LUIS • Web Language Model • Translator Text • Bing Spell Check • Text Analytics • Linguistic Analysis	• Recommendation • Knowledge Exploration • Entity Linking • Academic Knowledge • QnA Maker • Custom Decision	• Bing Autosuggest • Bing Image • Bing News • Bing Video • Bing Web • Bing Custom • Bing Entity

Vision - Vision enables applications to understand images and videos, and provides smart insights about faces, images and emotions.

Speech – Hear, understand and synthesize spoken words in applications by filtering noise, identifying speakers and comprehending intents.

Language – Language facilitates applications process natural language, evaluate sentiment and topics, and learn how to understand user's intent.

Knowledge – Adding contexts to text, connecting greater concepts and mobilize those concepts to produce actionable and smart insights.

Search – Access Webpages, images, videos and news with the Power of Bing Search thereby enabling smarter and engaging experience.

Understanding Cognitive Services with examples

While we know about Cognitive Services and surely have a high level view on how it can be used, applicability across different businesses will help to get a true sense of its benefits. In this section, we get into an illustrative analysis of how cognitive services can be applied across multiple industries. The business cases are certainly varied and with endless possibilities. Here we start with a sneak peek into these possibilities.

Vision	Speech	Language	Knowledge	Search
Food and Hospitality	**Home Security**	**Telecom**	**Insurance**	**Investment Banking**
Identify the mix of customers with respect to age for providing recommendations & offers	User verification and authentication using Speech recognition	Support Bots automation, understanding Natural Language and translating text	Suggesting Next Best Action or Offers based on purchase history of policy buyers	Access to specific Financial News and announcements for Investment Bankers

Vision – With Vision Cognitive Services, Restaurants identify the mix of customers at their restaurants and based on the age bracket (Student, Senior Citizens etc.) provides food recommendations and offers.

Speech – Speech Cognitive Services enables Home Security System users to leverage user voice verification and authentication and manage their entry into their Homes.

Language – Using Cognitive Services, automating the process of raising incidents for Telecom Service Providers with the help of support bots by understanding natural language and translating text across mobile, desktop and web applications.

Knowledge – With the use of Knowledge Cognitive Services, suggest Next Best Offer or Next Best Action(NBA) to Insurance Policy customer by understanding the purchase history of the customer.

Search – With the use of Search Cognitive Services using content specific search in form of Bing News, Investment Bankers has access to latest Financial News and Announcements for going about their work.

Value Proposition of Cognitive Services

There is no element of doubt, going forward in future that Cognitive Services will play a pivotal role in transforming businesses and will become the core of every enterprise's business strategy. A snapshot of what value it brings to the enterprises has been explained below -
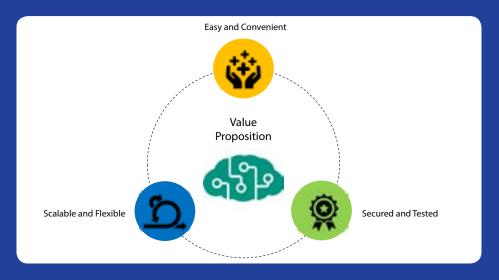
Easy and Convenient – Cognitive Services are simple to extend and consume with predefined frameworks available to facilitate easy implementation and deployment.

Scalable and Flexible – It has a long array of offerings, flexible enough to accommodate our choice of language and platform, and is easily scalable.

Secured and Tested – Built and tested by the experts, it comes with rich documentations and community support, and is secured too.

Easy and Convenient

Value Proposition

Scalable and Flexible

Secured and Tested

Challenges and Risks

Although Cognitive Services have provided a disruptive platform for creating values for Enterprises, it comes with its share of challenges and risks.

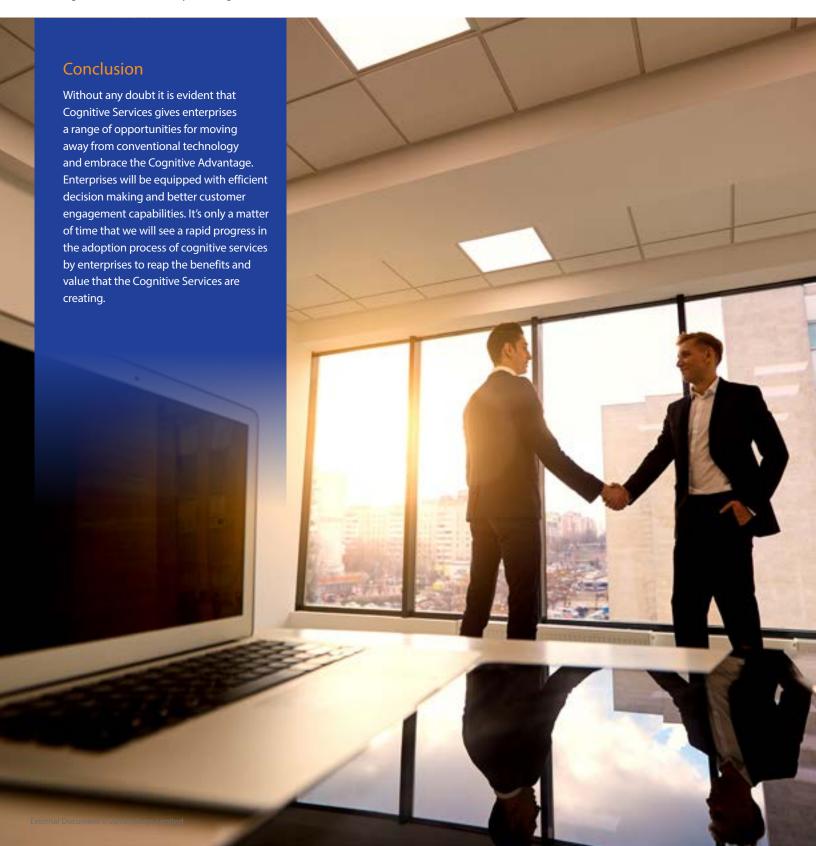**Implementation Cost and Time** – Cognitive Services are still in a nascent stage and are continuously evolving.

The level and kind of applications makes it different from standard technology implementation and hence it is a challenge for Enterprises to estimate implementation costs and time.

Talent Pool – Cognitive Services require people to develop competencies and keep pace with the rapid and dynamic shift in technology.

Reorganization and Transition – Enterprises will have to manage staffing. With the Automation of jobs and activities, there will be elimination of routine tasks, activities and jobs, and employees affected will have to be employed at other activities. Enterprises will have to organize transitions and trainings to empower the employees to interact and work with the applications.

Conclusion

Without any doubt it is evident that Cognitive Services gives enterprises a range of opportunities for moving away from conventional technology and embrace the Cognitive Advantage. Enterprises will be equipped with efficient decision making and better customer engagement capabilities. It's only a matter of time that we will see a rapid progress in the adoption process of cognitive services by enterprises to reap the benefits and value that the Cognitive Services are creating.

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